College of Education

Some Aspects of Truth in Contemporary Philosophy

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The author believes that the question, "What is Truth?" is clearly basic to any educational philosophy which attempts to make prescriptions for educational practice. Therefore, he is concerned to investigate some of the more important work done in this area in recent years, though not to do more than that—not to attempt an answer to that perennially disturbing and age-old question. In this careful review of selected contemporary writings on the philosophy of truth, the author brings together several creative and interesting points of view for comparison.

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The problem of truth has been with men since before Pilate asked Christ, "What is Truth?" Plato based his doctrine on what he regarded as a fundamental distinction between *doxa,* opinion, and *episteme,* certain knowledge. To take a pair of wildly dissimilar examples, the Eleatics before Plato and the medieval Christians long after him found themselves vitally concerned with the same problem.

With the development of modern science and the many schools of thought that turn upon it or claim alliance with it, the statement has been made[1] that the only rule to which the scientist has to submit is the specific system of logic and research which his culture recognizes as the most valid. This is the central contention of relativism, and it is the logical outgrowth of the recognition described

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[1]Ulich (17, pp. 149-150).

by Ducasse, that the ultimate criterion of truth is the individual's own belief in the "self-evident" truth of a proposition. A distorted extension of this central statement is the biology of the Russian Lysenko (now apparently discredited by his superiors), which was "true" relative to a Marxist framework.

As I. L. Kandel has pointed out, any discussion of the nature of the state leads inevitably to some evaluation, some assessment of values and ends of political life, and to a consideration of the ways in which education is directed to their attainment. To what purpose is illiteracy eradicated in a country, unless the eradication is accompanied by an effort to cultivate judgment in the choice of what to read?

From the inevitability of the assessment of values follows the necessary inclusion of an examination of the nature of truth. If truth is completely relative, then the culture pattern and the nature of the state both are antecedent to, and take precedence over truth. The deliberate manipulation of education by those in control of the state, with regard only for the purposes of the state, must then be regarded as justifiable. Robert Ulich has declared[2] that the relativist danger of dissolving everything in indecision and irreverence —it might be added, worse still, of subverting the ideal of freedom of thought—cannot be overcome by denying the obvious fact that man is indeed a creature of contingency, and that nearly all human activities are modified by the culture pattern. We would not, he says, ever escape from relativism if it meant merely the admission that man depends to a high degree on his environment, physically, mentally, and morally. The way out lies in the courageous admission that there are vision, faith, and purpose in human life as well as just actuality. Man transcends his environment, as well as exists within it.

In the words of Alexander Koyré, truth is spirit and freedom. It is not a secure possession of mankind. Every generation, as well as every individual, must win it for itself through its own exertion. The task is a difficult one in which the object must be kept in view; hence the need for a frequent critical re-examination of our notion of truth.

The purpose of this paper is to achieve a measurement of clarification of the general notion of truth by reviewing and comparing some of the writings in contemporary philosophy on the subject. Within its scope it is hardly possible, of course, to review the liter-

[2]Ibid.

ature completely: the material presented is a selection from a more comprehensive research project.

I. Truth and Meaning

That truth and meaning are not the same may be demonstrated easily and simply by considering, to take an example from the current literature, the sentence "There are six species of animals on Mars."[3] Each of the words in the sentence is *meaningful,* for they are correctly arranged grammatically; but the *truth* (or falsity) of the sentence is not established nor, at least at present, can it be. It may be asked what a sentence means if its truth or falsity cannot be established. The logical positivists of the Viennese circle answered the question by saying, "It means nothing." But that would not rob the present example of meaning, they would say, because only practical difficulties, i.e., our inability to get to Mars to count the species of animals, stand in the way of its being verified. It is, in principle at least, *verifiable* and therefore *meaningful.*

This positivist criterion of meaning, as McMurrin states it, may be formulated thus: all cognitively meaningful sentences, i.e., sentences which are either true or false, are either formal, as is the case with the propositions of logic and mathematics, which are either tautologous or contradictory and are without factual reference, or they are empirical, being capable in principle of experiential test, and thus assert something about matters of fact.[4]

Moritz Schlick, the leader of the Viennese positivist circle, put the matter this way, "Whenever we ask about a sentence, 'What does it mean?', what we expect is instruction as to the circumstances in which the sentence is to be used; we want a description of the conditions under which the sentence will form a *true* proposition, and of those which will make it false." This description *is* the meaning, and it is then determined by a set of rules which regulate the use of a word or combination of words. These rules, Schlick says, are the rules of the *grammar* of the words, using "grammar" in its widest possible sense.[5]

The conclusion to be drawn from this statement is that we must ultimately refer to ostensive definitions, which of course means reference to "experience" or "possibility of verification", in Schlick's terms, before we can understand any meaning. (Schlick points out that the appellation "experimental theory of meaning", often ap-

[3]Randall and Buchler (13).
[4]Jarrett and McMurrin (7, p. 363).
[5]Schlick (15).

plied to the view just expressed, is a misnomer, for it is no set of theoretical hypotheses, but a simple statement.)

Professor C. I. Lewis has voiced[6] one objection to this criterion, when he pointed out that, if it is maintained that no issue is meaningful unless it can be put to the test of decisive verification (which cannot take place except in the immediately present experience of the subject), nothing can be meant except what is actually present in the experience in which that meaning is entertained.

Schlick's reply is that the conclusion does not follow from Lewis' premises, because the first premise assures us that the issue has meaning if it *can* be verified. Verification does not have to take place. Verification is a process, like hearing or feeling bored, and the sentence, "Verification can take place only in present experience" is nonsensical because it cannot possibly describe a fact. Further, Schlick asserts that propositions about future events can be verified by simply waiting for the events to happen. " 'Waiting' is a perfectly legitimate method of verification."

Dalkey[7] has indicated that one objection to the empirical criterion of meaning (ECM) is based upon a misunderstanding of it. The objection states that it is necessary to know the meaning of a sentence in order to determine whether or not it is verifiable, or whether or not it is meaningful. Dalkey says that the ECM sets up a logical equivalence between being meaningful and being verifiable; there is no question of before and after. Again, Dalkey says, it is simply not the case that if a person "knows the meaning" of a sentence he thereby knows directly whether or not it is meaningful. Dalkey points out the difference between "knowing the meaning" of a sentence, and knowing whether it is meaningful. "To 'know the meaning' of a sentence is to know how to use it correctly, i.e., in a socially acceptable manner." Such social skill in word usage does not, he says, entail a recognition of the cognitive value of the sentence.

He suggests that a more expedient method of constructing a criterion of meaning would result from dealing with the *way in which words are given a usage,* rather than by using the rather troublesome term "verifiable", a term which, he says, involves several psychological and sociological puzzles which are irrelevant to the design of a criterion of meaning. The method makes use of the simple device of choosing a set of words which are obviously mean-

[6]Lewis (10).
[7]Dalkey (5).

ingful in the sense in which we are interested and saying that any other term is meaningful if it has the proper relation to one or more of these "touchstone" words, which are those which can be learned on the basis of direct experience.

This is the method used by Schlick and also by Carnap in his article "Testability and Meaning".

Norman Dalkey points out that the success a criterion achieves in making the language a more efficient instrument will determine the final choice of the criterion. He opens another field for discussion when he suggests that vagueness might not be a degenerate state of language. It may be useful and even essential, and Dalkey points to the necessary vagueness of terms used to describe quantum mechanics. (Another case in point is the Law of Disorder of probability, as treated by George Gamow in some of his popular writings.) According to Dalkey, the unkempt word may keep our meanings warmer than the precisely tailored one. "For different aims we might expect different criteria to be appropriate. This seems to be the case with respect to the criteria used for the natural languages," i.e., natural, as opposed to the systematic language, in which the parts of a theory are expressed. In the natural languages and in the varying uses to which they are put, we have of course varying degrees of meaningfulness, a virtual continuum; as Dalkey says, there seems to be no particular point in drawing a line across the series and saying that beyond this knife edge lies the darkness of utter nonsense.

Felix Kaufmann[8] observes that certain considerations lead us straight to the issues of the relations among meaning and verification and verifiability. In positivistic doctrines, it has been duly emphasized that philosophy cannot legislate to science by prescribing rules of scientific procedure which are purportedly established by pure intuitive reason as self-evident truths. The rules of scientific procedure are established rather by the pragmatic nature of science itself. The criticized view has its chief root in the failure to distinguish sharply between deductive logic in the strict sense and the logic of scientific procedure. Proof by pure reason, i.e., clarification of the meaning of propositional functions, is a way of "justifying" logical rules, a way *not* applicable to the rules of empirical procedure, as Hume has shown. Nor is it correct to say, Kaufmann continues, that the rules of procedure made explicit by such analyses as Hume's are descriptive of the actual procedure of the scientist.

[8]Kaufmann (8).

Rather, these rules are the criteria in terms of which scientists distinguish between correct and incorrect scientific decisions. Scientists seek, of course, to comply with these rules, but more or less frequent aberrations leave their validity untouched. The important point is their recognition as standards of criticism.

The issue, according to Kaufmann, is this: on the one hand, the meaning of a synthetic proposition is *not* logically prior to the criteria of its verification in the sense that these could be deduced from the meaning. If this were so, Kaufmann writes, we could indeed establish the rules of verification on ultimate grounds, as we can the rules of the syllogism. On the other hand, meaning is certainly in a sense prior to verification or verifiability. In asking whether it is correct to accept a proposition, we consider that proposition as given. We cannot formulate a problem of verification without referring to the meaning to which the verification relates.

Naturally, the question arises, "How are meanings given?" Kaufmann admits that this question indeed indicates profound problems, the problems of the "constitution" of meanings, and he refers the reader to Husserl's later phenomenological works for the treatment of them. But, he insists, such problems have no place in methodology, where objective meanings are presupposed as "already" constituted. "What matters is not the meaning of 'meaning', but a sharp distinction between problems that are exclusively concerned with meaning. . . ."

II. Truth and Verification

In his article, Kaufmann briefly examines the meaning of "truth" as related to scientific procedure. Truth and falsity, he says, are taken in traditional logic to be properties of propositions, each of which possesses one and only one of the two truth-values "true" and "false". This view, of course, is that of Aristotle, who declared that only such sentences are propositions as have in them either truth or falsity. (*De Interpretatione*, I, 4). To verify a proposition must mean, according to this view, to acquire the knowledge of its truth. To falsify it must mean to acquire knowledge of its falsity. Of course, our knowledge of these properties does not *establish* them; they are "independent" of our knowledge. This seems, at first glance, to explain why logic can analyze the truth-relations between synthetic propositions without examining whether they are true. Closer analysis, however, reveals that the so-called truth-relations between synthetic propositions are not concerned at all with their

truth or falsity, but merely with internal relations (logical inclusion or exclusion) of propositional meanings, i.e., of restrictions of the frame of probabilities irrespective of any actualization.

Such recognition of the proper function of truth-relations of synthetic propositions seems vital to the validity of scientific procedure.

In discussing the issue of whether "truth" is to be defined in terms of scientific procedure, Kaufmann criticizes the realists for their confusion of the terms "logical independence" (or "dependence") and "causal independence" (or "dependence"). "It is absurd to maintain, the realists would argue, that truth should depend on knowledge, e.g., that Kepler's laws of planetary movements should not have been true before Kepler formulated them." The argument at first sight *is* convincing, says Kaufmann, but it does *not* prove that the meaning of "truth" is (logically) independent of the meaning of verification. Instead, it only shows that the historical fact of accomplished verification is not among the "truth-conditions", i.e., the criteria of (possible) verification.

Kaufmann illuminates his point further by referring to a situation where the occurrence of an event may causally depend upon whether it had been predicted and further upon whether such prediction may have been warranted. Such a situation might be the influencing of the price of a commodity by a prediction and an explanation of the factors on which the prediction had been founded. Thus the truth of the (conceivable) prediction may causally depend upon whether it was actually made and substantiated if we understand by its "truth" its confirmation by actual observation. But, writes Kaufmann, if we understand "truth" in this way, we have established the observational test as a "truth-condition"; i.e., we have defined "truth" in terms of this test, and then we cannot say that the fact that the prediction has been actually made and warranted is a "truth-condition" for it. We shall be more ready, Kaufmann thinks, to recognize that "truth" is not unrelated to verifiability and hence to rules of scientific procedure when we have disposed of the ambiguities that lie in the prevailing confusion between matters of fact and relations of meanings.

From the argument that a statement is true or false irrespective of time, it seems to follow that "truth" and "falsity" have a logical structure fundamentally different from that of verification and falsification respectively, and cannot, therefore, be defined in terms of them. Doubting the conclusiveness of the argument, Kaufmann

asks, "Can we really say that 'true' and 'verified' are fundamentally different concepts? Would not this imply that the idea that science aims at finding truths is altogether erroneous? And is it essential for a true proposition to be able to withstand all controls?"

In order to dispose of the paradox which arises as a result of the foregoing discussion, Kaufmann proposes the following definitions: "We mean by a true proposition one that could be accepted if we had all possible knowledge which is relevant (in terms of the rules of procedure) for the decision whether it can be accepted, and that once accepted, could withstand all possible controls." In such a definition, the concept of truth is related to an idealized potential process of verification. The belief that propositions can be found which would be able to withstand all possible control is the "belief in truth". It can be neither ultimately confirmed nor ultimately refuted. Yet, Kaufmann cautions, if the doctrine of skepticism pretends to have refuted the belief in truth because of its stress on the impossibility of ultimate confirmation, it is wrong, and furthermore it is wrong if related to analytic propositions.

In a chapter on empirical knowledge and certainty, Arthur Pap[9] summarizes the views of those philosophers, mainly followers of Wittgenstein, who maintain that the fallibilist thesis of the inevitable uncertainty of all empirical knowledge is trivial.

Pap thinks that the proper question to be addressed to the "fallibilists" is this: "Just under which conditions *would* I have conclusive evidence for my empirical belief?" If the fallibilist should give the probable reply, "However numerous the tests may be by which you partially verified your belief, there is always further empirical evidence that is relevant to its truth or falsity," he would only be saying in another way, Pap points out, that a complete verification of an empirical proposition would involve an infinite program of testing. To use Pap's example, every historical event propagates effects throughout an infinite future, and every such future effect is relevant to the truth or falsity of the statement that the event actually occurred. Thus we come to the conclusion that if "certain" means "completely verified", again the fallibilist principle is unassailable on account of being definitional, but it is trivial to say that a never-ending process never ends.

Pap's discussion, emphasizing as it does that the problems to be solved are problems of definition and analysis, is clarifying. But Pap insists that thus locating the problems is not to say that the fal-

[9]Pap (12).

libilists have made a trivial point. Although it is true that the proposition "no empirical statement is conclusively verifiable" is either false or else analytic, it is still a worthy achievement to articulate the sense of "conclusively verifiable" in which the proposition is analytic, because thereby one clarifies the difference between an empirical statement and a logico-mathematical statement.

For Hans Reichenbach,[10] truth is the idealization of a weight of high degree, using the concept of weight in its probabilistic, statistical sense. Such a concept follows developmentally from C. S. Peirce, who considered truth to be the "concordance of an abstract statement with an ideal limit towards which endless investigation would tend to bring scientific belief." Peirce envisaged the "endless investigation" being undertaken by a community of scientists who would know full well that the investigation *would* be endless, and that the limit permitting the concordance *would* be ideal, but who would continue their efforts in "the cheerful hope" that they would meet with success anyhow—a rather apt description of the present state of science and philosophy.

Reichenbach asserts flatly that there are no propositions at all which can be verified. Earlier in the same work, he has postulated three predicates of propositions: meaning, truth-value, and weight; and he has identified one apparent difference between truth-value and weight. The difference is this: "whether a sentence is true depends on the sentence alone, or rather on the facts concerned. The weight, on the contrary, is conferred upon a sentence by the state of our knowledge and may therefore vary according to a change in knowledge. . . . Truth-value, therefore, is an absolute predicate of propositions, and weight a relative predicate."

Analyzing the presupposition that propositions about concrete physical facts (which he calls "observation" propositions) are absolutely verifiable, he shows that this conception is untenable and that even for such statements only a weight can be determined. Statements concerning impressions, "impression propositions", are likewise shown to be incapable of absolute verification and also to be judged only by the category of weight. "Thus there are left no propositions at all which can be absolutely verified." And thus the predicate of truth-value of a proposition is a mere fictive quality. All propositions are indirect and never exactly verifiable; the predicate of weight entirely supercedes that of truth-value; it remains our only measure for judging propositions. Our speaking of the truth-

[10]Reichenbach (14).

value of a proposition is only a schematization, because we regard a high weight as equivalent to truth and a low weight as equivalent to falsehood. The intermediate domain is called "indeterminate". The conception of science as a system of true propositions, Reichenbach firmly avers, is nothing but a schematization.

This conception, he reminds us, is a useful approximation, but like all approximations is permissable only within a certain domain of application. Thus for a careful epistemological inquiry, it will not do at all, and leads to grave incongruity with the actual situation. Furthermore, in the hands of what Reichenbach calls "pretentious and consistent logicians", this schematization has produced serious misunderstandings of science and has led to grave distortions in the interpretations of scientific methods. It has also been abused, Reichenbach claims, as a support for a radical misinterpretation of the very nature of science.

Reichenbach thinks his description applies to the positivist criterion of meaning (see section I, *supra*) which makes meaning dependent on verifiability. So long as the demand of verifiability is not overstrained (Pap insists on the same condition when he emphasizes the importance of "verifiable in principle"), that is, so long as a highly probable proposition is considered as true, the positivistic theory is useful. "But with the introduction of higher pretension into the methods of analysis, a great number of the propositions of science are pointed out as unverifiable; the positivistic theory of meaning, then, expels these propositions from the domain of meaning, and substitutes for them other sentences which, for any unprejudiced eye, cannot perform the functions of the condemned propositions."

Reichenbach remarks the fact that, although this procedure is carried through with more or less consistency, none of its representatives has had the courage, as yet, to carry his principle through to its ultimate consequence and to admit that there are no meaningful sentences at all left in science.

It was to escape such criticism leveled at them by Reichenbach that Schlick and others of the positivists modified their earlier extreme position. The positivistic theory of meaning emphasizing that meaningful statements are *in principle verifiable* approaches the probabilistic theory of meaning of Reichenbach, in which verification is to denote only the determination of a degree of probability.

Kaufmann agrees with Reichenbach on the matter, saying that knowledge, whether perfect or imperfect as to invariable truth, of

synthetic propositions is unobtainable, not because of the limitations of human knowledge, but because the conception of such knowledge involves a contradiction in terms.

Rudolf Carnap has made a distinction between truth and perfect knowledge in an argument which is presented elsewhere in detail.[11] Reichenbach, Kaufmann, and Neurath all infer, from the impossibility of absolute certainty, that the semantical concept of truth should be abandoned. This inference, says Carnap, presupposes this premise: "A term (predicate) must be rejected if it is such that we can never decide with absolute certainty for any given instance whether or not the term applies." But not even Reichenbach, Kaufmann, or Neurath believe this. Carnap advances in its place another premise, according to which "true" is likewise a legitimate scientific term.

Carnap would thus preserve the distinction between "true" and "confirmed", probably reserving for the latter the meaning, "*estimated* as true by *X* at time *t*." He declares that the confusion of "true" with "confirmed" has been brought about because it has been considered altogether impossible to establish an exact and consistent definition of truth (in its customary meaning). He points out, too, that this confusion leads to the necessary abandonment of the principle of the excluded middle, which maintains for every statement that either it or its negation is true.

In another article, Carnap[12] makes the distinction more explicit and refers to the semantic concept of truth to make his meaning clearer. He insists, in opposition to Kaufmann, that we must distinguish between "true" on the one hand and "known to be true", "verified", "established", "highly confirmed", "warranted as assertible", etc., on the other. "The concept variously expressed by the latter phrases and similar ones may imply truth but it is not identical with truth." He says the semantical concept of truth has nothing to do with the idea of perfect knowledge or absolute certainty. He quotes Kaufmann, " 'There is no domain of legitimate application for a general concept of truth which would encompass a) logical implication, b) warranted assertibility, and c) total coherence—or even any two of these terms'." Going beyond Kaufmann, Carnap says emphatically that the semantic concept of truth does not encompass any *one* of these three concepts—although his statement seems unclear as it applies to logical implication. "The truth of a sentence means simply that the facts are as described in the sentence,

[11]Carnap (4, p. 120 ff.).
[12]Carnap (3).

whether anybody knows it or not. The question as to how we are to find out whether the facts are as described is a different matter; this question is to be answered by stating criteria of confirmation."

Carnap agrees with Kaufmann that the use of the concept of truth is not necessary (however helpful) either in deductive or in inductive logic, because the basic concepts of these two fields (logical implication and degree of confirmation, respectively), can be defined without referring to truth. Kaufmann prefers to avoid the concept of truth in logic in order to preserve the conceptual purity of deductive logic. Carnap does not object, but indicates that he feels there is "no compelling reason for requiring others to follow the same ascetic procedure", if they feel the use of the concept would be convenient.

Ernst Nagel[13] objects to the definition of true proposition by Kaufmann, which has been set forth above. The objections of Nagel are threefold:

1. It is not clear how Kaufmann can establish the necessary truth of the principle of excluded middle and other logical principles, if "true" is specified in terms of acceptability. Carnap (above) pointed out that the confusion of "true" with "confirmed" has led to essentially the same result, the abandonment of the principle.

2. The acceptability of a proposition for Kaufmann is always relative to a system of rules of procedure. It follows that whether a given proposition is true or not depends on what system of rules are implicitly presupposed in instituting controls for it. Is a proposition true, Nagel asks, relative to a Thomist set of controls, even *if it is false relative to the controls of modern science?*

3. The truth of a proposition is specified in terms of the completion of a theoretically endless process. Accordingly, truth is simply an ideal of inquiry, and a synthetic proposition can never be established as true. But Nagel, like G. E. Moore, accepts the point that "I know *S*" (where "S" is any proposition) logically entails "S is true." (This may be seen from the fact that if S is not true, then one does not *know* S.) In consequence, Nagel says, if Professor Kaufmann were right in his contention that a synthetic proposition can never be established as true, we would never *know* anything.[14] To propose that we "know" something with probability, in the view of Nagel is to propose a new usage for the verb "to know".

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[13]Nagel (11).

[14]Dr. Israel Scheffler thinks that this does not necessarily follow, because the Moore-Nagel entailment above does not imply the following one: "I know S, therefor S is now *established as true.*"

Arthur Pap[15] joins Nagel and Carnap in desiring to keep a place for the semantical concept of truth. "Why," he asks, "should one conclude from the fact that it is always possible to doubt whether a given concept applies in a given case, that the concept is illegitimate or inadmissible?"

III. The Semantic Concept of Truth

The logician Alfred Tarski[16] attempts to form a definition of truth which will be formally correct and materially adequate. The conditions governing the formation of the definition may be outlined thus:

1. It is most convenient to apply the term "true" to sentences. (We must always relate the notion of truth to a specific language; for it is obvious that the same expression which is a true expression in one language can be false or meaningless in another.) This does not exclude the possibility of the extension of the term to other objects.

2. The definition should comprehend and conform to other notions of truth, such as (1) the Aristotelean definition, "To say of what is that it is not, or of what is not that it is, is false; while to say of what is that it is, or of what is not that it is not, is true"; (2) the correspondence theory that the truth of a sentence consists in its agreement with (or correspondence to) reality; (3) the concept of designation, which is that a sentence is true if it designates an existing state of affairs.

Tarski's criteria of the material adequacy of a definition are (1) the sentence "Snow is white" is true, if, and only if, snow is white. In general, this schema (T) X is true, if, and only if, p is called an "equivalence of the form (T)." (2) We shall call a definition of truth "adequate" if all equivalences of the form (T) follow from it. It should be emphasized that neither the expression (T) itself (which is not a sentence but only the schema of a sentence) nor any particular instance of the form (T) can be regarded as a definition of truth. The name "the semantic conception of truth" is proposed by Tarski for the conception which has been outlined.

Tarski is quick to point out that the problem of the definition of true obtains a precise meaning and can be solved in a rigorous way only for those languages whose structure has been exactly specified. For other languages—thus for all natural or 'spoken' languages—

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[15]Pap (12, p. 355).
[16]Tarski (16).

the meaning of the problem is more or less vague, and its solution can have only an approximate character.

In order to discuss the structure of the specified language, Tarski advances the elemental notions of the object-language and the meta-language. The object-language is the language which is "talked-about". The definition of truth applies to the sentences of this language. The meta-language is that in which we "talk-about" the first language, and in terms of which we wish to construct the definition of truth for the first language. If we wish to "talk-about" our meta-language, we must go to a higher meta-language, and thus we arrive at a whole hierarchy of languages.

Euryalo Cannabrava[17] differs sharply from Tarski and all others who assert an involvement of truth with language or context. He says bluntly that truth is simply objectivity, disclosed in the formal structure of a relational implication, as well as in any correct description of a state of affairs. It is independent of any linguistic or contextual meaning.

He is markedly impatient with American philosophers who attempt to replace his "objectivity" with any sort of subjective definition. He is especially scornful of those who use symbolic logic "to give the appearance of truth to what is actually wishful thinking at its worst." He thinks that to say, for instance, that scientific statements are right in so far as they are agreed upon by competent observers must be considered an absurd proposition, in spite of our ability to reinforce it by the appearance of consistency and logical truth. No symbolic device, he says, can change a foolish statement into a sound one.

But Cannabrava's voice is a lone one.

The notions of designation and satisfaction are helpful in furthering the clarification of the semantic concept of truth. Pap points out[18] that it is possible to know what an expression designates without knowing whether a given sentence containing the expression is true; but, on the other hand, it is impossible to determine the truth-value of a sentence without knowing what its constituent expressions mean. This, then, is the reason why the concept of truth, semantically defined, logically presupposes the fundamental semantic concept of designation.

Satisfaction is a relation between arbitrary objects and certain expressions called "sentential functions". Given objects satisfy a given function if the latter becomes a true sentence when we replace

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[17]Cannabrava (2).
[18]Op. cit., pp. 347-348.

in it free variables by names of given objects; e.g., "X is white" is a sentential function satisfied by snow, since the sentence "snow is white" is true.

Concerning the declaration of Pap, that it is impossible to determine the truth-value of a sentence without knowing what its constituent expressions mean, Scheffler has observed that it may be wrong. For, he says, if "P" and "Q" are significant expressions, and if "P" is true, then the sentence " 'P' or 'Q' is true", is true, and we can determine this without knowing what the constituents of Q designate. The declaration of Pap holds true in this case only if Scheffler's example is regarded as a molecular sentence to be broken into its atomic parts, of which the sentence "Q is true" is one.

Considering the notions of designation and satisfaction, together with Tarski's criteria, we arrive at Tarski's definition of truth. It appears that for sentences only two cases are possible: a sentence is satisfied either by all objects or by no objects. Thus Tarski defines truth and falsehood simply by saying that a sentence is true if it is satisfied by all objects, and false otherwise.

A summary of the semantic concept of truth includes the following points:.

1. The structure of the language inevitably influences the sense in which truth is used.

2. Assumptions leading to contradictory sentences must be examined. This point may be illustrated by the antinomy of the liar, which Tarski thinks it dangerous to treat as a joke or as a sophistry. Here is the antinomy:

(1) The sentence written here is not true. S.
(2) "S" is true if and only if the above sentence is not true, according to the schema (T).
(3) Thus "S" is true, if, and only if, "S" is not true.

The assumptions leading to the contradiction are in general twofold: (1) the language in which the antinomy is constructed contains, in addition to its expressions, the names of those expressions as well as semantic terms such as the term "true" referring to sentences of this language. We have also assumed that all sentences which determine the adequate usage of this term can be asserted in the language. A language with these properties is called by Tarski "semantically closed". (2) In this language the ordinary laws of logic hold.

3. The semantic conception of truth thus comes to this, in Pap's terms: "[p] is true" is synonymous with the simple assertion of [p].

"Thus to say it is true that Horowitz is a great pianist is the same as asserting that Horowitz *is* a great pianist, and to say of this proposition that it is false is to assert its denial, 'Horowitz is not a great pianist.' " Again we could assert the semantic conception of truth as an equivalence: "for every *p*, p is true, if and only if *p*."

IV. Logical Truth

A. J. Pap has observed that logically truths are only *practically* irrefutable by experience, in the sense that, when reconciling prediction and observation means abandoning a logical principle, the price is too high. This may be seen from Pap's example, in which the supposition is made that we abandon the logical principle, "Any statement which is implied by true premisses is true," because in a given case a conclusion derived from premisses firmly believed to be true turned out to contradict observed facts.

A. J. Ayer's empiricism[19] is representative of that which rests upon purely logical considerations. He makes it clear, in calling himself an empiricist, that he is not avowing a belief in any of the psychological doctrines commonly associated with empiricism, holding that, even if these docrtines were valid, their validity would be independent of the validity of any philosophical thesis and could be established only by observation. He attempts to deal with the objection that is commonly brought against all forms of empiricism; namely, that it is impossible to account for necessary truths on purely empiricist principles. In so doing he presses the point that every consistent empiricist must accept the principle that all propositions, not only general propositions, which deal with factual content are at best only probably hypotheses, and that none can ever become logically certain. The point has already been discussed above and need not be elaborated here, except to remark that Ayer adds that the fact that the validity of a proposition cannot be logically guaranteed in no way entails that it is irrational for us to believe it. On the contrary, what is irrational is to look for a guarantee where none can be forthcoming, to demand certainty where probability is all that is obtainable.

Ayer cites Hume's conclusive demonstration, already alluded to above, that no general proposition whose validity is subject to the test of actual experience can ever be logically certain, for the fact that an empirical law has been substantiated in *n*-1 cases affords no logical guarantee that it will be substantiated in the *n*th case also,

[19]Ayer (1).

no matter how large we may take *n* to be. Ayer remarks that there is nothing perverse or paradoxical about the view that the "truths" of science and common sense are hypotheses; and consequently the fact that empiricism involves this view constitutes no objection to it.

Ayer admits that where the empiricist does encounter difficulty is in connection with the truths of formal logic and mathematics. Because no proposition which has a factual content can be necessary or certain (if empiricism is correct), the empiricist must deal with the necessary and certain truths of logic and mathematics in one of the two following ways: he must say either that they are not necessary truths, in which case he must account for the universal conviction that they are; or he must say that they have no factual content, and then he must explain how a proposition which is empty of all factual content can be true and useful and surprising.

Having phrased the problem so, Ayer declares that the empiricist, if neither of the two courses prove satisfactory, must give way to rationalism and admit that there are some truths about the world which we can know independently of experience; that there are some properties which we can ascribe to all objects even though we cannot conceivably observe that all objects have them. We shall have to accept it as a mysterious and inexplicable fact, Ayer says, if the empiricist cannot solve his problem, that our thought has this power to reveal to us authoritatively the nature of objects which we have never observed, or else we shall have to accept the Kantian explanation, which only pushes the mystery a stage further back.

In attempting to make good the empiricist insistence that there are no "truths of reason" which refer to matters of fact, Ayer rejects Mill's contention that the propositions of logic and mathematics have the same status as empirical hypotheses, or that their validity is determined in the same way. He maintains instead that "they are independent of experience in the sense that they do not owe their validity to empirical verification."

Ayer makes these additional points: (1) the terms "true" and "false" connote nothing, but function in the sentence simply as marks of assertion and denial. And in that case there can be no sense in asking us to analyze the concept of "truth". (2) There is, then, no problem of truth as it is ordinarily conceived. The traditional conception of truth as a "real quality" is due, like most philosophical mistakes, to the failure to analyze sentences correctly. (3) No synthetic proposition which is not purely ostensive can be logically indubitable, but we cannot admit that any synthetic proposition can be purely ostensive. (4) The preceding point must follow

from the fact that one cannot, in language, point to an object without describing it.

Wilbur M. Urban[20] declares, in direct opposition to Ayer's position, that the tacit assumption underlying all meaningful discourse is that the terms "true" and "false" do connote something. It is also the presupposition of such discourse that truth connotes correspondence in some sense and to some degree—the classical conception of truth. He writes that the dialectic of meaning leads to the conception of the primacy of truth. But the notion of truth, when examined, exhibits a similar dialectic which appears to lead to the notion of the primacy of meaning. By a dialectic immanent in the truth-notion, it outruns its primary meaning, and the notion of truth becomes subordinated to that of meaning. One way of avoiding this situation is to deny the necessity of giving *any* meaning to the truth-notion, the way taken by Ayer, and a position popular with the logical positivists.

Urban admits that the Ayer thesis is psychologically understandable, yet he denies the possibility of maintaining such a thesis. It is understandable through this reasoning: if the meaning of *any* word is in reference to a sensuously observable entity, then the word "truth", which of course has no such reference, is meaningless except emotively. It is but the natural consequence of extreme nominalism—which, as Urban quotes Dewey, "makes non-sense of all our meanings." Surely, writes Urban, no one would make the assertion of the Ayer thesis unless he believed it to be true, and truth thus applied must have some connotation. "It is just as certain that if I do not accept this assertion as true (as I certainly do not) that the one who makes it is bound to tell me what he means by truth here; otherwise all argument comes to an end, and his assertion is dialectically meaningless."

Admitting that the "copy theory", or correspondence theory of truth, has been greatly criticized, Urban uses it to advance his general argument, insisting that, if it is not the final notion, correspondence is still the initial notion of truth, and this notion sets in play a dialectic of truth which is significant for the general problem.

V. Conclusion

C. J. Ducasse,[21] in attempting to define the ultimate criterion of truth, calls attention to the fact that the mind seems to arrive

[20]Urban (17).
[21]Ducasse (6).

at a point where it must accept, willingly or not, the ultimate recognition of truth as an individual value-judgment. This is highly unsatisfactory, seeming to lead to complete relativism, yet no way out seems possible. In setting up criteria by which truth may be evaluated, the mind must recognize the validity of the criteria. If secondary criteria are set up, the final step of recognition of validity has only been postponed.

Descartes was guided by "what seemed indubitably clear" to his mind. Peirce, in demolishing Descartes' view, demonstrated at the same time its truth in his own acceptance of his own ideas. In these times, Ducasse has propounded the Cartesian criterion. He explicitly asserts that "self-evidence" is the ultimate "criterion of truth".

In this paper the author has no wish to read into contemporary writings similarities which do not exist, nor to minimize essential differences. However, a close study of the few works that have been reviewed reveals that many of the differences are superficial and exist in the structure of language rather than in thought; that is, many of the difficulties seem to be semantic rather than logical. Most contemporay philosophers are reluctant to approach the study of the concept of truth from a single viewpoint. Empiricists acknowledge the place of intuition in the acquisition of knowledge, though using their own terminology and calling it, as Einstein did, a fact of experience; rationalists are ready to incorporate into their own thinking empirical contributions. The analyses, through the emphasis they have placed on language, have focused attention on meanings and the necessity to strip language of its ambiguities.

The whole enterprise, the passionate striving after truth, has taken on the character of Peirce's cooperative enterprise by a community of philosophers, actuated by "the cheerful hope". Its history has been described by Helmut Kuhn,[22] "It was in setting out to its boldest venture, the quest of the ideal of the Good, that the human intellect . . . chanced upon the boundaries of knowledge which circumscribe human or finite wisdom." Its future must be that of a process of constant check and correction. By its own nature the search for truth is self-corrective.

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[22]Kuhn (9).

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