SOME RECENT THEORIES OF EXISTENCE AND THE LOGISTIC APPROACH TO ONTOLOGY

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SOME RECENT THEORIES OF EXISTENCE AND THE LOGISTIC APPROACH TO ONTOLOGY

SOME RECENT THEORIES OF EXISTENCE AND THE LOGISTIC APPROACH TO ONTOLOGY

By

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PREFACE

This paper reports, in some cases with critical remarks, on a few relatively recent ideas and theories concerning ontology. The first chapter is devoted to a brief examination of the ontological aspects of Bertrand Russell's theory of descriptions and other singular terms. In chapter two a comparison is drawn between Russell's and W. V. Quine's theories of singular terms which is then followed by an exposition and examination of Quine's theory of the "ontological commitments" implicit in constructional systems. In the final chapter a few problems are discussed connected with the type of nominalism which has been proposed in recent years by Nelson Goodman.

To bring together these three authors is not an accident. They all have contributed to the clarification of the problem of existence by using methods similar in spirit. Due to this similarity in method one can clearly observe an important difference as to the basis of their investigations. In Russell's case the basis for ontology is largely epistemology. For Quine and Goodman, on the other hand, epistemology is ontologically irrelevant. This abandonment of epistemological

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considerations by these two authors results in what may be called the logistic approach to ontology.

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"The explanatory purpose of philosophy is often misunderstood. Its business is to explain the emergence of the more abstract things from the more concrete. It is a complete mistake to ask how concrete particular fact can be built out of universals. . . In other words, philosophy is explanatory of abstraction and not of concreteness."--A. N. Whitehead

INTRODUCTION

1. Ontology and Abstraction

The language of science, and perhaps, to a certain extent, also our ordinary language, interpret concrete experience toward generality and abstractness. Language usually abstracts, generalizes, systematizes. But language itself can become the object of analysis and interpretation. In such a case the process is oftentimes the reverse. In using language to interpret systematically concrete experience we advance toward the more abstract, but in interpreting language itself we search for the more concrete. To interpret language systems in the direction of concreteness is to try to discover their basis, i.e., the most concrete and ultimately given elements of experience. The scientist, and, in some sense, the man in the street, are preoccupied with abstractive systematization of concrete experience. The interpretation of language itself is left for the philosopher. The scientist and the common man use language to talk about experience,

the philosopher, in many cases, talks about language itself.

Each science develops an abstractive scheme to explain concrete facts. These concrete facts constitute the subject matter of a given science and they are, for the scientist, simply given, i.e., the character of their givenness and their status in the total framework of experience are hardly ever recognized by the scientist as problems. Philosophy, on the other hand, makes it its business to inquire into the character and scope of this givenness of concrete facts which the scientist presupposes but neglects. Questions like "What does it mean to be given?" and "What is ultimately given in experience?" are philosophical questions par excellence. In the course of such investigations it might very well turn out that what is presupposed as given by the scientist or by common sense, can not be said to be given philosophically. Beside systematizing experience, the philosopher's job involves, therefore, interpretation and critique of systematization itself.

By the ultimately given in experience I do not mean the immediately given or the datum. The ultimately given makes no claim to epistemological priority. The ultimately given in experience is the actual and might perhaps be better described as that which is relevant for experience. In that sense it is simply everything that there is. The search for the ultimately given elements of experience as the basis for abstraction and for scientific system building is

therefore not epistemological but ontological.

2. The Three Phases of Ontology

In this endeavor to criticize abstraction by finding its basis as the ultimately given, we can distinguish between three phases. Some philosophers confine their reasoning to devising methods of exact discovery of the scope of the subject matter of given abstractive schemes.[1] It is by no means obvious what exactly a given system assumes as given or as existing. The ordinary notion of "naming", for example, will prove inadequate as a criterion for judging what a given system or language pattern presupposes as existing. "Cerberus" is a name but it names nothing, i.e., it names a nonexisting entity. Similarly "meaning" will not constitute such a criterion, as we can easily have two meanings but only one corresponding entity, as, for example, in the case of "Morningstar" and "Eveningstar". Again, it is not at all clear what is presupposed as existing by even so simple a statement as "Tiger is bigger than cat." Is it only individual tigers and cats or also the abstract things "tigerhood" and "cathood"? Is it only tigers and cats or all animals? Is it only the animals but no other physical objects? Is it also the relation "bigger than"? Is it all dyadic relations? Is it relations in general? To investigate what and how linguistic forms do,

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[1] In recent years Quine, more than others, has been engaged in ontological investigations of this type.

in fact, operate as unambiguous indications of existing entities is therefore not a trivial matter.

Such investigations attempt, then, to establish rules in terms of which we can determine what exactly a given system or language pattern does presuppose by way of entities. We have to notice that such ontological enquiries are about existing abstractive schemes and not themselves systematic treatments of the ontological problem. When we enquire into the ontological presuppositions or commitments of a system we only ask what exists in terms of that system, we do not ask what exists in general. To discover the exact ontological assumptions of a given system, in other words, leaves us in complete darkness as to how to evaluate the results of our discoveries.

The next phase is the direct treatment of the ontological problem within a "constructional system".[1] Such systematic treatments can utilize the rules and devices developed in the first phase as the criteria through which the range of the universe of the system in question is discovered. If a "constructional system" is general enough it will operate as a schema for other systems with more limited subject matter. Once the ontology of the wider system is accepted, the ontological problem is thereby also solved for such more limited

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[1] Carnap's Der Logische Aufbau der Welt, Berlin, 1928 and Goodman's The Structure of Appearance, Cambridge: Harvard University Press, 1951 can be listed as examples of such constructional systems.

systems as the wider system accommodates as a schema. The advantage of this more direct treatment of the ontological problem within a "constructional system" is that the acceptability of the range of the universe of such a system is not left to be judged solely by appeal to instinct and common sense but is judged in terms of the coherence and adequacy of the system itself.

The third phase is the treatment of the ontological problem in terms of systems which claim to be not merely coherent and adequate but also necessary. This claim to necessity gives to such systems their (in the traditional sense) metaphysical character. A "constructional system" is usually looked upon as only one among several equally possible systems. A metaphysical system of the more traditional kind claims to be the only true explication of the structure of the universe. Furthermore, the range of the subject matter of a "constructional system", although being very wide, still has its recognized limits: a "constructional system" purports to explicate only a segment, however large, of the total universe. A "metaphysical system", on the other hand, claims to cover the universe in its totality. Accordingly the ontological doctrine contained in such systems is held to be compelling not only to a variety but to all possible more limited systems and theories. The range of all possible systems is determined by the universal character and scope of experience

itself, The ontological question becomes, therefore, for the proponent of a necessary metaphysical system, the question of what does experience as such disclose as the ultimately given or the actual. A "metaphysical system", in other words, purports to exhaust the scope of ultimate reality.

3. Ontology and Universals

That which is ultimately given in experience, we said, is that which is. Traditionally, that which is has been conceived to be most generally either concrete particulars or abstract universals, and the ontological disputes have centered largely around the question whether only concrete particulars can be said to be or exist, or whether the abstract universals should also be included in the category of existence or being. I shall argue that the problem of universals, as traditionally conceived, really involves two problems which should be kept separate from each other. The first of these problems I shall conceive as the problem of universal or repeatable and of particular or unrepeatable elements of experience. The second problem I shall conceive as the problem of individual and nonindividual (e.g., classial) entities. Traditionally one has treated the distinctions of particular from universal and of individual from nonindividual by and large as parallel distinctions so that "particular" and "individual", as also "universal" and "nonindividual",

have become almost pairs of synonyms. Following Goodman, I shall argue that these distinctions do not run parallel but cut across each other. These questions shall be discussed mainly in the third chapter of the present paper. In the previous two chapters I shall be concerned with the ontological aspects of Russell's and Quine's theories about singular terms. It is hoped that from this discussion clarifications of the notion of existence will gradually emerge which can then with some gain be applied to the problem of the existence of universals.

CHAPTER ONE

RUSSELL'S THEORY OF EXISTENCE

1. Meaning and Entities

We can formulate meaningful sentences about things which we say do not exist. We can thus say "Unicorns are white," or "The round square is a triangle" and know what we mean. It may be asked: How is it possible to understand these statements if their grammatical subjects do not exist? To many philosophers the difficulty has appeared so grave that they have felt compelled to argue that therefore the unicorns and the round square must be allowed to exist in some sense. "Unicorns" or "round square", they have held, do not denote in the ordinary sense but in a special "logical" sense. Thus the unicorns and the round square, although not having actual existence have been said to have a "logical" existence of some sort. However, by following this line of reasoning there will be no limit for multiplying existence in our universe. According to an argument in Plato's Sophist even not-being itself would have to be accommodated in our universe. The Eleatic Stranger argues that to deny the existence of not-being is a self-contradiction because that which plainly is not is unutterable, unspeakable, unthinkable. Not-being cannot be said or thought not to be, otherwise, what is it that we say or think that there is not?

To take mere meaningfulness of words in sentences to be the sign of the existence of corresponding entities would therefore not do. If meaning would grant existence entities could be multiplied at will, as every figment of our imagination would then have to be included in our universe.

Another way of dealing with the difficulty of interpreting sentences like "Unicorns are white," or "The round square is a triangle" has been to admit meanings as entities. In our examples the predicates "is white" and "is a triangle" could be thought of as being sustained by the meanings "unicorn" and "round square" respectively. In this view, meanings would become metaphysical entities of some sort and constitute a separate category or realm of being. The sentences "Unicorns are white" and "The round square is a triangle" would be conceived not any more as being about any "logically" existing objects but as being about the metaphysical entities--meanings.

Aside from the vagueness of "meanings" as a category or realm of entities there are, in general, two objections to this view. First, meanings are extremely multifarious. Once admitted, they would make us end up with the same unpleasantly numerous and complex universe as when unicorns and round squares were admitted as "logically" existing objects. From the standpoint of economy and simplicity it makes little or no difference whether we say that for

each meaning there is a corresponding entity or we conceive of meanings themselves as entities. Secondly, to view sentences as being about meanings, rather than about things, persons, or events, seems far fetched. Sentences like "Horses are white" or "The square is a triangle" are, it would seem, about horses and the square and not about the meanings "horse" or "square". However, there is nothing in the form of these sentences that would distinguish them from our examples about unicorns and the round square. If, on the other hand, we say, e.g., that "Horses are white" is about horses but "Unicorns are white" is merely about a meaning because horses exist as physical objects but unicorns do not, our argument would commit an ignoratio elenchi. "Horses are white" purports to be about physical objects because the word "horse" has spacio-temporal connotations and not because there are horses. Clearly "unicorn" has similar connotations. The fact that there are physical objects which are horses but there are none which are unicorns is irrelevant as to the question of what "Horses are white" and "Unicorns are white" purport to be about.

To say that "Unicorns are white" or "The round square is a triangle" are about meanings and not about any objects, would thus have the curious consequence that we would have to claim the same for all sentences.

2. Names and Descriptions

Russell's theory of descriptions arose as a criticism

of ontological arguments such as I have characterized above as resulting from certain apparently puzzling features of our ordinary language. Broadly speaking, the two claims of Russell's criticism are (1) that descriptions of the form "the so-and-so" are radically different from names and (2) that the meanings of certain phrases occurring in propositions do not enter those propositions as their constituents.

Russell makes the first claim by arguing that descriptive phrases of the form "the so-and-so" are not names because they do not, as names do, directly refer to objects. Furthermore, descriptions, for Russell, never designate objects, whereas names always do. Even if a description describes the same entity as a name names, Russell claims that the description does not designate that entity.

Russell makes his second claim by treating phrases of the form "the so-and-so" as incomplete symbols, i.e., as symbols void of meaning in isolation. The meanings of such phrases, Russell claims, can be analysed and defined only within and together with more complex expressions in which they occur. The meanings of such phrases, Russell argues, are therefore not constituents or parts of propositions in which they occur.

I shall first examine Russell's distinction between names and descriptions, the discussion of descriptions as "incomplete symbols" will be taken up in a later section. A name, for Russell, "is a simple symbol directly

designating an individual which is its meaning."[1] The meaning of a name is given by pointing to its designatum. If the designatum is a thing, person, etc., the name is only a "relative" name, if it is a particular sense datum or a certain universal, it is an "absolute name". The meaning of a name is given as an item in direct experience, and no meaning adheres to the symbol prior to the direct cognition of its designatum. Descriptions, on the other hand, describe matters of fact because they possess fixed meanings prior to and independent of the matters of fact which they describe.

Let us take the following example:

(1) Homer is the author of the Iliad,

and let us assume that "Homer" functions in that sentence as a "logical name," i.e., that it designates an actual entity, the man who lived so and so many years ago. We have to notice then that the name "Homer" applies only because we, so to speak, make it apply, i.e., its application is fully dependent on voluntary acts and persistency of habit among human beings. In other words, its application is quite arbitrary and conventional. Furthermore, the whole meaning of the word "Homer" derives from the acceptance of this convention as establishing "Homer" as a demonstrative symbol pointing to the actual individual. The mean-

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[1]Bertrand Russell, Introduction to Mathematical Philosophy. London: George Allen & Unwin, Ltd., 1919, p. 174.

ing of the word "Homer" as a name is the individual Homer and the symbol "Homer" is meaningless when detached from its referent. The description "the author of the Iliad," on the other hand, applies to or is true of the actual man (whatever his name) because he, that man, actually sat down and composed the Iliad. The description "the author of the Iliad" describes a property which we, correctly or incorrectly, attribute to the actual man Homer in sentences like "Homer is the author of the Iliad," "Homer was blind," etc. Descriptions describe physical and other facts and are not, like names, merely conventional symbols.[1] "The author of the Iliad" describes and does not name a property; it describes that property by virtue of being a complex symbol with a meaning fixed previously to its application. Its fixed meaning derives from the composite meanings of its parts "author," "Iliad," etc. The meanings of these parts fix the meaning of the entire descriptive phrase by virtue of which the phrase is then capable of describing a fact.

The point that names are different from descriptions is also argued by Russell as follows:[2] Let us interpret the

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[1]It may be argued, of course, that also descriptions depend on conventions, although more indirectly than names. All words (symbols) are "conventional." This, however, seems irrelevant to the point in question.

[2]Bertrand Russell,"The Philosophy of Logical Atomism." Mind, 1918-1919, reprinted by the Department of Philosophy, University of Minnesota, pp.43-44.

proposition

(1) Homer is the author of the Iliad

as identifying the actual man Homer with a description. The fact "the author of the Iliad" is not a name can then be shown, Russell claims, by substituting in (1) e.g., the expression "Homerus" for the expression "the author of the Iliad:"

(2) Homer is Homerus

If we then interpret in (2) both "Homer" and "Homerus" as names, (2), Russell claims, will be tautologous and not any different from "Homer is Homer." (1), on the other hand, is an empirical statement and therefore (1) and (2) are not instances of the same propositional function at all. If, however, we interpret (2) as including two descriptions, (2) would mean that the person called Homer is also called Homerus, or

(3) $(\exists x)$(x is called Homer)$=(\exists x)$(x is called Homerus) which would be analogous to the proposition

(4) The blind poet of Greece is the author of the Iliad. Again, (3) and (4) are not tautologous but empirical.

After the initiation of the meaning of a name through cognitive acquaintance with its designatum has been conventionalized, names might often function as descriptions. By using the word "Homer," for example, we usually describe rather than name an object. By "Homer" we might mean "the author of the Iliad," "the blind poet of Greece," or the

like. In this manner words like "Homer," "Caesar," "Bill" function not as names but as abbreviated descriptions and identify entities by describing one or more of their properties. Usually we identify objects by describing their properties and not, in Russell's sense, by naming them. In naming, i.e., in fixing the meaning of a symbol through direct reference to some elements in our knowledge by acquaintance, the identity of that element is presupposed, it is the element in experience under consideration.

3. Names, Description, and Designation

Even if a description describes the same object as a name names, a description does not name and therefore does not designate that object. A name for Russell, as we said, "is a simple symbol directly designating an individual which is its meaning."[1] A description, on the other hand, never directly designates an entity. While names are the sort of thing which always have designata, descriptions are the sort of thing which never do. Descriptive symbols such as "the blind poet of Greece," "the author of Waverly," "the British foreign secretary" merely describe characteristics or properties and they do not designate the objects the properties of which they describe. However, in many cases descriptions do have designata in the sense simply

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[1]Bertrand Russell, Introduction to Mathematical Philosophy. London: George Allen & Unwin, Ltd., 1919, p. 107.

that the objects described exist. Thus the description "the blind poet of Greece" has Homer for its designatum in the sense that according to historians there probably was a man whose name was Homer and who fits our description. It seems, therefore, that "designates," for Russell, is not the semantical relation between a symbol and its referent. In Russell's writings the supposedly logical distinction between names and descriptions is tied up with its epistemological counterpart, i.e., with the distinction between knowledge by acquaintance and knowledge by description. Names, for Russell, are symbols which directly designate all and only those objects with which we are cognitively acquainted. Descriptions, on the other hand, are logical constructs which lack such direct reference to such objects. For Russell a symbol has a designatum if and only if it is a name, i.e., a demonstrative symbol pointing to an object with which we are cognitively acquainted, and a symbol does not have a designatum merely because it is taken to have a referent.

The epistemological distinction between knowledge by acquaintance and knowledge by description determines thus, for Russell, by way of analogy, the supposedly logical distinction between names and description. All and only those things with which we are cognitively acquainted can be named. Things known merely by description we cannot name. It seems, however, that epistemological considerations can

hardly serve as arguments for the tenability of logical distinctions. The question whether analogies between epistemological and logical distinctions are thoroughgoing is a question which neither epistemology nor logic is able to decide alone.

The epistemological distinction between knowledge by acquaintance and knowledge by description serves for Russell furthermore as an ontological criterion. For Russell, not only the logic of names but also ontology is tied up with epistemology. Those and only those entities exist which we know exist (1) through direct acquaintance or (2) through inference. Thus, for example, I might directly know that a patch of carmine in the center of my visual field exists simply because I directly perceive it. But I might use inference and also claim to know that there are tigers in India, although I have never been there and seen them. Acquaintance with objects gives us direct knowledge about their existence and therefore their existence is no problem. The existence of entities not known by direct acquaintance, i.e., known merely by description, on the other hand, constitutes a problem. We can know whether a so-and-so exists only through inference. All entities known by acquaintance must exist; whereas entities known only by description might or might not exist. But only objects known by acquaintance can be named. Consequently, only existing entities can be named, but both existing and nonexisting entities can be

described.

According to Russell, if sentences "Did Homer exist?" be meaningful, ordinary proper names like "Homer," "Caesar," "Bill" should not be treated logically as proper names at all but as truncated descriptions. Thus the sentence "Did Homer exist?" when written out more fully would become, for example: "Did the blind poet of Greece exist?" Similarly, "Homer exists" becomes "The blind poet of Greece exists," or the like. Russell argues that if "Homer" were a "logical name," the sentence "Homer exists" would be analytic and tautologous as the negation of "Homer exists," "Homer does not exist," would be self contradictory. To use "Homer" as a "logical name" is to presuppose the fact that Homer does exist and therefore "Homer does not exist," where "Homer" is a proper name, asserts both that Homer exists and does not exist.

We must notice, however, that "Homer exists" becomes analytic only if we accept Russell's interpretation of names. Furthermore, "Homer exists" becomes then analytic only in the sense that we cannot <u>say</u> that Homer does not exist, and not of course, in the sense that the fact of Homer's existence is a necessary fact. Clearly, Homer's existence is an empirical fact which might have happened (as it probably did) or might not have happened. "Homer exists" is analytic only if we choose to use words in a certain (<u>viz</u>., Russell's) way. In ordinary English, "Homer

exists" is clearly not analytic and disregarding other considerations which might speak for Russell's usage, at this point, i.e., choosing between the analytic or empirical ("synthetic") character of "Homer exists," it seems that ordinary English should be preferred. To be able to say both that Homer exists and that Homer does not exist is clearly an advantage as it enables us to talk more directly about the empirical fact of Homer's existence. In Russell's language, however, in order to talk about Homer's existence we must first translate "Homer"into a description.

4. Are Descriptions Constituents of Propositions?

The second claim of Russell's theory of descriptions, we said, is that descriptions are void of meaning in isolation and therefore not constituents of propositions in which they occur. Russell claims that the phrases of the form "the so-and-so" can not be analysed as they stand; we can analyse only sentences in which they occur. The true analysis of a phrase such as "the author of the Iliad" is therefore the analysis of sentences, "The author of the Iliad was blind," "The author of the Iliad was Greek," and the like. Russell claims that in the course of this analysis the description "the author of the Iliad" is broken up and disappears. Let us choose "The author of the Iliad was blind" as our example. The analysis proceeds then as follows: the proposition "The author of the Iliad was blind" is divided into three component assertions such that the proposition

"The author of the Iliad was blind" is logically equivalent to their conjunction.

(1) At least one person composed the Iliad,

(2) At most one person composed the Iliad,

(3) There never was a person who composed the Iliad but was not blind.[1]

From this analysis it appears, Russell claims, that the proposition "The author of the Iliad was blind" does not have "the author of the Iliad" for its logical subject. The proposition is not of the form "x was blind." It is not about the actual individual who composed the Iliad but rather about the property "blind." It says that the property belongs to only one object which at the same time has also a certain other property, viz., the property of having composed the Iliad. Consequently in the proposition "The author of the Iliad was blind" the description "the author of the Iliad" does not occur as a constituent of that proposition. According to Russell the only constituents of a proposition are those things with which we are directly acquainted.[2] Or, and this is only to put the same thing differently, the constituents of a proposition are only those things for which we have names.

For Russell the description "the author of the Iliad" is

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[1]Op. cit., p. 177, also G. E. Moore, "Russell's Theory of Descriptions," in Paul Arthur Schilpp, ed., The Philosophy of Bertrand Russell. Evanston, Ill.: The Library of Living Philosophers, Inc., 1946, p. 180.

[2]Bertrand Russell, "Knowledge by Acquaintance and by Description." Procedings of the Aristotelian Society, 1910-11, pp. 118-120.

only a constituent of the sentence "The author of the Iliad was blind" and not a part of the proposition which that sentence expresses. The description "the author of the Iliad" is a part of the sentence only as a concrete shape or sound and it does not designate the actual individual Homer as a part of the proposition which the sentence expresses. The proposition expressed by "Homer was blind," on the other hand (where "Homer" is a logical name) does have Homer for one of its constituents, but it is not the same proposition as the one expressed by "The author of the Iliad was blind." Descriptions, for Russell, occur in propositions only in the sense that they are parts of the verbal expressions of those propositions. Descriptions do not occur in propositions in the sense that they directly designate objects which are parts or constituents of those propositions. Only names directly designate or denote such objects.

Russell's theory of descriptions and names is thus based on the fundamental distinction between sentences and propositions. A sentence is a mere string of marks but the proposition is the denotation of the sentence. The whole question of propositions as entities is, however, confused. What sort of entities are propositions? In An Inquiry into Meaning and Truth[1] Russell claims that the meaningfulness of

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[1]Bertrand Russell, An Inquiry into Meaning and Truth. New York: W. W. Norton & Company, Inc., 1940.

sentences involves two things. A sentence "signifies" a "subjective state" and it "indicates" a fact. The fact that a given sentence "indicates" can be hardly the proposition, as in that case there would be no false propositions. The proposition as the "subjective state" or "belief" which a given sentence "signifies," on the other hand, has its own objections. The "subjective state" as an entity must be the state of a metaphysical "soul" or "mind" as no behavioristic conception of Russell's "subjective states" or "beliefs" would justify the existence of such entities. Furthermore, as Wittgenstein has argued, such "subjective states" would be merely another symbolism, perhaps only of a more intimate kind, and therefore on a par with sentences as mere verbal expressions.

Several other possibilities for interpreting propositions as entities remain: they can be conceived as Platonic ideas, as "possibilities" or, with Frege, as truth-values. It is outside the scope of this paper to discuss any of these interpretations. For our purposes we shall only remark that nowhere in Russell's writings does one find an unambiguous and direct treatment of the ontological aspect of propositions. Consequently, the parallelism between the two distinctions, names versus descriptions, and propositions versus sentences, appears to be a mere assumption.

5. Existence and Descriptions

According to Russell, then, descriptions occur in propositions only in the sense that they are constituents of sentences which express those propositions and there are no constituents in such propositions which directly correspond to the descriptions in them.

In the occurrence of descriptions in propositions Russell distinguishes between two cases. Descriptions have either "primary" or "secondary" occurrences. A description has a "secondary" occurrence when it occurs within a proposition which is only a part of some larger proposition. When this is not the case, the description has a "primary" occurrence. Thus, in the proposition:

(1) The unicorn by the lake is white,

the description "the unicorn by the lake" has a "primary" occurrence. In the proposition

(2) I believe the unicorn by the lake is white,

however, the description has only a "secondary" occurrence. Again, in

(3) The unicorn by the lake is not white,

the occurrence of the description is either "primary" or "secondary." Its occurrence in (3) is "primary" if we conceive (3) as an instance of the propositional function "x is not white;" its occurrence is "secondary" if we conceive (3) as an instance of "x is white" and

then negate the proposition.[1]

Russell contends that in the event of a "primary" occurrence of a descriptive phrase in a proposition, the existence of the entity described is presupposed and a part of that proposition. In respect to our example, "The unicorn by the lake exists," is thus a part of the proposition, "The unicorn by the lake is white," and that proposition is therefore false if no unicorns in fact exist. The fact that we agree that unicorns do not exist does not, however, make the proposition "The unicorn by the lake is not white" false, if the description in that proposition has a "secondary" occurrence; on the contrary, our proposition would then be true. These last considerations evoke the question of what is Russell's meaning when, in connection with descriptions, he uses the word "exist."

In respect to names, we saw that to say that an entity exists is, for Russell, to say that the entity in question is an item in our direct cognitive experience. But in what sense does an entity exist which we know only by description?

The problem of existence is, for Russell, bound together

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[1]Bertrand Russell, Introduction to Mathematical Philosophy. London: George Allen & Unwin, Ltd., 1919, pp. 179-180. Bertrand Russell, "The Philosophy of Logical Atomism." Mind, 1918-1919, reprinted by the Department of Philosophy, University of Minnesota, pp. 46-47. A. N. Whitehead and Bertrand Russell, Principia Mathematica. Vol. I, 2nd ed. Cambridge: The University Press, 1925, pp. 68-69.

with the notion of a propositional function. The most important thing to be said about propositional functions is that they are either "true in all cases," "true in some cases," or "false in all cases."[1] To say that a propositional function is always true or true in all cases is to say that it is "necessary."[2] To say that it is only sometimes true or true in some cases is to say that it is possible."[3] And finally, to say that a propositional function is never true, or that it is false in all cases, is to say that it is "impossible."[4] These properties of propositional functions, Russell explains further, involve the words, "everything," "something," "nothing," "all," and "some." Russell calls such words "denotative phrases" or "incomplete symbols."[5] They are "incomplete symbols" because they, exactly like phrases of the form "the so-and-so," have no "meaning in isolation." The meaning which they do have, Russell claims, depends on the context in

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[1]Bertrand Russell, Introduction to Mathematical Philosophy. London: George Allen & Unwin, Ltd., 1919, Chapter XV.

[2]Loc. cit.

[3]Loc. cit.

[4]Loc. cit.

[5]"Incomplete symbols" is a more inclusive category than "denotative phrases." Incomplete symbols include descriptions, classes, and relations whereas denotative phrases are only descriptions. We have been using the term "description" in the sense of "definite description." Descriptions can also be ambiguous descriptions. "Everything," "something," "nothing," "a man," "some man," "every man," "a royal person," "some twentieth century statesman," "all revolutionary movements," etc., are all ambiguous descriptions.

which they occur. Thus,

(1) ϕ(everything) or $(x)(\phi x)$ means "ϕx is true for all values of x,

(2) ϕ(nothing) or $(x)(\phi x)$ means "ϕx is false for all values of x,

(3) ϕ(something) or $(\exists x)(\phi x)$ means "ϕx is true for some values of x."[1]

Here (3) expresses the fundamental meaning of existence. To say that for ϕx something is the value of x, or that there is a value of x, or that ϕx is true for some values of x, or that ϕx is possible, is to express the fundamental meaning of existence. Existence, in other words, is for Russell essentially a property of propositional functions. To say that "Unicorns exist" or "Tables exist" is not to say anything about unicorns or tables but is rather to assign a certain property, namely "possibility," to the propositional function "x is a unicorn" or "x is a table."

In accordance with the above interpretation of existence Russell's contention that propositions containing a primary occurrence of a description have the existence of the described object for one of its parts can be proved as follows. The proposition "The author of the Iliad was blind" we analysed, according to Russell, into the conjoint assertion of

(1) At least one person composed the Iliad, or

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[1]Bertrand Russell, "On Denoting." Mind, 1905, reprinted in Herbert Feigl and Wilfrid Sellars, Readings in Philosophical Analysis. New York: Appleton-Century-Crofts, Inc., 1949, p. 104.

$(\exists x)(\phi x)$,

(2) At most one person composed the Iliad, or

$\phi x.\phi y.\supset_{x,y} x=y$,

(3) There never was a person who composed the Iliad but never was blind, or

$\sim(\exists x)(\phi x.\sim\psi x)$.

The proposition "The author of the Iliad exists," on the other hand, is equivalent to the conjoint assertion of

(4) At least one person composed the Iliad, or

$(\exists x)(\phi x)$, and

(5) At most one person composed the Iliad, or

$\phi x.\phi y.\supset_{x,y}.x=y$.

Here (1) and (2) are identical with (4) and (5) and therefore "The author of the Iliad exists" is a part of the proposition "The author of the Iliad was blind."

We have to notice that (4) and (5) together, and not (4) alone, make up the meaning of the existence of the description in question. If (4) alone were involved, the proposition "The author of the Iliad was blind" would be true also if there weretwo or more persons who composed the Iliad. This, however, our proposition does not allow. Phrases of the form, "the so-and-so" imply the uniqueness of the object in question and consequently the meaning of existence expressed by "$\exists$" in "$(\exists x)\phi x$" would, in respect to "definite" descriptions, not do. An adequate description of the meaning of the existence of a description must express what is asserted by both (4) and (5) above. This is accomplished

by the following definition:

(6) $E!(\imath x)(\phi x) .=: (\exists b) : \phi x . \equiv_x . x = b$,[1]

to say that a description exists is to say that there is exactly one object which satisfies a given condition.

A description has a "primary" occurrence in propositions of the form $\psi(\imath x)(\phi x)$. If $\phi x . \equiv_x . x = b$, then to say that $\psi(\imath x)(\phi x)$ is to say that ψb. Hence we have

(7) $\psi(\imath x)(\phi x) . \equiv : (\exists b) : \phi x . \equiv_x . x = b : \psi b$.[2]

From (7) by distribution of quantifiers we get

(8) $\psi(\imath x)(\phi x) . \supset : . (\exists b) : \phi x . \equiv_x . x = b : . (\exists b) . \psi b$.

Replacement in (8) according to (6) gives us

(9) $\psi(\imath x)(\phi x) . \supset : E!(\imath x)(\phi x) . (\exists b) . \psi b$

from which we can easily deduce

(10) $\psi(\imath x)(\phi x) . \supset : E!(\imath x)(\phi x)$[3]

Any proposition which contains a "primary" occurrence of a description implies the existence of the described entity and contains, thus, the existence of that entity as one of its parts.

6. The Formalistic Interpretation of Descriptions as Constituents of Propositions.

Russell's claim that descriptions are not parts of propositions is, as we saw, tied up with the notion of

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[1] A. N. Whitehead and Bertrand Russell, Principia Mathematica. Vol. I, 2nd ed. Cambridge: The University Press, 1925, *14.02.

[2] Ibid. *14.101.

[3] Ibid. *14.2.

propositions as metaphysical entities. If the notion of propositions as entities were abandoned it is possible to offer a different interpretation of description as "incomplete" symbols. In that case, to say that $(\iota x)(\phi x)$ in $\psi(\iota x)(\phi x)$ is an "incomplete" symbol, i.e., that it disappears in the analysis

(1) $\psi(\iota x)(\phi x) .=: (\exists b) : \phi x .\equiv_x . x=b : \psi b,$

is to say simply that the definition of $(\iota x)(\phi x)$ is contextual. The only thing we would be concerned with is the expression $(\iota x)(\phi x)$ and to say that its definition is contextual is to say that we do not ascribe meaning to $(\iota x)(\phi x)$ as it stands but only to more complex expressions such as $\psi(\iota x)(\phi x)$. The expression $(\iota x)(\phi x)$ is clearly a part of the <u>expression</u> $\psi(\iota x)(\phi x)$ and the fact that $(\iota x)(\phi x)$ has disappeared in the definiens of (1) would merely mean that we can write other expressions which are logically equivalent but need not contain all the parts of our initial expression. The same can be said about other expressions that Russell lists as "incomplete" symbols, i.e., classes and relations. Furthermore, there are obviously many more expressions than these three, descriptions, classes and relations, that have the characteristic of being defined contextually. For example, we do not define "if, then," and the logical "and" as they stand, but we define only more complex expressions in which they occur:

(2) $p \supset q .\equiv. \sim p \vee q$

(3) $p.q.\equiv.\sim(\sim p \vee \sim q)$.

If by saying that an expression has no meaning in isolation or is an "incomplete" symbol we simply mean that the expression is defined contextually, i.e., we define only certain uses of it, then there are many more expressions than Russell lists which are incomplete symbols and have no meaning in isolation. But to claim, in addition, that by calling a symbol an "incomplete" symbol we mean that the meaning of that symbol does not enter into propositions in which they occur or that the symbol is not a part of propositions in which it occurs, is, if we adopt the formalistic interpretation of propositions, simply false.

7. Summary of Criticisms

In Russell's logic the existence of entities cannot be talked about directly in terms of names. All questions about existence of entities has to proceed via descriptions. This, it seems, is an unnecessary complication. It is extra-linguistic considerations, as we saw, that motivated Russell to make the sharp distinction between names and descriptions. The distinction between names and descriptions was determined by the epistemological distinction between knowledge by acquaintance and knowledge by description. Linguistically it seems clear that no distinction need be made between names and description. In ordinary language the sentence "Did Homer exist?" is as meaningful as "Did the blind poet of Greece exist?" If one considers logic as

much as possible a neutral tool, free from epistemological and metaphysical biases, one should drop the distinction between names and descriptions.

It can be argued whether our approach to logic should be epistemological or whether we should take a more purely linguistic attitude, but Russell himself favors the linguistic approach. Russell has argued that the shortcomings of the Aristotelian logic were mainly due to the too close connection between metaphysical beliefs and linguistic expressions. The problem of substance could not be fruitfully discussed, Russell points out, simply because the notion of substance was, so to speak, a built-in feature of the language of Aristotelian logic. One might ask whether the same sort of criticism can not be made of Russell himself. We can claim that the problem of existence cannot be dealt within terms of Russell's logic because "existence" is a built-in feature of that language. Thus in the formula

$$(x).\phi x.\supset.\phi z$$

the existence of the object designated by z is presupposed although no record of this presupposition appears in this symbolism. The existence of z cannot be explicitly stated as we cannot, according to Russell, write:

$$(x):\phi x.E!z.\supset.\phi z.$$

Similarly in

$$\phi z.\supset.(\exists x)\phi x$$

the existence of z is presupposed but cannot be explicitly stated, i.e., we cannot write

$$\phi z.E!z.\supset.(\exists x)\phi x.$$

Existence, as substance for Aristotle, is therefore, so to speak, a built-in feature of Russell's logic. Furthermore, we pointed out, the epistemological distinction between knowledge by acquaintance and knowledge by description has also more directly an ontological significance. Things known by acquaintance are directly known to exist, whereas the existence of things known by description must be inferred. For Russell, in other words, ontology is largely determined by epistemology as from our ways of knowing he infers to the ontological structure of the world.

CHAPTER TWO

QUINE'S THEORY OF "ONTOLOGICAL COMMITMENTS"

1. "Singular" and "General" Existence Statements

Quine, in his article "Designation and Existence,"[1] commences his discussion of existence by making a distinction between what he calls "singular" and "general" existence statements. The distinction is important and as follows. A "singular" existence statement is of the form "There is such a thing as so-and-so." A"general"existence statement, on the other hand, has the form "There is such a thing as a so-and-so," or more briefly "There is a so-and-so" or "There are so-and-sos." Examples of singular existence statements would be: "There is such a thing as Eros," "There is such a thing as Harry Truman," "There is such a thing as Burgundy," "There is such a thing as tiger," "There is such a thing as triangularity," "There is such a thing as piety." Examples of general existence statements are statements such as "There is such a thing as a tiger," "There are tigers," "There are pious people," "There is a wine called Burgundy," "There are gods," "There is such a thing as a god."

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[1] Willard Van Orman Quine, "Designation and Existence." The Journal of Philosophy, 1939, pp. 701-709. The whole of this section is based mainly on this article.

General existence statements say that there is at least one entity which satisfies a certain condition or fits a certain description. In logic general existence statements are expressed in terms of existential quantification. We could thus rewrite all our examples of general existence statements by using existentially bound variables:

$(\exists x)$(x is a tiger),

$(\exists x)$(x is a person. x is pious),

$(\exists x)$(x is a wine. x is called Burgundy),

$(\exists x)$(x is a god).

In logical symbols, general existence statements thus refer to entities always through a bound variable. In ordinary speech the place of the bound variable can be filled by a pronoun such as "which" or "something which." If we rewrite our examples of general existence statements by making use of such pronouns they become:

There is something which is a tiger.

There is something which is a person and which is pious.

There is something which is a wine and which is called Burgundy.

There is something which is a god.

In singular existence statements, on the other hand, one refers to entities not through a bound variable or an undetermined pronoun but through grammatical names. In our examples of singular existence statements, for instance, we refer to entities through "Eros," "Harry Truman," "Burgundy," "tiger," "triangularity," and "piety." It is clear that these words

are not "logical names" in Russell's sense. These words only intend to name entities and the question whether they do name entities in the semantical sense is left open completely.

We have to notice also that our examples include, as grammatical names, what are usually called concrete and abstract words, and that consequently the entities the existence of which one asserts in singular existence statements can be both concrete and abstract. Thus, "There is such a thing as Harry Truman" asserts the existence of something concrete; whereas, "There is such a thing as piety" asserts the existence of something abstract. Furthermore, even if a word is concrete it can, in a singular existence statement, purport to designate something abstract. A concrete word which turns up in a singular existence statement purports to designate something abstract if it is a general and not a singular term.[1] Thus although the word "tiger" is concrete, "There is such a thing as tiger" asserts the existence of something abstract, viz., the property "tigerhood." In a similar manner also general existence statements can affirm the existence of both concrete and abstract entities, as can be shown by examples

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[1]Singular terms are terms which refer, sometimes ambiguously, only to one object, e.g., "Harry Truman," "Bros," "this man," "I," "you." General terms are terms which can be significantly prefixed by such words as "all," "any," "some," etc.

such as "There are numbers," "There are functions," "There is such a thing as a good performance." The distinction between singular and general existence statements is therefore not the distinction between statements which assert the existence of concrete objects and statements which assert the existence of abstract properties or things. The distinction is rather the distinction between statements which assert the existence of certain entities, either concrete or abstract, by referring to those entities through the use of a variable or a pronoun and statements which assert the existence of certain entities by referring to these entities through grammatical names.

2. Language and Existence

Singular existence statements, then, are of the general form "There is such a thing as so-and-so." In a specific instance of statements of this general form the phrase "so-and-so" gives place to an expression which purports to designate an object, property or thing and the statement is true just in case there is, in fact, such an entity. The statement is false if there is no such entity. Therefore, nouns which occur in singular existence statements and purport to designate or name might or might not designate or name in the semantical sense. We cannot assume that the mere occurrence of a noun in a sentence means that that noun designates an existing object or entity. Such an assumption was, as we saw, involved in the type of fallacious reasoning that

Russell's theory of descriptions was intended to refute. We recall that in our discussion of Russell's theory of existence a curious problem was said to arise whenever we wanted to deny the existence of some entity. Sentences like "Eros does not exist," or "There is no such thing as Eros," so it seemed, were paradoxical. If such a statement were true, i.e., if there were in fact nothing that "Eros" designated, the statement would seem to be void of subject matter and therefore meaningless. One argued, therefore, that in order to rescue the meaningfulness of the statement "There is no such thing as Eros," Eros must exist if not in spacio-temporal, then at least in some "logical" sense. This assumption, however, as we saw, Russell has pointed out, rests on the failure to realize that meanings are really of two sorts. Words have meaning either by virtue of the fact that we are directly acquainted with their referents or the meanings of words are merely descriptive. The latter is the case with "Eros:" its meaning is any descriptive phrase that we agree is sufficient to identify it. Any appropriate dictionary would give us the meaning of the word "Eros" and it would give the meaning apart from any question of existence. Existence is not a matter of lexicography or grammar. It is other considerations than those of mere meaning that could settle the question of whether Eros in fact exists.

We saw that Russell's approach to the question of

existence was at least in part epistemological. Some meanings, Russell contends, are derived from direct cognitive acquaintance with certain things in the world. Words with such meanings are, for Russell, "logical names" always designating and the problem of existence can be solved therefore, at least partly, through epistemology. A certain shade of blue, for example, exists because it is the sort of thing which we directly perceive. On the other hand, whether such a thing as Homer exists Russell cannot tell by relying merely on epistemology. Homer is the sort of thing which he knows only by description. In order to decide whether things known descriptively exist, one has to look outside of epistemology.

If one abandons Russell's epistemological approach to ontology, as Quine seems to do, one might find oneself in the same position in respect to all things as Russell finds himself in respect to Homer and unicorns. The problem of universals and the controversy between nominalists and platonists[1] is largely the question of what is required by way of entities in order that our language be meaningful. According to Russell, among singular terms, only names require the existence of some entities in order to be meaningful. The meanings of names are the existing entities which names designate. Descriptions, on the other hand, being "incomplete"

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[1]To use "platonism" in place of "realism" is a practice introduced by Quine in order to avoid the ambiguity of "realism."

symbols, are meaningful only in certain linguistic contexts in which they occur and they do not presuppose the existence of any entities as a condition of their meaningfulness. Consequently, if one abandons Russell's notion of "logical" names and treats all singular terms as descriptions, the meaningfulness of language would not involve any question of existence at all, and the question whether some words designate existing objects would become meaningless. Without an epistemological criterion of meaning, it would seem, all words become descriptions in Russell's sense and will have meaning only on a merely linguistic plane. But from a purely linguistic standpoint there is no more reason to say that "blue," "horse," and "table" designate or stand for entities than there is to say that "unicorn" and "Eros," or even such words as "up," "and," "if" designate or stand for entities. All words, "blue" as much as "Eros" or "up," have meaning in the sense that they are capable of determining the meaning of statements in which they occur, but they need not have any meaning apart from such statements. Their meaning will be determined contextually and not through direct reference to existing objects. A radical nominalist might interpret all terms in ordinary speech as syncategorematic expressions, useful for construction of sentences and for communication, but in no way reflecting matters of fact or other extralinguistic realities. Many things, no doubt, will continue to exist

but language will say nothing about their existence as the connection between language and the existence of entities would thus have disappeared completely. Consequently the distinction between nominalism and platonism would become a pseudo-distinction. Therefore, once the epistemological approach to ontology, such as Russell's, has been abandoned, we must, in order to avoid ontological anarchy, devise other methods through which the connection between language and the extralinguistic realities can be re-established.

3. The Epistemological and Semantical Theory of Names

Quine contends that language does reflect extralinguistic realities and that the issue between nominalism and platonism as an issue between different ontological doctrines is by no means meaningless. To use Quine's own terms, our use of language often involves us in "ontological commitments." Before we return to the direct examination of Quine's theory of ontological commitments of language we shall extend our preliminary discussion of Quine's ontological theory through a further comparison with Russell.

For Russell, we saw, existence was not a predicate and to write "x exists" where x can be replaced by a "logical" name was nonsense. To assert or deny existence is to assert or to deny that a propositional function is possible. In other words, the assertion or denial of existence involves always a variable. Such assertions of existence which involve a variable and in Russell's sense say that a proposi-

tional function is possible are, for Quine, the general existence statement. Singular existence statements, on the other hand, would be, for Russell, meaningless if the phrase "There is such a thing as" were followed by a "logical" name. Thus for example "There is such a thing as carmine" would be meaningless if, on epistemological grounds, we decide that "carmine" stands for a shade of color with which we are directly acquainted. Such epistemological considerations are, for Quine, irrelevant. Quine holds that we can treat of existence on a purely semantical level. The logic of names, we saw, was for Russell essentially an epistemological study. Names for Quine, on the other hand, can be treated apart from epistemology. Such a treatment of names can be called the semantical theory of names as opposed to Russell's epistemological theory. To treat of names on the semantical plane is to conceive of them as inessential and eliminable features of language, i.e., they can always be eliminated by descriptions.

We might say that Russell's "logical" names are epistemologically primitive terms and not only abbreviations of logical abstractions, viz., of descriptions. In §27 of his Mathematical Logic[1] Quine has shown how such epistemologically

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[1]Willard Van Orman Quine, Mathematical Logic. New York: W. W. Norton & Company, Inc., 1940. For further discussion of names see also Quine's Methods of Logic. New York: Henry Holt & Company, 1950, §36, "On Universals." Journal of Symbolic Logic, 1947, pp. 74-84, and "On What There Is." Review of Metaphysics, 1948. pp. 21-38.

or otherwise primitive terms or names can be easily eliminated in favor of abstractions in terms of primitive predicates. Thus, instead of adopting, e.g., "Europe" as a primitive term of geography we can conceive of "Europe"as a descriptive abstraction built out of the matrix "eur x" which we can write "(?x)(eur x)." In such an abstraction the primitive concept of geography does not appear at all as a singular term or name but as a predicate. Through this device the "primitiveness" of names that we want to employ in a given discourse can be always raised to the level of predicates and the logic of names can be thus separated from extra-logical considerations such as those of geography or epistemology. For any name we can always find a predicate, trivially, as we did in the case of "Europe," or otherwise, as Russell has done in the case of "Scott" and "Homer," and by means of such a predicate we can then expand the name into a description.

Let us for example take the term "carmine" and suppose that it is, in Russell's epistemology, a logical name for a particular shade of color. We might then insist that what we learned by direct acquaintance should not appear as a name but only as a predicate and to properly symbolize we must write "(?x)(x is colored carmine)" or "(?x)(car x)," and not just "carmine." What is then epistemologically primitive or ostensively defined is the predicate and not a name. This should make no difference to epistemology

as we are not refuting the claim that there is the experience in question. The difference that it makes to ontology is that we have eliminated the source of confusion between epistemology and ontology by isolating epistemological assumptions from our logic.

Quine's semantical theory of names differs from Russell's epistemological theory of names by the fact that when for Russell "logical" names have some causal connection with experience and cannot be eliminated from language, then for Quine the alleged connection that singular terms have with experience can be made explicit through a predicate and grammatical names can always be replaced by descriptions. If such replacement of a grammatical name is, in fact, not made, the singular term in question is treated as a "semantical" name and claimed to designate an object. Such a claim, however, need not be made on epistemological grounds.

All singular terms are, for Quine, logically equivalent to descriptions and therefore the meaningfulness of names in sentences in which they occur does not in any way presuppose that there actually are entities which those terms purport to name. A singular existence statement such as "There is such a thing as carmine" is therefore not meaningless but asserts the existence of carmine, or the fact that "carmine" designates, or that "carmine" is a "semantical" name, and the question whether carmine exists on epistemological grounds is in no way presupposed in that statement.

The statement is true or false on any grounds that we find appropriate for our ontological criteria. The statement affirms the existence of carmine because it explicitly says so but the fact which it affirms it does not presuppose. If we assert the statement "There is such a thing as carmine," then we do so because we want to recognize "carmine" in our ontology as designating an entity, and that not necessarily on epistemological grounds.

To say that names can always be replaced by descriptions is to say that names and descriptions are logically equivalent. However, if we do not replace them by descriptions, we commit ourselves to the belief that the entities in question exist. In that case we are treating singular terms not merely as grammatical names but as "semantical" names. To treat a singular term as a semantical name is to treat it as an ontological primitive. What is ontologically primitive, however, need not be epistemologically primitive.

For Quine, then, it is not through names that the ontologically important connection is established between language and extra-linguistic matters of fact. Any ostensive use of names in a language can be replaced through the use of ostensively defined predicates. No ontological commitments are made through the use of names. Names are ontologically irrelevant. However, one question might be raised at this point. Granted that no ontological commitments are made through names, because all names can be easily expanded into

descriptions a la Quine, and thus lose their "epistemological primitiveness," one might still argue that these descriptions will still make direct reference to experience because they are built up by means of ostensively defined predicates. One might remark, in other words, that although through Quine's method we escape from ontological commitments in respect to names, we will make the same ontological commitments through the use of primitive predicates which we employ to translate names into descriptions. We will not attempt an answer to this criticism at this point: the topic will be discussed again in later sections. At the present we shall be content with the assertion that names, as names, are ontologically insignificant.

4. Existence and Variables

What then, if not names, does establish the connection between language and the extra-linguistic realities? For Quine it is variables and their grammatical equivalents, pronouns such as "something," "something which," through which this connection is made.

The truth value of a singular existence statement does not affect the truth value of other ordinary statements in which the word which follows the phrase "there is such a thing as" in the singular existence statement appears in the position of the grammatical subject. For example, the truth value of "There is such a thing as Eros" does not affect the truth or falsehood of statements such as "Eros was

for the Greeks the god of love" or "Eros was worshipped by the Greeks."[1] However, the truth value of "There is such a thing as Eros" has other effects. If our singular existence statement is true, any statement having "Eros" for its subsject will be <u>about</u> the entity Eros. If "There is such a thing as Eros" is true, "Eros was worshipped by the Greeks" will be about Eros and will imply the consequence that <u>something</u> was worshipped by the Greeks, or

$(\exists x)$(x was worshipped by the Greeks).

If, however, "There is such a thing as Eros" is false, and "Eros" designates nothing, no such consequence will follow. Singular existence statements, therefore, <u>are</u> connected with other statements of our language. If a singular existence statement is true, any sentential expression which has the word following the phrase "there is such a thing as" in the position of its subject will be about the entity whose existence is affirmed by that singular existence statement. Such sentential expressions, in their turn, will imply a general existence statement to the effect that <u>there is something</u> or that <u>there is an x</u> which satisfies the condition specified by that sentential expression. If we affirm a singular existence statement, e.g., "There is such a thing as Eros" we must consider the existential generalization

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[1] Notice that, strictly speaking, according to Russell, the two propositions expressed by these two sentences should be considered false, as they have the existence of "Eros" as a description for one of their parts.

$(\exists x)(\ldots x \ldots)$ to follow from any statement of the form "... Eros ..." that we want to affirm. If, on the other hand, we deny a singular existence statement no such inference can be drawn. Let us take a few more examples.

If we want to affirm the singular existence statement

(1) There is such a thing as Burgundy,

a sentential expression such as

Burgundy is a wine

will have the consequence that there is <u>something</u> <u>which</u> is a wine, or

$(\exists x)$(x is a wine).

If we affirm

(2) There is such a thing as Harry Truman,

... Harry Truman ...

will have the consequence

$(\exists x)(\ldots x \ldots)$.

The entity affirmed by the singular existence statement does not have to be concrete. Thus, if we affirm

(3) There is such a thing as piety

Piety is good,

will have the consequence

$(\exists x)$(x is good)

and

... piety ...

will have the consequence

$(\exists x)(\ldots x \ldots)$.

To say, then, that a singular existence statement is true we can describe as saying that existential generalization in respect to corresponding sentential expressions is a valid form of inference. Such an inference is valid if and only if from true sentences, such as "Burgundy is a wine," and "Harry Truman is the president of the United States," only true general existence statements, such as $(\exists x)$(x is a wine) and $(\exists x)$(x is the President of the United States), will follow.

How, according to this criterion can we distinguish between singular existence statements such as "There is such a thing as Eros," and "There is such a thing as Harry Truman?" The latter, one will ordinarily say, is true, whereas the former is false. A false singular existence statement will make the corresponding operation of existentially generalizing invalid. Thus, for example, although

(1) $(\exists x)$(x was worshipped by the Greeks)

may be considered as a true consequence of a true statement "Eros was worshipped by the Greeks," we can find other true statements in respect to which the operation of existentially generalizing will not yield true statements. We are inclined to say that

(2) Nothing is identical with Eros

is true, i.e., that there is no entity which is Eros. The result of existential generalization in respect to "Eros," however,

(3) $(\exists x)$(Nothing is identical with x),

is false.

On the basis of the foregoing discussion Quine can now define a "semantical" name (an expression which designates an object) as an expression in respect to which the operation of existentially generalizing is valid. A word W designates, or is a "semantical" name, if and only if existential generalization in respect to W leads from true sentences only to other true sentences.

In the case of existential generalization we drop the name by replacing it with an existentially bound variable. There is another basic form of inference or logical operation where names can be interchanged with variables. In the case of specification we drop the universally bound variable and replace it by a name. Thus, for example,

(4) (x)(x was created by God)

will lead to

(5) Harry Truman was created by God.

If existential generalization is valid in respect to a given term, specification is also valid in respect to that term. Let us assume that existential generalization in respect to "Harry Truman" is valid. A false statement such as

(6) Harry Truman is the first president of the United States

will give us then

(7) $(\exists x)\sim$(x is the first president of the United States)

which is the same as

(8) $\sim(x)$(x is the first president of the United States.

The falsehood of . . . Harry Truman . . . thus entails the falsehood of $(x)(\ldots x \ldots)$ and therefore the truth of $(x)(\ldots x \ldots)$ entails the truth of . . . Harry Truman . . .

Quine claims further that the use of variables in expressions $(\exists x)(\ldots x \ldots)$ and $(x)(\ldots x \ldots)$ is basic in the sense that all expressions containing free variables can be translated into expressions containing only existentially or universally bound variables. Expressions containing free variables are, for Quine, merely abbreviations for expressions containing only bound variables.[1] Names can be therefore defined more generally as those expressions which, according to the usual logical laws, can replace or can be replaced by variables. Names, in other words, are <u>substituends</u> of variables. The substituends of variables, however, are not their <u>values</u>. The substituends are merely terms, whereas values are entities. Thus the range of values of a variable is not constituted by its substituends but by the entities named or designated by its substituends.

To summarize the above discussion Quine cites four alternative ways to claim the same thing as is claimed by a

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[1] Willard Van Orman Quine, "Designation and Existence." <u>The Journal of Philosophy</u>, 1939, p. 708.

singular existence statement. "There is such a thing as Eros" is the same as to say

(1) the word "Eros" designates,

(2) the word "Eros" is a (semantical) name,

(3) the word "Eros" is a substituend for a variable,

(4) the entity Eros is a value of a variable.[1]

Names, however, as we saw, are inessential to language and can be easily eliminated in favor of descriptions. We are left, therefore, in essence, with the fourth alternative. It is the variables of a language through which direct reference is made to extra-linguistic realities. "The universe of entities is the range of values of variables. To be is to be the value of a variable."[2]

5. The Theory of "Ontological Commitments"

Quine summarizes his ontological theory as follows:

> The ontology to which an (interpreted) theory is committed comprises all and only the objects over which the bound variables of the theory have to be construed as ranging in order that the statements affirmed in the theory be true. [3]

Quine is not interested in the "ontological truth" about the world but only in the "ontological commitments" of a given constructional theory or system. According to Quine's

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[1] Loc. cit.

[2] Loc. cit.

[3] Willard Van Orman Quine, "Ontology and Ideology." Philosophical Studies, 1951, p. 11.

theory we cannot decide which entities in fact exist in the total universe, we can only decide what a discourse (most widely a linguistic behavior) presupposes as existing. Quine's ontological standard is therefore only a preamble to ontological doctrines which interpretative systematizations of experience contain and is not directly an ontological doctrine itself. Many other philosophers have attacked the problem of ontology more directly, i.e., within an epistemological or metaphysical system. Thus, for example, we discovered that Russell's ontology was determined by his epistemological distinction between knowledge by acquaintance and by description. For a different type of example, Whitehead has developed, mainly in his Process and Reality,[1] a metaphysical system and has tried to solve the ontological problem of scientific abstraction within the framework of that system.

For Whitehead that which is given in experience is all that there is, it is the full universe. Something is given in experience by entering into a relationship with the "immediate occasion," i.e., with the "individual act of judgment." If anything does not enter into a relationship with the immediate occasion there is no possible knowledge of it, in fact it would not exist, it would be a mere nothingness. Whitehead's ontological doctrine is

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[1]A. N. Whitehead, Process and Reality. New York: The Macmillan Company, 1929.

further elucidated within his wider theory of prehensions. Within Whitehead's system there are a number of ways ("modes of prehension") in which an occasion can enter into a relationship with or prehend other entities. From the standpoint of ontology it is necessary only that an interrelatedness of some sort exist between occasions in order that these occasions would form a togetherness which can be termed the universe. These interrelationships between occasions are, however, determined by what Whitehead calls "eternal objects." Occasions as such are mere inarticulated togetherness and enter into intelligible relationships with each other only by being determined by eternal objects. It is the eternal objects (roughly speaking the universals) that make scientific abstraction possible. The universe is thus, for Whitehead, constituted by the two ultimate realities: actual occasions and eternal objects (or their eight subdivisions or the categories of existence: "actual occasions or entities," "prehensions," "nexus," "subjective forms," "eternal objects or forms of definiteness," "propositions," "multiplicities," and "contrasts"). These realities form the ultimate basis for all scientific theorizing and system building.

In contrast with Whitehead, Quine's contribution to ontology is indirect, and in a sense, incomplete. Quine, unlike Whitehead, does not offer a systematic interpretation of the realities of the world but is concerned only

with questions which come prior to any such interpretative system building. To be engaged in such prior investigations by inquiring into the ontological commitments of given systems in Quine's terms, is, so to speak, to try to solve the ontological problem by not committing oneself ontologically. Whitehead, on the other hand, endeavors to solve the ontological problems of scientific abstraction by making ontological commitments of universal consequence.

Quine's ontological theory raises the question of existence on a linguistic plane. Quine's theory makes no direct reference to experience as such but only to interpretative language systems which, in their turn, do make direct reference to experience. A different ontological standard of linguistic or logistic character has been proposed by Gustav Bergmann.[1] In order to formulate his standard, Bergmann first adopts the rather speculative fiction of an "ideal language." Nothing is really said about the total range of entities in the world when we limit our discourse to one among several theories or systems with limited subject matter. The theory under consideration would have to have the scope of an "ideal language" and to exhibit the ultimate categoreal features of the world before we can make any claim to universality. For Bergmann an "ideal language" is a "formally constructed linguistic schema that is complete

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[1]Gustav Bergmann, "A Note on Ontology." Philosophical Studies, 1950, pp. 89-92.

and adequate." It is complete if "everything" can be said in it and it is adequate "if by informally discoursing about it in ordinary English we can dissolve all philosophical puzzles."[1] By appealing to such "ideal language" Bergmann reformulates Quine's ontological standard to the effect that not variables but "descriptive constants" are said to be the channel through which reference is made to existing entities. By limiting himself to predicates of the first type he says ". . . properties of the first type exist in a world if in speaking about an ideal language of this world I find it to contain undefined descriptive constants that are substitution instances for its predicate variables of the first type."[2] Such descriptive constants, however, Quine points out, are always eliminable.[3] The method of elimination is the same as the one described in section one for the elimination of names. After such elimination of descriptive constants we would be left only with predicates as the only constants. Constant predicates, however, Quine claims, in no way presuppose the existence of corresponding universal entities. According to Quine the

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[1] Ibid., p. 89.

[2] Ibid., p. 91.

[3] Willard Van Orman Quine, "Ontology and Ideology." Philosophical Studies, 1951, p. 13. Mathematical Logic. Cambridge, Mass.: Harvard University Press, 1947. §27. Methods of Logic. New York: Henry Holt & Company, 1950, §37.

question of constant predicates belongs to that part of metaphysics which he calls "ideology." The questions about constant predicates are those about ideas or meanings and not questions about the existence of entities. Ontology is the inquiry into the real constituents of the world, whereas ideology is the part of metaphysics which inquires into what ideas constitute the basis for our thinking. In semantics we should make a similar distinction. The question of the ontology of a system is a question which belongs to what Quine calls the "theory of reference," whereas the question of meanings or ideas employed in a system belongs to what Quine calls the "theory of meaning." The theory of reference comprises the study of such concepts as naming, denotation, extension, coextensiveness, values of variables, and truth. The theory of meaning, on the hand, would treat of such concepts as synonymy, analyticity, syntheticity, entailment, intension. For the sake of clarity in ontological investigations these two theories should be kept apart although, Quine remarks, they are mutually complementary.

A further disagreement with Quine's treatment of ontology has been expressed by Carnap.[1] Although he seems to accept Quine's standard for judging what entities a given theory presupposes, Carnap makes a further distinction. In respect to investigations into the ontological commitments of given

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[1]Rudolf Carnap, "Empiricism, Semantics, and Ontology." Revue Internationale de Philosophie, 1950.

theories or systems we should, Carnap contends, distinguish between two kinds of questions. Whenever we wish to talk about a new kind of entities, we have to introduce a new way of speaking. This new way of speaking Carnap calls the framework of the new entities in question. The introduction of such framework involves first a new general term, a predicate of higher logical type than the terms designating the entities in question. Such a predicate enables us to say that a particular entity belongs among the entities in question. Thus if the entities that we want to consider are simple qualities of physical objects such as "red," "carmine," "blue," the general predicate that we need might be, e.g., "property." In terms of this predicate we can then formulate statements like "Red is a property," "Carmine is a property," etc. The second step in the introduction of a framework of entities is the creating of variables of the new type such that the entities in question will be the values of those variables. In terms of such variables general statements about the new kind of entities can then be formulated. In respect to such frameworks two kinds of existence questions can be raised. The "internal" questions are raised within the framework. Thus if our framework is that of physical objects, we can ask, e.g., "Is there an ashtray on my desk?" "Is Eros real or merely imaginary?" "Do physical atoms exist?" Such internal questions are all empirical questions and should be answered

through empirical investigations. From these questions we must distinguish the "external" questions of existence. The external questions of existence are not asked within a given framework but are questions about the reality of a given framework itself. Such questions, however, Carnap holds, are not theoretical questions at all. To accept the framework of physical objects, for example, does not amount to a theoretical belief which is capable of being either true or false. To accept the existence of the world of physical objects, is nothing more than to accept a certain form of language. But the acceptance or rejection of a form of language, Carnap holds, is not a theoretical but rather a practical matter. Traditional ontology, as far as it is concerned with external existence questions, Carnap therefore declares to be meaningless.

Quine, on the other hand, holds that a nucleus of significance inherent in traditional ontology has to be preserved. This nucleus of significance is exactly the part of traditional metaphysics which Quine's theory of ontological commitments purports to define.

Carnap's distinction between external and internal existence questions, Quine points out, is essentially the distinction between what Quine calls "category questions" and "subclass questions."[1] The category questions Quine defines as

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[1]Willard Van Orman Quine, "On Carnap's Views on Ontology." Philosophical Studies, 1951. pp. 65-72.

the existence questions which purport to exhaust the entire range of a particular kind of variables or the entire range of a particular existence category. The subclass questions, on the other hand, do not purport to exhaust the entire range of a particular kind of variables. Where to draw the line between category questions and subclass questions depends, however, solely on how the range of different kinds of variables is determined. If, for example, in our language there is only one kind of variable to refer to all classes, the questions of existence in respect to all entities that we construe as classes will be subclass questions. If both qualities and numbers, for example, are construed as classes, i.e., as values of class variables, the questions of existence of both qualities and numbers will all be subclass questions. If, however, a particular kind of variables is appropriated for the exclusive use of referring to numbers, the question concerning the existence of all numbers will be a category question.

Furthermore, Quine argues, the distinction between the external (or category) questions and the internal (or subclass) questions depends on the acceptance of the theory of types. Only in a language where styles of variables are separated from one another through syntactical rules, will the distinction be of any consequence. However, such strict compartmentalization of variables as well as the underlying dichotomization of the analytic and synthetic, Quine rejects.

It would be outside the scope of the present paper to discuss Quine's reasons for these rejections. For the purposes of the present study it is more relevant to observe the connections between Carnap's distinction between the two types of existence questions and the type of constructional nominalism developed by Goodman and which we shall discuss in Chapter III.

The distinction between external and internal existence questions, we said, presupposes a tight division of variables into logical types. Goodman's nominalism, however, proposes to use variables of only one logical type. The only variables that a nominalist will recognize will be ones that take only individuals for their values. The only other logical type involved in nominalistic constructions is the type of predicates of individuals. On the predicate type level, however, the nominalist will recognize only constants. But such constants, we remarked, are without ontological significance.

In a nominalistic system the range of individual variables is universal: everything in the universe can be considered as their values. Questions about the existence of particular entities as well as about the existence of broad types or categories of being will therefore, all of them, be internal questions as they must be asked within the framework of individuals. The only external question would be that concerning the framework of individuals itself. But the individuals, are, for the nominalists, all that we can legitimately

say that there is. Therefore, for the nominalist if there are no individuals, there will be nothing; a negative answer to the question about the reality of individuals will imply, at least for the nominalist, nihilism.

CHAPTER THREE

THE ONTOLOGICAL ASPECTS OF GOODMAN'S THE STRUCTURE OF APPEARANCE

1. Preliminary Discussion of Terms

As for Quine, so also for Goodman, the question of ontology is that of quantification over variables and the difference between nominalism and platonism is ontological in that sense. Both of these authors agree that in order to be able to decide whether a system is nominalistic or platonistic we have to detect and consider the "ontological commitments" implicit in that system. If the "ontological commitments" of a system involve certain entities not admissible to nominalism the system is called platonistic, and a system is nominalistic only if it is free of any such commitments. In their joint article "Steps Toward a Constructive Nominalism"[1] both Quine and Goodman have stated that nominalism is the doctrine of renouncing abstract entities, in other words, the entities to be excluded from a nominalistic universe are those of the abstract kind. In that article "concrete object or entity" is treated synomously with "concrete individual" and it seems that the

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[1] Nelson Goodman and W. V. Quine, "Steps Toward a Constructive Nominalism." The Journal of Symbolic Logic, 1947, pp. 105-122.

concrete individuals are taken to be all the individuals that there are. In The Structure of Appearance,[1] however, Goodman recognizes abstract individuals and the kind of entities the recognition of which, for Goodman, makes a system platonistic are not the abstract objects but rather the nonindividuals--classes, predicates, relations, propositions.. But one has to notice that "abstract," for Goodman, has a rather special sense. For him "abstract" means "qualitative" and is therefore not contrasted with "concrete" in the same way as "concrete" meaning "particular" is contrasted with "universal." In that sense the distinctions concrete-abstract and individual-nonindividual do not coincide. Some abstract or qualitative entities, such as qualia for example, are treated by Goodman as individuals. Furthermore, he points out, it is possible to construe even the most concrete object as a class of other objects, and therefore as a nonindividual.[2] Instead of making "abstract object" synonymous with "nonindividual" and "concrete object" synonymous with "individual," Goodman treats "abstract" and "concrete" as predicates of individuals. Such treatment of these terms is, of course, appropriate only within a nominalistic system as, for the nominalist, the meaning of "predicate of individuals" is stretched to cover

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[1] Nelson Goodman, The Structure of Appearance. Cambridge, Mass.: Harvard University Press, 1951.

[2] Ibid., p. 150.

meanings and serve purposes which are in platonistic systems dealt with through the use of nonindividual terms such as classes, relations, etc. So for example a simple sense quality or quale is for the platonist not an abstract individual but rather a class of concrete objects.

The terms "universal" and "particular" are treated by Goodman much in parallel with "abstract" and "concrete" although, here again, we discover that these traditionally synonymous distinctions do not coincide. The rather special treatment of these terms "particular," "universal," "concrete," and "abstract," is effected by Goodman through the introduction of a division of constructional systems into realistic and particularistic systems. We shall come to a closer examination of realism and particularism in a later section. The immediately following section we shall devote to the more pressing task of clarifying the term "individual."

2. Individual

Most generally there are two choices in answer to the question: what determines an individual? We can say (1) the individuality of something is determined by its"thisness," or "haecceity," i.e., by a quality not expressible in general terms, (2) the individual is constituted by the totality of specifiable and general qualities which it has or wants. In opposition to both of these views we might say that the definiteness of an individual is revealed to us empirically and consider "individual" as a simple term not explainable in

other more simple or basic terms.

If we take individuality to be a uniqueness of form or of essence inexplicable in general terms we would have to admit the possibility of there being two exactly similar and yet distinct individuals. What a given individual precisely is, we would be unable to describe. Consequently we would be forced to deny the basic intelligibility of the world or to abandon the belief that the world is constituted of individuals.

The second proposal proves equally defective because it rests on the doctrine of substance. If the individual is determined by the totality of its qualities, in what sense can it be said to be separate from this totality? Qualities can be said to inhere in the individual as attributes inhere in the substance. But this "inhering" of qualities and attributes is fatally obscure. In this view the metaphysical notion of individual or of substance is claimed to be prior to that of attribute or quality but it cannot be made logically prior as the existence of a substance can be defined only derivatively from the existence of its qualities.[1]

It seems, then, that "individual" cannot be defined at all: either we define it as "thisness" or "haecceity" or we define it by its predicates, in both cases the definition

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[1]See, e.g., Bertrand Russell, Philosophy of Leibniz. London: Allen & Unwin Ltd., 1900;

would be of no explanatory value. The third proposal for solving the problem of what constitutes an individual, we said, was not to attempt a reduction of "individual" to a more fundamental notion at all and to treat "individual" as a simple term. The reasons in favor of this procedure can be summarized roughly as follows. Not to attempt a definition of individual which will go beyond stipulating or explaining the role of "individual" in formalistic systems frees one from the necessity of belief in some definite metaphysical structure of the universe at this point. To say that an individual is revealed through experience is to treat it as a brute fact. When we discover an individual through experience we discover it as reacting against or being in some relationship with some other things, but experience does not reveal the metaphysical essence or character of these relationships or reactions. An individual is simply something which is found to have its place in the world of experience. What constitutes an individual is conceptually obscure but experience itself is obscure in the same sense. Experience does not come in ready made packages and its content, in other words, the content of individuals, is to be explored and not judged at a priori.

Once we abandon the metaphysical question two directions of study concerning the individual still remain. There is first the task of establishing a formal calculus of individuals similar in purpose to the propositional and class

calculi.[1] Secondly, we might develop a comprehensive constructional system where certain entities are construed as individuals.[2] After the establishment of such calculi and systems of individuals the question of what constitutes an individual can be answered by reference to the most general features of these calculi and systems.

So, for example, we can say that in reference to the calculus of individuals developed by Leonard and Goodman an individual is what can be an argument for the primitive predicate "discreteness" ("$\int$"). Furthermore, we shall find that "individual" is construed in sharp contrast to "class." An individual differs from a class by being capable of being subdivided into parts which themselves are individuals whereas to say that a portion of the world is a class is to superimpose upon that portion a definite scheme of subdivision into members and sub-classes. If three elements a, b, c are said to constitute the class α, a, b, c will be the members of α and the couples (a,b), (b,c), (a,c) will be examples of sub-classes of α but according to the type theory (a,b), (b,c), (a,c) cannot be members of α. On the other hand if the elements a,b, c are said to form an individual A, the sums a+b, b+c, a+c

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[1] E.g., H. S. Leonard and Nelson Goodman, "The Calculus of Individuals and Its Uses." The Journal of Symbolic Logic, 1940, pp. 45-55.

[2] E.g., Nelson Goodman, The Structure of Appearance. Cambridge, Mass.: Harvard University Press, 1951.

are parts of A in the same sense as a, b, c are parts of A.

Further information as to what constitutes an individual can be discovered in interpretative or constructional systems which make use of the calculus of individuals as a part of their "general apparatus."[1] If in uninterpreted calculi "individual" is treated in respect to its formal features, comprehensive interpreted systems endeavor to show what individuals there are in experience. For a nominalistic philosopher, i.e., for a philosopher who treats elements of experience exclusively as individuals, however, "is an individual" is a universal predicate and does not involve any specification as to what elements of experience can be taken as individuals. For further specification we have to consider which individuals in a system are chosen for the "basic units" and which individuals are construed as the "atomic individuals" in that system. Basic units are those individuals which satisfy at least one of the "special primitive predicates" of a system, and the atomic individuals are those individuals which do not have any other individuals as systematic parts.[2] However, the basic units and the atomic individuals are more fundamental only in relation to the various systems, and it might very well be that the basic

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[1] A term used by Goodman.

[2] For further discussion of basic units, atomic individuals and special primitives, see below.

individuals of one system undergo a completely different treatment in some other system or are not recognized at all.

3. Nominalism

In order to discover of which entities a given theory treats we have to look at the bound variables of that theory. A theory treats or affirms as existing exactly these entities over which the bound variables of quantification of that theory range. According to Quine, we remarked, if a theory assumes as existing or treats of universals or of abstract entities or of non-individuals the theory is platonistic and is opposed to nominalistic theories which admit only particulars, concrete objects and individuals as their legitimate subject matter. Goodman's interpretation of nominalism-platonism controversy, we remarked also, is noticeably different: it is at the same time more specialized and less restrictive.

Goodman's approach is more specialized in the sense that although he adopts Quine's doctrine of the "ontological commitments," his primary interest does not seem to lie in ontology but rather in ways and means of theory construction. For Goodman, it seems, nominalism is primarily a question of restricted means for system building and only secondarily a question of restricted ontology although he fully recognizes the inter-connectedness of these two questions.

Due to this more specialized interest Goodman draws a number of distinctions which allow him a less restrictive reformulation of the dictum of nominalism. In Quine's discussion the terms "abstract," "universal," and "non-individual" are lumped together: they are all said to signify entities inadmissible in nominalistic constructions. Goodman provides systematic definitions of each of these terms and points out the inadequacy of treating them as synonyms. For Goodman, nominalism does not have to avoid abstract entities and universals. If an abstract entity, such as a quale or a sum of qualia, is systematically construed as an individual, it can be included in a nominalistic universe.[1] All non-individuals, however, Goodman claims, have to be excluded. Individuals can be conceived as the elements represented by the variables of the lowest logical type of a system. Non-individuals, such as classes, relations, predicates, are represented by variables of higher types than those of individuals. The dictum of nominalism, according to Goodman, thus rules out quantification over variables other than those ranging over individuals.

This requirement of nominalism pertains to what Goodman calls the "general apparatus" of a system and not to its "special basis."[2] The general apparatus of a system consists

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[1] For discussion of "abstract" and "universal" see below.

[2] For discussion of "special" or "extralogical" bases of systems see below.

of the "basic logic" or the truth-functional algebra together with the calculi of higher logic of which the system makes use. The basic logic comprises logical terms and ideas, primitive or defined, such as the stroke function of the truth-functional incompatibility, the notion of logical negation, disjunction, conjunction, implication, and assertion. It further comprises the general theory of real and apparent variables, the idea of propositional functions and the concept of formal equivalence. In other words the basic logic of a system may be said to consist only of the material covered by sections A and B of the first part of the first volume of Principia Mathematica called respectively "The Theory of Deduction" and the "Theory of Apparent Variables."[1] In addition to these two theories a system might adopt the calculus of classes and relations or the calculus of individuals or both as parts of its general apparatus. The requirements of nominalism are concerned with those parts of the general apparatus of a system which are not its basic logic, i.e., they are concerned with the admissibility or inadmissibility of these parts of logic which treat of classes, relations, and predicates. Considered as uninterpreted calculi, neither the calculus of classes nor the calculus of individuals

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[1] With a few items, such as the axiom of reducibility, definition of "being of the same type," definition of identity excluded.

presupposes that there are classes or individuals. They can be looked upon as neutral tools of analysis which do not involve any presupposed ontology. If, however, these calculi are incorporated in an interpreted or constructional system, which claims to treat not of terms but of real elements of the world, their ontological neutrality can not be retained. To make free use of the calculus of classes in a constructional system is to commit oneself to the belief that there exist elements of the world which are classes. The use of the calculus of individuals, of course, has for its consequence the admittance of individual entities. But practically all systems assume the existence of individuals and to escape this assumption seems pointless. The more important fact resulting from the use of the calculus of individuals in systems is that it can effect a reduction of the more populous ontologies of platonistic systems.

Similarly as to classes the platonistically minded philosopher, in his endeavor to interpret experience, can make free use of predicates of individuals (i.e., predicates which take individuals for arguments, or predicates on the first type level) and of predicates of predicates of individuals (i.e., predicates which take predicates on the first type level for arguments, or predicates on the second type level) etc. The nominalist, on the other hand, must confine himself to predicates of individuals, i.e., to predicates on

the first type level. Moreover, the predicates of individuals cannot, for the nominalist, be treated as variables but only as constants. To admit predicates of individuals as values for variables is to commit oneself to the existence of these predicates or functions. The use of constant predicates, however, as we shall see, involves no such commitment.

To confine oneself to the use of constant predicates of individuals curtails drastically the means of theory construction. If the platonist can talk about the predicates of individuals and the classes which they define, the nominalist can talk only about individuals. All that the platonist can say about predicates, functions, relations, and the classes which they define, the nominalist must say only by speaking of the individuals involved.[1] The only constant predicates of individuals of which the traditional logic treats are the two-place predicates of dyadic relations "identity" and "diversity." The task of the nominalist is therefore to find an economical set of constant predicates of individuals which is capable of expressing what is more commonly expressed in terms of constructions based on a more extensive logical type hierarchy. A large part of the nominalist's labors, in other words, must consist of the utilization and refinement of the calculus of individuals in which

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[1]How these restrictions exactly affect the practice of system building can be seen from the two examples in section 4.

the logic of constant predicates of individuals is treated.

However, the nominalist is allowed to utilize the platonistic portions of logic in a restricted sense. He can do so if he consistently refuses to interpret the language of nonindividuals and treats it as an abacus. This treatment can be effected through the establishment of a formal syntax which exhibits the formal rules according to which the platonistic machinery of deduction and computation is run. The aim of such a syntax is to make it unnecessary to assume that nonindividual terms which occur in the platonistic language have an ontological foundation. The platonistic language will be considered as not referring to any elements in our actual experience and as free from ontological commitments. The only meaning that would be left to nonindividual terms would be one similar to the "meaning" that we attribute to the beads of a computation table. The formal syntax itself, however, which makes it possible to look at the language of nonindividuals solely as a piece of convenient machinery has to be formulated according to the requirements of nominalism.[1] Goodman points out that the formulation of such rules will provide often great difficulties and to overcome these difficulties would enable us often to dispense with large parts of this auxiliary machinery of platonistic

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[1] An attempt to develop rules which would enable us to look at mathematics as such an abacus can be found in Nelson Goodman and W. V. Quine, "Steps Toward a Constructive Nominalism." Journal of Symbolic Logic, 1947, pp. 105-122.

logic altogether. The problems which motivated us to seek the aid of some platonistic language would then be solvable, to a large extent, directly in our nominalistic language itself.

4. Two Examples

Nominalism then, is a proposal to restrict the means of theory construction. The main restriction is that quantification is not permissible over variables other than those representing individuals. Let us take an example.

Suppose that we want to define the predicate "is an ancestor of" when the predicate "is a parent of" is already available in our system. For the platonistic philosopher, who can make free use of classes, a familiar method, developed by Frege, is readily available.[1]

Let us for "x is a parent of y" write "Pxy" and for "x is an ancestor of y," "*Pxy." "*Pxy" can then be defined in terms of "Pxy" as follows:

(1) $*Pxy \equiv (\alpha)[y \in \alpha . (z)(w)(w \in \alpha . Pzw . \supset . z \in \alpha) . \supset . x \in \alpha]$,

which can be read: x is an ancestor of y if and only if x belongs to every class, α, to which y belongs and to which also every parent of every member of α belongs.

This definition is clearly platonistic as it includes a quantified class variable, and it is therefore inadmissible

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[1]Cf. the exemplification of this method in Willard Van Orman Quine, Methods of Logic. New York: Henry Holt & Company, 1950, p. 239.

for the nominalist. The nominalist has to find other means for constructing the same definition. First, the nominalist has to replace the class variable "α" by a variable which represents only individuals. Secondly, the membership relation of the class calculus must be replaced by some two-place predicate which takes only individuals as its arguments. One such predicate is the predicate "is a part of" of the calculus of individuals. Through these replacements and in close analogy with Frege's method the nominalist will then arrive at the following definition:

(2) $*Pxy \equiv (a)[y \prec a.(b)(c)(c \prec a.Pbc.\supset.b \prec a).\supset.x \prec a]$,

which can be read: x is an ancestor of y if and only if x is a part of every individual a of which y is a part, and of which also every parent of every part of a is a part.[1]

Both of these constructions, the platonistic and the nominalistic, accomplish the same purpose with an equal preciseness and unambiguity. Which of these constructions is more intuitive can be debated, it only happens that the platonistic method is more readily available than the nominalistic: the platonistic logic of classes is far more fully developed and

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[1]Nelson Goodman and W. V. Quine, op. cit., p. 109, require that in order to gain closer conformity with common usage the above definition should be supplemented by the stipulations that x is distinct from y and that x is a parent and that y has a parent. The first stipulation prevents the anomaly of counting y among his own ancestors, the second insures that x and y are single whole organisms, capable of parenthood. Our definition would then become:

$*Pxy.\equiv:x \neq y.(\exists d)(Pxd).(\exists e)(Pey).(a)[y \prec a.(b)(c)(c \prec a.Pbc.\supset.b \prec a).\supset.x \prec a]$.

present in logic books than the nominalistic calculus of individuals. The nominalistic logic, or the calculus of individuals, is not enough advanced in power, and complexity, to take the place of its platonistic rival. Many constructions that are easily accomplished in platonistic logic prove impossible in nominalistic logic.

Let us take another example. In constructional systems we often want to introduce comparative size predicates. We might start by stipulating first what it means to say that two elements of our system are of equal size. Further predicates like "is smaller than" or "is bigger than" can then be easily defined in term of the predicate "is of the same size." If our elements are classes the construction of the predicate "is of the same size" is automatically available: *73.1 of Principia Mathematica is a biconditional theorem to the effect that two classes are similar, i.e., have the same number of terms,if and only if they constitute the domain and the converse domain of a one-one relation:

(3) $\alpha \operatorname{sm} \beta . \equiv . (\exists R) . R \in 1\text{-}1 . \alpha = D'R . \beta = Q'R .$

For the nominalist, however, who instead of dealing with classes deals with sums of individuals,no similar construction is available. Following (3) and, again, by replacing "is a member" by "is a part" the nominalist might say that two sums of individuals a and b are of the same size if and only if there is a predicate which relates each individual which is a part of a to exactly one individual which is a

part of b; and each individual which is a part of b to exactly one individual which is a part of a. In other words, two sums of individuals, a and b, are equal in size if and only if there is a one-one predicate which correlates the individuals contained in a with those contained in b, and vice versa:

$$(4)\quad a\ sm\ b \equiv :.(\exists P):(x)(y)(z)\{[(Pxy.Pxz)\supset y=z].[(Pxz.Pyz)\supset x=y]\}.(x)[(\exists y)Pxy.\equiv x<a].(y)[(\exists x)Pxy.\equiv .y<b].$$

This construction, however contains the quantified predicate variable P which, from the nominalist's point of view, constitutes a fatal anomaly. It seems that for the nominalist there is no way to define the size predicates such as "is of the same size" on the basis of his general apparatus at hand and he would have to adopt the size predicate such as "is of equal size" as a new primitive.[1]

5. Two Possible Misconceptions of Nominalism

A nominalistic language, then, admits only individual variables and constant predicates of these. The nominalist can treat only individual terms, i.e., terms construed as belonging to the lowest logical type, as variables. Terms which belong to the next higher type level, i.e., terms which are construed as predicates of individuals, the nominalist has to treat as constants. Goodman points out that

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[1] As, for example, Goodman does for the relative size of individuals which are sums of qualia. Nelson Goodman, op. cit., p. 206.

there are no further restrictions on the type of predicates which can appear in a nominalistic language. So, for example, it does not matter which words or expressions occur within predicates. Which words are contained in the predicates of a systematic language is of no ontological consequence. It does not matter how platonistic a predicate sounds as long as it is predicated of individuals and not of nonindividuals. As long as we can consider, for example, the predicate "belongs to some class satisfying the function F" as a single unit it will not have for its consequence "there are classes" or "there are functions." To bar the words "class" and "function" from the above predicate is pointless as the occurrence of these words is trivial and easily eliminable. If the predicate "belongs to some class satisfying the function F" can be looked at as a single unit, i.e., as a certain string of marks, it can be replaced quite arbitrarily by, say, "is fective" or by any other linguistic invention that we might want to choose. Such a replacement concerns the predicate expression "belongs to some class satisfying the function F"as a whole and not any of its parts. If the nominalist endeavors to eliminate all platonistically sounding words throughout his discourse, then it is a matter of literary pride and often of no ontological significance.

The second point that Goodman raises against the possible misconceptions of the tenets of nominalism is that nominalism does not limit what can be taken as individual. For the

nominalist, only individuals exist and therefore in a nominalistic universe there would be nothing from which to distinguish individuals. In other words, for the nominalist anything can be an individual. The decision what will be the range of individuals of a given system is directed by the choice of its subject matter. To decide what the individuals of a system will be is, so to speak, to decide what will be talked about.

In a comprehensive systematic interpretation of the world or of experience the question arises, what does experience disclose as individuals, i.e., as its content? We might, for example, ask whether experience is more basically made up of experiences of physical realities of some sort or whether experience is only phenomenal. In other words, we are confronted with epistemological questions.

The choice of subject matter of a system does not, of course, in itself, constitute an ontological decision. The biologist, for example, does not by any means claim that only organisms exist or that they exist more really than the minerals and rocks of the geologist. In a similar manner, neither physicalism nor phenomenalism need imply an ontological doctrine. Both the phenomenalist and the physicalist can be compared with the biologist who directs his attention to a particular phase or segment of the total reality. The physicalist can be said to attend primarily to physical objects and events, whereas the phenomenalist is at the first

place interested in phenomena and presentations, and neither of them has to claim either that only physical objects and processes or that only phenomena exist.

6. Particularistic and Realistic Systems

In The Structure of Appearance Goodman's primary concern is with phenomenalistic systems. Beside the division of phenomenalistic systems into nominalistic systems and platonistic systems, Goodman further divides them into realistic and particularistic systems. This division, similar to the distinction between nominalistic and platonistic systems, cuts across the traditional distinction between nominalism and realism. Thus the characteristics which are traditionally attributed to nominalism are shared by nominalism, in Quine's sense, and by particularism of Goodman's version. The features of the traditional realism, again, are divided between realism, in Goodman's sense, and platonism.

The distinction between particularism and realism is independent of the distinction between nominalism and platonism. The latter distinction, we saw, depends on what entities, individual or nonindividual, are admitted as existing. The distinction between particularism and realism, on the other hand, depends on whether a system admits only particulars or also nonparticulars as its "basic units." Broadly speaking the basic units of a system are those elements in terms of which other elements of that system are

explained. Goodman defines them as those individuals which satisfy at least one of the "special primitive predicates" of a given system. The special primitive predicates of a system are those predicates which more specifically determine the subject matter of that system. They can be contrasted with the primitives included in the "general apparatus" or "logic" of a system. Thus the "stroke functional incompatibility" is a common primitive to all constructivist systems and the primitives "overlaps" or "discreteness" are common primitives to all constructivist systems which make use of the calculus of individuals, but none of these specify the elements in experience of which a given system treats. The fundamental elements in experience of which a given theory treats, or the basic units of that system, are the members of the fields of predicates which that theory introduces as primitives; thus, for example, the basic units for Goodman are qualia and sums of qualia other than concreta as they satisfy the two-place relational predicate "is with."

A phenomenalistic system is realistic if its basic units are "non-concrete qualitative elements (such as qualia)"[1] and it is particularistic if the basic units are "concrete spatially or temporally bounded particulars (such as phenomenal events)."[2] Goodman's own system is realistic as its

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[1]Nelson Goodman, op. cit., p. 107.

[2]Loc. cit.

basic units, individuals which satisfy the primitive "is with" are non concrete, they are qualia and sums of qualia which are not concreta. Qualia, Goodman explains, are arrived at by dividing the stream of experience into its smallest concrete parts and these, in their turn, into simple sense qualities or qualia. Thus, a visual concretum may be divided into a time, a visual field place, and a color. These qualitative elements and the sums of them which are short of being concreta (by lacking at least one quale) are nonconcrete. In terms of these qualitative nonconcrete elements Goodman then endeavors to explain other elements in experience such as concreta.

If concreta, color-spot-moments, for example, are chosen as basic units and the qualitative elements such as qualia are explained in terms of these the resulting system is called particularistic. As an example of such particularistic systems, Goodman cites Carnap's Der Logische Aufbau der Welt. For Carnap the basic units are the Elementarerlebnisse which as temporally bounded sections of experience are concrete entities.

More generally for Goodman "whether a system is realistic or not depends upon whether it admits nonparticulars as individuals."[1] Goodman's own system is then realistic because it recognizes nonparticular individuals. How we can call Carnap's system of the Aufbau particularistic by

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[1] Loc. cit.

the same token is however not so clear. An ambiguity arises from the fact that, unlike Goodman's system, Carnap's system is platonistic. A clear cut division of systems into realistic and particularistic systems according to Goodman's criterion seems possible only if those systems are all nominalistic.

The individuals, for Carnap, are the basic units or the Elementarerlebnisse which, as we said, are concrete particulars. However, "individual" for Carnap means something quite different from what it means for Goodman. For Goodman, who adopts the calculus of individuals, individual is something which satisfies predicates like "overlapping," "is a part of," etc. For Carnap, on the other hand, an individual (Elementarerlebnis) is exactly that which does not overlap and is not a part of some other individuals in his system simply because the Elementarerlebnisse are atomic and they are the only individuals that Carnap's system recognizes. If Carnap would have taken for the basic units elements which can be said to overlap or be part of some other element in his system (and can be said to be individuals in that sense) these would have been qualities. But qualities, for Carnap, are not individuals at all, but classes.

This anomaly in the application of Goodman's criteria to platonistic systems results from the ambiguity of the term "individual." The meaning of "individual" for the

nominalistically minded philosopher who makes systematic use of the calculus of individuals is quite different from its usual presystematic meaning. For a philosopher of the nominalistic bent, like Goodman, "individual" means, as we saw, something which belongs to the lowest type of a type hierarchy. Traditionally and more usually "individual" is treated more or less synomymously with "concrete particular." Goodman endeavors to show, however, that the meaning of "individual" should be separated from that of "particular" and that nonparticulars can be treated as individuals.

7. Individuals and Qualification

The nominalist's endeavor to admit only individual entities does not, in itself, determine what can be regarded as individual: it can be both particular and nonparticular or universal. And a system built on nonconcrete qualitative elements, i.e., a system having nonconcrete elements for its basic units, can, Goodman contends, still retain its nominalistic character. To support the contention that abstract qualitative elements can be treated as individuals, and are therefore not irreconcilable with nominalism, Goodman uses the following argument.[1] The argument rests on the distinction between the qualitative elements

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[1]Nelson Goodman, op. cit., p. 108.

themselves and the entities ("properties," "attributes") which would be designated by predicates that involve those qualitative elements if those predicates are considered as designating nonindividual entities. The distinction, to put it in other words, is that between a term which names a quality such as "carmine" and the predicate in which that term occurs such as "has the color carmine." To consider the predicates such as "has the color carmine" as designating would be to commit oneself to the existence of nonindividual entities, but to consider only terms like "carmine" as designating does not, Goodman contends, involve any such commitment and is reconcilable with nominalism.

The systematic construction of abstract or qualitative elements on the basis of traditional platonistic logic commits us to the belief that there are nonindividual entities such as functions and classes. So, for example, on the basis of platonistic logic we can render the sentence "The lampshade is carmine," or "The lampshade has the color carmine," in other words, a relation between two elements x and y such that y is a color quality and x is an object colored by y, through introducing the propositional function "x is carmine" of which "a is carmine" can be considered as a value. If we consider "x is carmine" as a constant function of the general form "ϕx," as a platonist would, we have committed ourselves to the belief that there are functions. Other constructions based on platonistic logic which

make use of concepts such as classes and relations will have similar consequences. So, for example, the rendering of the sentence "The lampshade is carmine" by "The lampshade is a member of the class of carmine objects" will introduce classes.

We can, however, construct the requisite connection between these two elements x and y without either introducing a propositional function or assuming that one of these elements is a nonindividual. A nominalistic construction can be effected by treating both x and y as individuals and by introducing a two-place constant predicate of individuals as a new primitive. An alternative way can be conceived by using some more general predicate such as "is a part of" or "overlaps" in which case, y has to be stipulated first as the specific color quality "carmine" and x as a visual concretum; "x is carmine" can be then simply rendered by "y overlaps x" or "y is a part of x."[1]

The fact that for psychological reasons qualities are perhaps more naturally construed as classes of concreta, i.e., we are inclined to say that a quality is what is common to a number of objects, does not constitute a conclusive argument for the preferred philosophical acceptability

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[1]For practical purposes of system building we will be interested, of course, in the systematic rendering of more general predicates of the ordinary language such as "is a quality of." Cf. Nelson Goodman, op. cit., p. 185.

of such constructions. Psychological preferability is a vague and shaky foundation: it can be brought about more easily by persuasion and appeal to authority than by analysis. When analysis alone is concerned, even the most concrete object or phenomenon can be construed as a class. As Russell has pointed out concrete things, such as tables, chairs, and persons can be conceived as logical fictions, i.e., as bundles of classes of sense data and presentations.[1]

The question whether things or nonconcrete sensory presentations are in some, perhaps epistemological, sense the more fundamental elements of experience is a question which analysis alone is unable to judge. To answer this question would require evidence of an experimental nature. As long as such experimental evidence, of perhaps a psychological kind, is lacking, there seems to be no criterion for judging whether concreta or qualities must be the basic and atomic elements for the systematic interpretation of experience. Furthermore, even if such evidence were provided, it need not, from the standpoint of analysis alone, influence the choice between concreta and qualities as the ontologically more basic

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[1] "So that, if one takes sense-data and arranges together all those sense-data that appear to different people at a given moment and are such as we should ordinarily say are appearances of the same physical object, then the class of sense-data will give you something that belongs to physics, namely, the chair at this moment." Bertrand Russell, "The Philosophy of Logical Atomism." Monist, 1918-1919, reprinted by the Department of Philosophy, University of Minnesota, p. 63.

units of the universe. Aside from epistemological considerations of an experimental nature there are only the considerations of constructional acceptability that can affect this choice.

8. The Problem of Universals

The logical type hierarchy of platonistic logic becomes an ontological hierarchy when incorporated in constructional systems. The construction of some elements of experience as classes will result in the necessity of distinguishing between realms of being. The being of classes appears different from the being of individuals which constitute them. This consequence has caused a debate between nominalism and realism of the treditional sort which, because of its endlessness, has begun to appear futile. Traditionally, classial entities, i.e., qualities, universals, or ideas have been conceived as either lower or higher in their degree of reality than the individuals according to the temperaments and tastes of different philosophers. In constructional nominalism the logic involved includes only two levels of type and no ontological commitments are made on the second, i.e., predicate, type level. The conceiving of such constructional nominalism will therefore have the merit of eliminating large portions of the debates about the degrees of reality that entities can be said to possess. Nominalism, by offering parallel nominalistic constructions with a finite type

hierarchy or by making it possible to treat the platonistic constructions as a mere "manner of speaking," will lessen the ontological weight of constructional platonism.

To treat certain elements of the world as classes is to divide the world into realms of being. If beside individuals also classes are said to exist, we will have to distinguish between entities of at least two ontological sorts. But if only individuals are said to exist, no such distinction is necessary.

Aside from the purely "logical" reasons, i.e., aside from reasons resulting from ways of theory construction, the motives for dividing the world into different realms of being have been of a more intuitive sort. These intuitions have centered mainly around the terms "particular" and "universal." In a way these intuitive opinions about the difference between particulars and universals have played a more fundamental role in metaphysics and ontology than the "logical" division of entities into classes and individuals. Their role has been more fundamental because they have often preceded and motivated the division of entities into individuals and classes. An individual entity has been said to be an individual because it is a particular; and a class has been said to be a nonindividual entity because it is a universal. If we agree that all elements of experience can be constructed equally well as individuals and as classes, we cannot argue that certain entities are particulars and certain

others universals because they are individuals or classes respectively. Whether an entity is construed as a class or as an individual depends merely on the mode of analysis which we adopt.

The terms "particular" and "universal," on the other hand, seem to be tied up more closely with facts. When we refer directly to experience we discover that certain elements in it are repeatable whereas certain others are unrepeatable. For example, a color quality is repeatable in the sense that it can occur at different places and at different times. A concrete color-spot-moment or an Elementarerlebnis of Carnap, on the other hand, is unrepeatable. Therefore we call qualities such as colors, universals; and concreta such as color-spot-moments or Elementarerlebnisse particulars.

This does not mean, however, that we can label once and for all certain elements of experience as particulars and certain others as universals. All that we can claim is that in "brute" experience elements of both repeatable and unrepeatable kind occur and the terms "universal" and "particular" are therefore meaningfully applicable. But all brute experience and what it discloses is conceptually obscure. Experience does not disclose the character of the relationship that governs the division of elements into universals and particulars over any considerable variety of cases.

The universal of one moment of actual experience is followed by the experience of another with a completely unrelated character. Similarly the particulars of our experience belong to a vast and confused variety. And there seems to be no guarantee against the possibility that experience will present "inconsistently" with itself elements which appear as particulars on one occasion and as qualitative or relational universals on others. The neat arrangement of universals and particulars into quality classes and sense realms is more likely to reflect conventional and pragmatic convenience than any thoroughgoing rationality of the world.

In terms of a given system, however, we can provide a consistent and unambiguous division of elements of experience into universals and particulars. This is possible because of the fact that a given system chooses a specific segment or area from the totality of experience. A given system makes reference to this segment or area alone and bans any systematic reference to facts and phenomena outside of this realm. The meanings of terms like "particular" and "universal" or "concrete" and "abstract" are therefore divorced from their possible pre-systematic meanings. We will know how to apply these terms to special cases within the framework of a systematic context, but we cannot determine presystematically what these cases are. Terms like "particular" and "universal" are, so to speak, transcendental,

i.e., they determine the systematic division of elements of experience into entities designated by them, but the predication of these terms in special cases depends on that systematic context which they help to build.

For the nominalist universal terms designate or name an entity only if they are construed as individuals. For the nominalist no universal term, in fact no term whatever, designates if it is construed as a nonindividual such as a class. Whenever such platonistic constructions are encountered the nominalist will, therefore, try to substitute for them nominalistic constructions which make use only of individuals or try to interpret the platonistic construction syncategorematically. In no case, then, for the nominalist does a universal term introduce a nonindividual entity. For the realistically minded nominalist such as Goodman it might, however, introduce a universal entity. But even in such a case his ontology will differ radically from that of a platonist. The realistic nominalist will introduce only a certain limited number of universal entities into his universe. He will introduce exactly these universals which he chooses to construe as individuals in his system. If his task is to analyse experience he might introduce certain sense qualities such as colors, visual field places, etc., but by no means will his commitments to the existence of such qualities involve the introduction of all the other "abstract" entities such as those commonly designated by such words as "number,"

"circularity," "femininity," "catness," or whatnot. The platonist, on the other hand, will introduce an infinity of universals. For him "universal" is synonymous with "class" and the infinite hierarchy of classes will bring with itself an infinite multitude of universals.

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