

The Problem of Protocol Statements and Schlick's Concept of "Konstatierungen"¹

Zhenming Zhai

University of Kentucky

Traditionally, the proponents of empiricism sought for the starting point of knowledge in sensations that happen to us when we open our sense organs to the world. They analyzed the functioning of human faculties of sensation and cognition and the way these faculties are activated so as to discover the origin of ideas. Thus, they insisted on the priority of particulars to universals in the body of synthetic knowledge, and granted empirical facts the authority of truth. For that reason, they are opposed to the rationalists, who maintained that the most important part of synthetic knowledge is derived solely from first principles or ideas, and that these principles or ideas are "innate"—that reason can ascertain their truth intuitively without the use of the senses.

Logical positivism belongs to the empiricist tradition. However, it distinguishes itself from its empiricist predecessors in a very important way, so that its proponents thought they could overcome the difficulties raised against the older empiricists.

The logical positivists no longer take the analysis of mental processes as their task. Instead, they proceed to expose the logical structure of statements. When Locke gave an account of the origin of ideas, he was giving a supposedly correct description of psychological facts. His pattern of argument is something like this: All ideas originate from sense perception, therefore, they obtain their meaning from sense perception exclusively. Obviously, such an argument does not have any logical force, though it may be very suggestive. But for the logical positivists, meaning depends upon the logical structure of the statement or upon the facts about the world that would verify the statement. As for what the mental process is when we grasp that meaning, this is of no philosophical interest. Schlick puts it as follows:

The greatest difference between the older empiricism and our new philosophy of experience lies, I think, in its method. The former started with an analysis of human faculties (such as thinking, perceiving, and so forth); the latter starts with something much more fundamental, namely the analysis of 'expression' in general. . . . The position of this philosophy is unassailable, because it rests on the acknowledgment of the hardest facts and the study of the strictest logic. (Schlick 1932, pp. 236-237)

Although logical positivism is a revolutionary movement initiated by the philosophers of the Vienna Circle, the British philosopher A.J. Ayer's *Language, Truth and Logic* (1936, 1946) has been taken by the broader public as the standard systematic expression of the positivist point of view. This circumstance helped to promote logical positivism's propagation on the one hand, and prepared the ground for its dogmatization on the other hand. Indeed, the movement's opponents often pick out assertions in this book as their target when attacking logical positivism as a whole. Therefore, in order to understand this philosophy adequately as an activity, which is its spirit, rather than as a dogma, which is what it intended to do away with, a careful look into its internal controversies becomes necessary.

The verifiability criterion of meaningfulness is the most well known and powerful principle adopted by the logical positivists. It says that besides analytic statements, only those statements whose truth or falsity is in principle determinable by experience have cognitive meaning. According to this criterion, some of the questions of traditional philosophy are void of the meaning that they are supposed to have. These questions, typical of metaphysics, are deemed to be unanswerable, and therefore should be eliminated. But, if a statement is verifiable in the indicated sense, it will belong to empirical science. Hence the only possible knowledge about the world is scientific, and the task of philosophy becomes no more than clarification. Naturally enough, therefore, the first thing to be clarified should be the criterion itself: How and where does verification happen? In what way is verification related to the body of scientific knowledge? In answering these questions, the Vienna Circle was split into two factions: the physicalists and the phenomenologists. Because Carnap called the statements directly involved in verification "protocol statements," the controversy is known as "the protocol statement controversy."

When Carnap first brought up the topic of protocol statements, he was not yet aware of the two kinds of interpretations such statements could potentially be given. Since science is a system of statements based on direct experience and controlled by experimental verification, thought Carnap, there must be statements that bridge the gap between science and experience. These statements are a direct record of the scientist's experience, and their truth is established immediately when those experiences occur. Because the language in public use is always formally organized, while experience is not, protocol statements must have their own characteristics that reflect their direct connection to experiences. Thus the language used in protocol statements is called "protocol language." Now, given a statement P , if we can have at least one singular statement that has the form of a protocol statement deduced from P , we shall regard P as verifiable, therefore meaningful. Otherwise P is meaningless.²

The issue is still obscure, however. First, are these protocol statements detachable from experiences? If the answer is "no," they must be private, and how they can be connected to public scientific knowledge is still a riddle. If the answer is "yes," they can serve as the public supporting point of knowledge, but they will lose their privilege of absolute truth, and themselves therefore need justification in the first place.

Second, the nature of experience remains unexplained. Do we experience physical events of some duration, or such momentary phenomena (or "sense data") as color patches? Accordingly, is a protocol statement a report of one's inner mental state or a description of objective happenings?

Third, do we break down the body of knowledge into atomic components and then compare them to the experiences, or do we simply accept or reject this or that protocol statement according to the principle of economy? This is directly, though not deci-

sively, related to the traditional conflict between the correspondence theory of truth and the coherence theory of truth.

The above three questions are internally connected in the context of verification. Those who hold that the process of verification is private tend to adopt the phenomenistic and atomistic points of view, whereas those who hold that the process of verification is public tend to adopt the physicalistic and holistic points of view. As the discussion proceeded, Schlick, among others, took the first position, while Neurath took the second one. Carnap presented himself later on as a physicalist on Neurath's side so as to preserve the fundamental precepts developed in his *Logical Syntax of Language*.

In this controversy, Neurath's and Carnap's arguments have been well expounded in the secondary literature. But the subtlety of Schlick's arguments have scarcely been understood adequately. Thus, in the following discussion, special attention will be paid to Schlick's idea of "affirmations" ("Konstatierungen") created in response to the physicalistic-holistic interpretation of the situation involved in verification.

Carnap suggested for the first time the form the protocol statements may take. So long as he made a sharp distinction between the raw materials obtained from scientific investigation and the processing or organizing of them, the protocol must reflect its immediacy. Therefore, his protocol statement may have a form like "Here now blue." But protocol statements must also serve as the starting point of public knowledge, and Carnap's suggested form seems not to function thus. Unless the words "now" and "here" are definitely referred to the public space-time and the recorder is indicated, as Neurath pointed out, the protocol statements will not have the required public character. So Neurath would have protocol statements like:

Otto's protocol at 3:17 o'clock: [Otto's speech-thinking at 3:16 o'clock was: (at 3:15 o'clock there was a table in the room perceived by Otto)]. (Neurath 1932/33, p. 93)

Now the protocol seems to have gained a wholly public character, for all the words used are person-independent. But if so, Neurath observed, the protocol statements will have lost their non-hypothetical character, and will be subject to verification just like other hypotheses. Therefore, they can no longer alone determine the destiny of the whole system of knowledge. If a protocol statement is incompatible with the whole system or with other protocol statements, whether this or that protocol will be rejected or the whole system reconstructed will depend on considerations of economy.

In his later writings Carnap held a quite liberal attitude towards this disagreement between him and Neurath:

In my opinion what is dealt with here is not two mutually contradicting interpretations, but *two different methods of constructing the language of science, both are possible and legitimate*. (Carnap 1932b, p. 215)

Carnap then went on to show how the two methods work and what are the advantages and disadvantages of each. By his "formal mode of speech," he believed, statements about observations and private experiences are translatable into statements about brain processes. They are on a par with other statements about the physical world. It is convenient that for practical reasons one would tend to choose one's own protocol statements as final, but,

this has no significance in principle. It only happens because the intersubjective testing [Nachprüfung] of statements about observations (brain processes) is relatively inconvenient and difficult. (Carnap 1932b, pp. 225-226)

Schlick, however, perceived here a danger of betraying the logical positivists' empiricist origin. His anxiety made him exhort his comrades to awareness of this danger by a warning: "This view appears to me wholly mistaken; in it the empiricist approach is transformed into a rationalistic one" (Schlick 1935, p. 406).

This warning is not attacking a strawman. The main problem with the Neurath-Carnap interpretation is that, for Schlick, it tends to empty the concept of verification. For Carnap, experience serves as the source of scientific knowledge in generating protocol statements wherein the whole system of scientific knowledge is verified. Nevertheless it does not belong to any special subject categorically distinct from other objects of knowledge. It is called "experience" simply because it is incorporated with the "primitive protocol." Thus Carnap can readily accept both Neurath's "outer" version as well as his own "inner" version of the protocol. Indeed, he interpreted experience merely as a purely physical state of the human brain (rather than the human mind), which can be replaced by any physical apparatus designed (or happening to be) in such a way that when it receives the same input as the human brain does, it will produce a similar protocol statement as the output. Thus the apparatus may as well be said to have "experienced" something when it gives out the protocol. It seems to follow that there is, therefore, in principle, no "knower" who undertakes the verification opposed to the known. Rather, verification is simply a physical happening among other events. And it is merely a contingent fact that the protocol statement is brought about by this rather than that person or a machine. Accordingly, the fact that the human being, rather than some other type of physical entity, has been called the "knower," is due to his contingent privilege of generating the formally identified protocol statements, whose truth-value is either assigned (in Carnap's sense of not needing justification) *de jure*, or is as indeterminate as that of any other statement (in Neurath's sense).

Schlick is more concerned with the connection between verification and certainty. If this issue is left untouched, the whole endeavor of logical positivism would become pointless. Thus, accepting the interpretation of protocol statements by Carnap who first introduced it, Schlick would like to add one more conception to name that which he thinks will characterize the process of verification, namely "affirmations."

What is an "affirmation"? Another name for "affirmation" is "observation statement" on Schlick's account. But here the word "statement" should be understood quite differently from that in the phrase "protocol statement," for it is neither recorded nor remembered. It is, indeed, the *occasion* for forming the protocol, and therefore prior to it. So long as protocol statements form the edge of the body of knowledge, affirmations so understood do not belong to this body. And because they are immediately perceived and not reflective, they are never concerned with perception itself while always directed to what is perceived. And most importantly, in affirmations no physical objects beyond the pure phenomena are assumed, because they are the products of later organization. Affirmations are therefore momentary: "It means that the function of propositions about the presently experienced itself lies in the present. We saw, indeed, that they have, as it were, no duration" (Schlick 1934, p. 382).

Given this, wherein does their priority to protocol statements consist with respect to verification?

(1) Affirmations bridge the gap between statements and facts. The sole purpose of setting up and selecting statements, according to Schlick, is to provide a true account of the facts. In the eyes of the empiricists, the original sin of the rationalists lies in their lack of respect for hard empirical facts in their theory of knowledge. What they call “truths” are merely those intellectual concoctions derived from the absolute principles allegedly inherent in reason, although they may have no empirical content or may even conflict with facts. The coherence theory of truth, which Schlick thinks is embodied in Neurath’s conventionalistic holism, is seen as a way leading to this dangerous rationalistic abyss. Schlick therefore feels obliged to block it off with the help of the correspondence theory of truth.

Coherence, argues Schlick, though necessary, is far from sufficient for a system to present truths. In his earlier article “The Nature of Truth in Modern Logic” (Schlick 1910), he defined truth as the one-to-one coordination between judgments and facts.² And, naturally, he regarded ostensive definition as the key to the issue of meaning. But Carnap, on the contrary, talked about definitions as merely rules for the mutual transformation of words, that is, lexical definitions. This, Schlick thinks, will threaten to detach logical positivism from empirical ground, and hence needs a re-orientation.

Meaning is verifiability and verification occurs when statements get in touch with experiences. But if protocol statements are interpreted as hypothetical and subject to arbitrary fiat in regard to where they are to be produced, how can they play any unique role in connecting knowledge to facts? Thus, Schlick needs affirmations to fill the gap. Carnap and Neurath emphatically deny that any single statement can be verified. Only the whole system is to be verified through the operation of the protocol statements. Schlick, however, stresses that

Affirmations are verified in the true sense of the word—made true, that is—in that the correct signs (corresponding to the rules) are employed in them. Hypotheses, on the contrary, are in a certain sense notoriously never ultimately verifiable. (Schlick 1935, p. 413)

Thus, Schlick thinks that he has returned to empirical ground and provided “understandable points of contact between knowledge and reality” (Schlick 1934, p. 387).

(2) Affirmations are also absolutely valid as analytic statements. Logical positivists in general adopt the traditional dichotomy between analytic and synthetic statements, and this is one of the presuppositions of their verifiability criterion of meaning. So called analytic statements, if true, are true *a priori*, and on this both empiricists and rationalists agree. But, granted that the truth value of so called synthetic statements is usually contingent upon empirical facts, and hence *a posteriori*, are there some among them true *a priori*, as the Kantians hold?

Empiricists reject the Kantian position by all means. In doing so, though, they get stuck in finding the ground on which synthetic truths can be securely established. Among other things, they confront here the problem of the fallibility of human perception, due to both the internal states of human sense organs and the external interferences of the environment. The question is: “How can we have non-hypothetical synthetic statements in the absolute sense?” As has been shown, protocol statements cannot satisfy us in this context.

Schlick makes his point by showing the parallels between knowing the validity of affirmations and knowing the truth of analytic statements. In the case of analytic statements, the fallibility of memory does not affect the absoluteness of judgment, be-

cause understanding the meaning of an analytic statement and knowing its truth value happen simultaneously. I may have misunderstood the statement originally intended to be presented to me, but I can never assign a wrong truth value to the statement that actually occurs to me at the moment I grasp this truth value. Therefore, "to understand its meaning and to discern its *a priori* validity," says Schlick, "are *one and the same process*." (Schlick 1934, p. 385)

What about synthetic statements? Usually, understanding their meaning is prior to and separate from establishing their truth value. Understanding is a process of conceiving the possible settings of verification, whereas establishing truth value is the verification itself, namely, comparing the statement with experience. But, "there is only one exception," remarks Schlick, and this enables us to single out "affirmations" from other synthetic statements. Why?

Since affirmations are about present momentary experience, they always have the form "Here and now so-and-so." The words "here" and "now" are not to be understood by definition through a second-order discourse, but obtain their meaning only by pointings and gesticulations when an experience occurs. Therefore, although their truth is known through comparison with facts, as in the case of other synthetic statements, they are in one respect similar to analytic statements: the process of understanding is at the same time the process of verification.

Along with their meaning I simultaneously grasp their truth. To ask of an affirmation whether I might perhaps be mistaken about its truth, makes no more sense than with a tautology. Both have absolute validity. (Schlick 1934, p. 385)

(3) Consequently, affirmations provide the knower with absolute certainty of truth. The problems of knowledge arise only if there is room for doubt or uncertainty. Neurath's protocol statements do not eliminate this doubt, Schlick would say, because the certainty is guaranteed only if no spatio-temporal distance exists between the knower and the known, that is, the statement is exclusively about the "here" and the "now" in the first person case, while Neurath's interpretation of protocol statements does not allow this first-person privilege. Affirmations are exactly of such a character:

If someone says: 'This is iron', or 'yesterday I saw two yellow lines in the telescope', or 'I see a ship with three masts', he can be in error and it would make sense in each case to add: 'I *think* that's so', or 'it seems to be so'. But if he says: 'There's yellow now in the visual field', this can be a lie under certain circumstances but in no case an error. That there is yellow in my visual field is something I know for certain (whether it be due to a yellow object, or an after-image, or be a hallucination); it is impossible that I should not know it. (Schlick 1935, p. 410)

Obviously, for Schlick, this certainty is attainable only if, again, a phenomenalist rather than a physicalist standpoint is taken in the first place.

However, now that these three merits are gained on a phenomenalist ground, how can affirmations function to support scientific knowledge about the physical world through verification? Do the private affirmations provide starting points of knowledge and hence constitute the "foundation" thereof?

Affirmations of the phenomenalist kind set limits for themselves in two ways:

(1) Epistemologically, the certainty never goes beyond the moment the affirmations occur. Afterwards, uncertainty begins to grow as soon as memory gets into play. And a phenomenon as such does not have any duration. Phenomena may well be similar hither and thither, now and then, but we can never say that this phenomenon and that one are one and the same. When we are supposed to compare two phenomena, we are actually comparing two memory traces, "which can play only the role of hypotheses and are thereby lacking in ultimate certainty." (Schlick 1934, p. 382) Thus, verification as a function of affirmation cannot change the status of any statement of scientific knowledge. The verifiable remains merely verifiable after the verification, but will never have been verified.

(2) Logically, private affirmations do not entail any consequents in public knowledge, not even on the "protocol" level. Because their absolute validity lies in the oneness of understanding them and establishing their truth at the moment of verification. After this moment, they and their logical significance evaporate altogether, thus: "Upon affirmations no logically tenable structure can be erected, for they are already gone at the moment building begins" (Schlick 1934, p. 382). All that this means, Schlick suggests, is that affirmations are not the starting points of knowledge that the foundationalistic approach has been seeking. Rather they are "at the outset of knowledge" (Schlick 1934, p. 382), insofar as neither subjective certainty nor objective validity stretches beyond that moment. "They complete the act of verification, and at the end of their appearance have already performed their duty" (Schlick 1934, p. 382).

So understood, observation statements can no longer be called the "foundation" of knowledge, except in the sense that they are the contact-points between knowledge and reality.

Obviously, by introducing this concept of "affirmation," Schlick has given up the task of justification of knowledge. What he has found to have absolute certainty and validity can by no means support hypothetical statements. The only logical connection between scientific propositions and observation statements is that the former can be the logical premises of the latter, and therefore they are meaningful. But their truth can never be justified in any way:

Finality is a very suitable word to describe the significance of observation statements. They are an absolute end, and in them the current task of knowledge is fulfilled. (Schlick 1934, p. 383)

Does this mean that affirmation or verification never affects scientific hypotheses? Schlick's answer is "No." As a fact, the memory of affirmations will eventually lead to a psychological process of "induction"—induction in the heuristic sense but not in the logical sense. If so, why do we need verification? Schlick now appeals to psychology. The answer is that affirmations can bring about satisfaction:

Knowledge is originally a means in the service of life. . . . Once the prediction comes to pass, the aim of science is achieved: the joy in knowledge is joy in verification, the exaltation of having guessed correctly. (Schlick 1934, pp. 382-383)

Ironically, Schlick ended up appealing to an immature science—psychology, while he had set out to work on the meta-scientific level as a philosopher of science. He has turned to *de facto* discourse from *de jure* discourse at the start. Of course, this can be understood as a temporary stray from the proper task so as to give an *explanatory* appendix, for he later on talked about experiences without owner.³ In any case, this re-

minds us of the similar situations when Locke gave an explanation of the origin of ideas for justifying his theory of meaning, and when Hume appealed to "habits" and "customs" after he had shown that induction, while inevitable, is groundless.

Notes

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²Carnap himself expresses this idea in a quite misleading way: "Whenever the rules of transformation state the conditions under which statements in the protocol language can be deduced from a statement *P*, it is always possible, in principle, for *A* to verify *P*." Here he seems to be saying that the deduced statements are themselves protocol statements, while, in fact, the genuine protocol statements are formulated directly from experience. But Carnap may not mean this, because later on he says that protocol statements do not need justification, and are always true. (Carnap 1932a, pp. 155-156)

³Schlick's account of falsity as one-to-many coordination appears to me quite odd. Usually if a judgment has more than one factual counterpart, we will call it "ambiguous" rather than "false." And only in case of no corresponding fact, will we call it "false." This is one-to-none instead of one-to-many.

⁴See Schlick 1936.

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