A

THE MEANING CRITERION

7. *Factual Content as a Criterion for the Meaningfulness of Statements*

The meaning of a statement lies in the fact that it expresses a (conceivable, not necessarily existing) state of affairs. If an (ostensible) statement does not express a (conceivable) state of affairs, then it has no meaning; it is only apparently a statement. If the statement expresses a state of affairs then it is in any event meaningful; it is true if this state of affairs exists, false if it does not exist. One can know that a statement is meaningful even before one knows whether it is true or false.

If a statement contains only concepts which are already known and recognized, then its meaning results from them. On the other hand, if a statement contains a new concept or a concept whose legitimacy (scientific applicability) is in question, then its meaning must be indicated. For this purpose it is necessary and sufficient to point out what experiential conditions must be supposed to obtain in order for the statement to be called true (not "to be true"), and under what conditions it is to be called false. To begin with, this indication is sufficient; it is not necessarily to indicate, in addition, the "meaning of the concept".

> EXAMPLE. The concept "Jupiter" can be introduced by the following stipulation: the statement "Jupiter rumbles in place p at time t" is to be called true if in place p at time t a thunder can be experienced; otherwise

it is to be called false. Through this convention the *statement* has been given a meaning even though nothing has been said about the meaning of the concept "Jupiter"; for if I now tell somebody: "Jupiter is going to rumble here at 12 o'clock" he knows what he can expect. If he satisfies proper conditions (i.e., if he goes to the described place), he can have an experience which either confirms or refutes my statement.

However, the demanded indication is also *necessary*. For if it were considered permissible in science to make a statement whose correctness can be neither definitely confirmed nor refuted by experience, then the intrusion of obviously meaningless (pseudo) statements could not possibly be prevented.

EXAMPLE. Let us consider the following sequence of sign complexes which become progressively more pointless. If the first expression of this sequence is to be considered meaningful (even if false), then it would be difficult to introduce, without being arbitrary, a criterion which allows us to divide the sequence into meaningful and meaningless expressions.

1. "Jupiter sits in this cloud (but the appearance of the cloud does not indicate his presence, nor is there any other perceptual method through which his presence can be recognized.)"; 2. "This rock is sad"; 3. "This triangle is virtuous"; 4. "Berlin horse blue"; 5. "And or of which"; 6. "bu ba bi"; 7. "—) (*——*". It will be admitted that (6) is just as meaningless as (7). For even though (6) consists of signs (namely letters) which otherwise occur in meaningful sentences, the way in which they are put together makes the entire expression meaningless. The relation between (4) and (6) is not fundamentally different; (4) is just as meaningless as (6) even though it is put together out of larger sign complexes which otherwise occur in meaningful sentences. So much is generally admitted. Now we must become clear that (3) and also (2) are just as meaningless as (4); (2) and (3) consists of words which (in contrast to (4)) are conjoined as their grammatical characters require but not as their meaning does. It might seem at first sight that there is an essential difference between (3) and (4), but such an error would be caused by a shortcoming of our ordinary language which allows the construction of grammatically unobjectionable but meaningless sentences. Consequently it can easily happen that a pseudo sentence is mistaken for a meaningful one. In some cases this has been very detrimental for philosophy; we shall see this later when we consider the theses of realism and idealism. (The logistical language does not have this shortcoming. We can decide for any given sentence stated in this language, including extralogical sentences, whether or not it is meaningful, even if only the kind (not also the meaning) of the occurring signs is

known. As a consequence, the logistical language has great importance for the testing of philosophical statements, but this feature is very little known and utilized.)

In order to give a more precise formulation to our thesis, let us first introduce some definitions. If a statement p expresses the content of an experience E, and if the statement q is either the same as p or can be derived from p and prior experiences, either through deductive or inductive arguments, then we say that q is "supported by" the experience E. A statement p is said to be "testable" if conditions can be indicated under which an experience E would occur which supports p or the contradictory of p. A statement p is said to have "factual content", if experiences which would support p or the contradictory of p are at least conceivable, and if their characteristics can be indicated. It follows from these definitions that if a statement is testable, then it has always factual content, but the converse does not generally hold. If it is impossible, not only for the moment, but in principle, to find an experience which will support a given statement then that statement does not have factual content.

EXAMPLES. The statement "in the next room is a three-legged table" is testable; for one can indicate under what circumstances (going there and looking) a perceptual experience of a certain kind would occur which would support the statement. Hence this statement has factual content. The statement "there is a certain red color whose sight causes terror" is not testable, for we do not know how to find an experience which would support this statement. Nevertheless, this statement has factual content, for we can think and describe the characteristics of an experience through which this statement would be supported. Such an experience would have to contain the visual perception of a red color and at the same time the feeling of terror about this color. The pseudo statements (1), (2), (3) of the preceding example do not have factual content.

If a statement is supported only through past experiences and can no longer be tested, then we do not place the same confidence in it as in a testable statement. In history, geography, anthropology, one frequently must be satisfied with statements of this kind; in physics it is generally required that a statement be testable. But if we neglect the degree of certainty of a statement and concentrate only on the question of its meaningfulness, then there is no difference between those statements that have been supported earlier and can no longer be tested, and those

that can be tested at any given time; both kinds of statement are certainly meaningful, hence, either true or false. On the other hand there can be a difference of opinion about those statements which are neither testable nor have so far been supported. No decisive objection can be made if someone wants to be so strict as to ban all such statements from science. However it must be mentioned that the customary method of the empirical sciences, including physics, does not consider statements of this kind as meaningless, but admits them either as hypotheses, preliminary conjectures, or at least as statements that permit the formulation of certain problems. Hence we shall not adopt this strict rule and shall acknowledge statements of this kind as meaningful (but by no means as true); statements which have factual content are meaningful since it is at least conceivable that they will at one time or another be recognized as true or false. However, expressions that are not included among statements with factual content must under no circumstances be considered meaningful. A (pseudo) statement which cannot in principle be supported by an experience, and which therefore does not have any factual content would not express any conceivable state of affairs and therefore would not be a statement, but only a conglomeration of meaningless marks or noises.

All empirical sciences (natural sciences, psychology, cultural sciences) acknowledge and carry out in practice the requirement that every statement must have factual content. It makes no difference whether we are concerned with mineralogy, biology, or the science of religion: each statement which is to be considered meaningful in any one of these fields (i.e., which is either considered true or false or which is posed as a question) either goes directly back to experience, that is, the content of experiences, or it is at least indirectly connected with experience in such a way that it can be indicated which possible experience would confirm or refute it; that is to say, it is itself supported by experiences, or it is testable, or it has at least factual content. Only in the fields of philosophy (and theology) ostensible statements occur which do not have factual content; as we shall see later, the theses of realism and idealism are examples. We have not taken the strict viewpoint which requires of each statement that it should be supported or testable; rather, we consider statements meaningful even if they merely have factual content, but are neither supported nor testable. Hence we are using as liberal a criterion of meaningfulness as the most liberal-minded physicist or historian would use within his own science; therefore our refutation of the theses of realism and idealism will become all the more compelling.

8. *Theoretical Content of a Statement and Accompanying Representations*

Generally speaking, if we utter a statement or merely think one, our train of ideas [8] goes beyond the bare content of this statement. For example, if I say "that bench is small", my mental representation may depict the bench as being green, while the statement does not mention this fact. It is well known that in deductions from given premises errors frequently arise because in addition to the facts which form the content of the premises, other facts, which are mentally associated with them, are unawares used in the deduction.

Let us now distinguish two types of representations (or complexes or sequences of representations; it is not necessary to distinguish these). We call a representation "factual" if its content is meant to be a fact, that is, something which either takes place or does not take place, so that one can say either yes or no to the content of such a representation; all other representations are called "object representations." For example, if I have a representation of a certain person in a certain environment, and if I believe that this person is now in this environment, then the representation is factual; it is either true or false. On the other hand if I merely think of that person in that environment but hold no belief concerning place or time, then I have an object representation. However, a simple representation of a person without any determination of place or time can be factual if a certain property is claimed to be present, for example, that this person has hair of such and such a color. Hence it depends essentially upon a person's intention whether a representation is a factual or a mere object representation; in the first case the experience contains an act of judgment which either affirms or denies that the particular fact exists. From the indicated difference between the two types of representations the following distinction, which is important for our investigation, results: a factual representation can form the content of a statement, while an object representation cannot. The linguistic expression for the content of an object expression is a noun (which may be accompanied by an adjective, apposition, etc.). (In the terminology of Meinong's theory of objects: the content of an object representation is an "object", a content of a factual representation is an "objective".)

EXAMPLES. 1. Expression for object representations: "my son", "a person who looks such and such". 2. Expression for factual repre-

---
[8] Vorstellungsablauf

sentations: "my son looks so and so", "there exists a person who looks such and such".

We must divide the representations which one experiences as one utters or thinks a statement into stated and accompanying representations. Among the accompanying representations there may in turn occur factual representations as well as mere object representations. In the case of the statement "that bench is small" the representation of the smallness of the bench is the stated representation. The representation of the greenness of the bench is an accompanying representation; since it is a factual representation one could add it to the content of the statement by making the additional statement "that bench is green". Assume now that the utterance of the statement "that bench is small" causes in me the representation of a certain musical tone and perhaps also that of a happy mood. These representations are then mere object representations; they do not belong to the facts about the bench; hence they cannot be admitted into any statement about the bench: we cannot attribute the sound or the happy mood to the bench. If we nevertheless try (perhaps misled by a, in this case, pointless inclination to judge), then we obtain pseudo statements, meaningless collections of signs. The accompanying object representations, since they cannot become the content of statements, are beyond truth and falsity. While the theoretical content of a statement must be justified by reference to some criterion, for example the indicated criterion of factual content, the object representations which accompany a statement are not subject to any theoretical control; they are theoretically irrelevant but frequently of great practical importance. To imagine certain configurations of numbers, or the sounds of number words or point configurations when we speak or think of, e.g., the statement "2 plus 2 equals 4" facilitates greatly the learning and deductive manipulation of such statements. Diagrams in geometry play a similar role. The formalization of geometry which has been carried out during the last decade has shown that the graphic properties of the diagrams are a valuable practical aid for research or learning, but that they must not play any role in geometrical deduction.

Occasionally we do not want to leave the occurrence of accompanying object representations to chance but, because of their practical value, want to evoke them systematically in ourselves or others. This can be achieved by choosing appropriate names for the concepts or by choosing an appropriate linguistic form for the entire statement (in the case of an oral statement also through intonation, melody, accompanying gestures, etc.). After all, the choice of a name is independent of the theoretical

content of a statement: it is purely conventional. This allows us to express the accompanying object representations, which are also independent of the theoretical content, in any way we deem appropriate.

EXAMPLES. Formalized geometry (cf. for example Hilbert, *Foundations of Geometry*) does not speak of spatial entities, but of indeterminate objects which are related in a certain way. However we do not customarily designate the basic objects of first, second, and third type with this neutral expression but with the words "point", "straight line", "surface", since we wish that the reader should connect representations of little black spots, of straight lines, and of thin flat slices with the statements about the basic objects. (This is done only to facilitate matters and has nothing to do with questions of theoretical validity.)

When an Indian calls his child "Black Buffalo", then whoever uses this name has the awe-inspiring or respect-evoking accompanying representation of that animal. Here an accompanying representation is expressed which cannot be expressed through a statement, since it does not reflect any fact. The Indian however thinks that, by giving this name, a certain (hoped for) fact is expressed; philosophers, as we shall see, have hoped to accomplish the same by giving suitable names to heteropsychological objects.

B

APPLICATION TO THE
REALISM CONTROVERSY

9. *The Theses of Realism and Idealism*

By the thesis of realism we shall understand the following two subtheses: 1. the perceived physical things which surround me are not only the content of my perception, but, in addition, they exist in themselves ("reality of the external world"); 2. the bodies of other persons not only exhibit perceivable reactions similar to those of my body, but, in addition, these other persons have consciousness ("reality of the heteropsychological"). The thesis of idealism is identified with the corresponding denials (the second of them however is maintained only by a certain radical idealistic position, namely solipsism): 1. the external world is not itself real, but only the perceptions or representations of it are ("nonreality of the external world"); 2. only my own processes of consciousness are real; the so-called conscious processes of others are merely constructions or even fictions ("nonreality of the heteropsychological").

It is not our intention here to ask which of the two theses is correct. (If we wanted to do this we would have to investigate the validity of the subtheses separately.) Rather, we shall raise the more fundamental question whether the indicated theses have any scientific meaning, whether they have any content to which science can take either an affirmative or a negative stand. This more fundamental question must

first be affirmatively answered before the question of the validity or invalidity of the theses can even be raised. According to our previous results, to ask whether they are meaningful is to ask: do these theses express a fact (no matter whether an existent or nonexistent one) or are they merely pseudo statements, made with the vain intention of expressing accompanying object representation in the form of statements, as if they were factual representations? We shall find that the latter is indeed the case, so that these theses have no content; they are not statements at all. Hence the question about the correctness of these theses cannot be raised. In the realism controversy, science can take neither an affirmative nor a negative position since the question has no meaning. We want to show this in the sequel.

10. *The Reality of the External World*

Two geographers, a realist and an idealist, who are sent out in order to find out if a mountain that is supposed to be somewhere in Africa is only legendary or if it really exists, will come to the same (positive or negative) result. In physics as well as geography there are certain criteria for the concept of reality in this sense—we want to call it "empirical reality"—which always lead to definite results no matter what the philosophical persuasion of the researcher. The two geographers will come to the same result not only about the existence of the mountain, but also about its other characteristics, namely position, shape, height, etc. In all empirical questions there is unanimity. Hence the choice of a philosophical viewpoint has no influence upon the content of natural science; (this does not mean that it could not have some practical influence upon the activity of the scientist).

There is disagreement between the two scientists only when they no longer speak as geographers but as philosophers, when they give a philosophical interpretation of the empirical results about which they agree. Then the realist says: "this mountain, which the two of us have found, not only has the ascertained geographical properties, but is, in addition, also real," and the "phenomenalist" (subvariety of realism) says: "the mountain which we have found is supported by something real which we cannot itself know." The idealist on the other hand says: "on the contrary, the mountain itself is not real, only our (or in the case of the "solipsist" variety of idealism: "only my") perceptions and conscious processes are real." This divergence between the two scientists does not occur in the empirical domain, for there is complete unanimity so far

as the empirical facts are concerned. These two theses which are here in opposition to one another go beyond experience and have no factual content. Neither of the disputants suggests that his thesis should be tested through some joint decisive experiment, nor does any one of them give an indication of the design of an experiment through which his thesis could be supported.

Our example can easily be generalized. What is true for the mountain is true for the external world in general. Since we consider only factual content as the criterion for the meaningfulness of statements, *neither the thesis of realism that the external world is real, nor that of idealism that the external world is not real can be considered scientifically meaningful.* This does not mean that the two theses are false; rather, they have no meaning at all so that the question of their truth and falsity cannot even be posed.

> In the case of the second part of the realist thesis, which concerns the heteropsychological, we shall see that the formulation of this theoretically meaningless thesis must be considered the result of a wish to express an accompanying object representation. Perhaps the same is true for the first part of this thesis. Conceivably the realist thesis is due to certain emotional accompaniments, for example, the feeling of unfamiliarity with the mountain, the feeling that in many ways it is not subject to, or even resists, my will, and similar feelings. This problem can be only suggested at this time.

11. *The Reality of the Heteropsychological*

We have seen earlier (§ 5) that in each particular case the recognition of the heteropsychological goes back to the recognition of physical occurrences. And not only in the sense that in each case simultaneously with the recognition of a heteropsychological occurrence somehow the recognition of a physical occurrence takes place, but in such a way that the heteropsychological with all its characteristics depends upon the recognition of the corresponding physical occurrence. Hence one could translate any statement about a given heteropsychological occurrence, for example "A is now joyful", into a statement which mentions only physical occurrences, namely expressive motions, acts, words, etc. This statement could mention either those physical occurrences (expressive motions, etc.) which have led to the recognition of the joy of A, that is, it could speak of the content of perceptions that have already been experienced; or it could indicate ways of testing A's joy. In the latter case it is a con-

ditional statement of the form: if A is now subject to such and such conditions, then such and such (physical, perceivable) reaction will take place.

Hence we are here confronted with two different languages, one of them psychological and one physical; we maintain that they both express the same theoretical content. It will be objected that in the statement "A is joyful" we express more than in the corresponding physical statement. This is indeed the case. Aside from having the advantage of much greater simplicity, the psychological language also expresses more than the physical language, but this more does not consist of additional theoretical content; it expresses only accompanying representations; these are merely object representations, that is, representations which do not stand for any fact, and hence which cannot form the content of a statement. They are expressed by choosing a certain language (while other accompanying features, which also do not belong to the theoretical content, are expressed, e.g., by the intonation, gestures, etc.). For by saying "A is joyful" and not merely "A shows facial expressions of such and such a form", I express that I have a representation of a feeling of joy, although a feeling of joy in the autopsychological sense, since I cannot know any other. However, to assume that by using the psychological instead of the physical language, that is to say, by using the expression "joy" instead of "facial expressions of such and such a form", we express a fact which goes beyond the physical state of affairs, is to confuse the theoretical content of the statement with an accompanying representation.

> With this confusion one would commit an error even more serious than that of the Indian (§ 8); for the accompanying representation of the Indian led him, even if erroneously, to the factual representation which, roughly speaking, could be expressed by the statement: "my son is as strong as a buffalo." In the present case however, we are not merely induced to make an erroneous statement, but a pseudo statement. For no fact is even conceivable or stateable which could connect the representation "feeling of joy" (in the autopsychological sense) with the behavior of A.

Let us again think of two scientists, this time psychologists; let one of them be a solipsist, the other a nonsolipsistic idealist or realist. (The dividing line runs here a somewhat different course than before, but this is not important to our discussion, since we do not want to find out which of the two opposing parties is correct; we only wish to show that the entire controversy is scientifically meaningless.) Our two scientists decide

The Logical
Structure of
the World

and

Pseudoproblems
in Philosophy

Rudolf Carnap
Translated by Rolf A. George

PREFACE TO THE SECOND EDITION

Der Logische Aufbau der Welt was my first larger book, the first attempt to bring into systematic form my earlier philosophical reflections. The first version was written in the years 1922–1925. When I read the old formulations today, I find many a passage which I would now phrase differently or leave out altogether; but I still agree with the philosophical orientation which stands behind this book. This holds especially for the problems that are posed, and for the essential features of the method which was employed. The main problem concerns the possibility of the rational reconstruction of the concepts of all fields of knowledge on the basis of concepts that refer to the immediately given. By rational reconstruction is here meant the searching out of new definitions for old concepts. The old concepts did not ordinarily originate by way of deliberate formulation, but in more or less unreflected and spontaneous development. The new definitions should be superior to the old in clarity and exactness, and, above all, should fit into a systematic structure of concepts. Such a clarification of concepts, nowadays frequently called "explication," still seems to me one of the most important tasks of philosophy, especially if it is concerned with the main categories of human thought.

For a long time, philosophers of various persuasions have held the