



UNIVERSIDAD DE BUENOS AIRES
FACULTAD DE FILOSOFIA Y LETRAS

July 14th, 1960

Prof. Karl R. Popper
L o n d o n

Dear Professor Popper:

Thank you for your letter of July 8th.

I regret that you resumed calling me 'professor'.

It is not out of generosity that I offer my help in solving translation difficulties in connection ^{with} of LSC. I am very interested in a good Spanish edition because: (a) that would give me an opportunity to discuss some problems with a wider circle of people; (b) my students are obliged to consult it very often (it is mentioned many times in the bibliography of my course); (c) I hate to warn people once and again that 'evidence' must be translated as 'elemento de prueba', 'object language' as 'lenguaje objeto' (and sometimes 'lenguaje cosa'), and so on, and so on. It is, as you can see, a matter of pure egotism.

Let me comment on your remarks about my previous comments on your Academy lecture.

(1) Maybe you are right. I do not insist.

(2) (a) When I doubted about your criteria of falsity, I had in mind quantitative hypotheses & theories or, more exactly, formulas involving continuous variables; in this case we must account for experimental errors, which force us to distinguish carefully the logical consequence e_t of our hypothesis from the empirical evidence e_o (observational statement, or whatever else it may be called). We almost never have exact coincidences between the calculated and the measured values, but only a concordance or a discordance to within ~~the experimental probable error.~~ (Which is largely a matter of choice.) As a consequence, in this case we may reach a marked disconfirmation rather than a clear-cut refutation. (b) When I said 'all our theories are false' I meant theories, not hypotheses (individual conjectures) - that is, I had in mind systems of hypotheses, such as Maxwell's electromagnetic theory, or Mendel's theory of heredity, or Popper's formal theory of probability. As you know, the usage of 'theory' in current scientific language and in recent metascience is this. On the other hand, your hypothesis 'Plato was hoping to be asked to become, if not a philosopher king, then at least philosopher-prime-minister to some tyrant' is almost certainly true. In framing it you had no need of



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framing a theoretical model described with the help of theoretical concepts, and involving the assumption that every variable not included in the model is irrelevant. From the evidence you have supplied in favor of your hypothesis, and from what I know about Plato, your hypothesis sounds true and I will treat it as if it were definitely true (else I would not be able to include it in a system to which I might wish to apply the ordinary propositional calculus). I was not quarreling with this kind of things, but with the theories of the so-called exact sciences dealing with reality. Historical experience suggests they are all false; or, if preferred, they are (in the best of cases) first order, or second-order, and so on, approximations. Their logical analysis would suggest the same thing, by showing that they do not refer directly to what they are supposed to describe and explain: their immediate referent is - as was seen long ago by Duhem - an ideal model. In conclusion, the disagreement may have been due to a mere word - as is so often in philosophy.

(3) Yes, I think your wording could be taken as an opposition to the attitude of "rationally arguing in support of" our hypotheses and theories. I meant the phrase on lines 4-5 of page 26 of the mimeographed version: "the false idea, is that we must justify our knowledge, or our theories, by positive reasons". On the other hand, what you say in your letter could never be taken for a sort of epistemological nihilism. Perhaps something like the following phrase would be more adequate: "The first, the false idea, is that we must make our theories certain by offering sufficient reasons or, if this is not possible in the nature of the case, by rendering them as highly probable as possible".

Allow me to suggest a small addition in page 11, line 20, after the reference to Descartes: ' and Galileo says that "Philosophy is written ~~in~~ that great book which ever lies before our eyes - I mean the universe..." '

I am sorry for my phrase "the Jeffreys-Popper view". I know perfectly well that Jeffreys and Popper share only 3 things: their interest in the logic of science, a proposal for the measurement of the complexity of laws, and living in England. I do not use the phrase "the Jeffreys-Popper view" in my paper. I refer to you in the section on "Simplicity and testability", out of which the following is taken:

..."Simple theories, on the other hand, are apt to be easy to refute, hence easy to decide about ¹ [¹ KRP, LSD, ch.vii, has stressed the relevance of simplicity to testability through refutation.] ... (Then I compare two hypotheses, H_1 and H_2 , the former syntactically simpler than the latter.) Now, there is no x limit ² to the possible complexity of H_2 : it can be made to pass through as many points on the plane as desired, it can even made to pass



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"...Simple theories, on the other hand, are apt to be easy to refute, hence easy to decide about I [1] KP, LSD, ch. vii, has stressed the relevance of simplicity to testability through refutation. [...] (Then I compare two hypotheses, H₁ and H₂, the former syntactically simpler than the latter.) Now, there is no limit to the possible complexity of H₂: it can be made to pass through as many points on the plane as desired, it can even be made to pass



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through all the points in a given region (as is the case, e.g., with Peano's famous curve). In this way H_2 will become irrefutable, although it is strictly confirmed by the available data; no new empirical evidence (no new experimental points on the plane) could conceivably contradict it. But, then, H_2 will say nothing. Content involves risk of reputation²[²Popper, op. cit.] - as is so well known by fortune-tellers." I regard formal (syntactical) simplicity as a necessary condition for testability, alongside with semantical simplicity (economy of presuppositions); however, I do not regard them as sufficient conditions for testability, "as shown by the fact that some aether hypotheses are logically and semantically simple (though at the same time epistemologically complex [in the sense that they contain high-level transcendent terms]) but are difficult if not impossible to test. Therefore we cannot equate simplicity and testability³[³K. R. Popper, op. cit., sec. 43, proposed to equate simplicity with degree of falsifiability, or testability.], even though - as was shown before - simplicity is unfavorably relevant to confirmability and favorably relevant to refutability. Syntactical and semantical simplicity are necessary conditions for testability; a further condition is scrutability, which may be included in the variety of pragmatical simplicity called experimental in the preceding section."

I hope this makes it clear that I have not misunderstood you, at least this time.

I was glad to hear that my private campaign in favor of Popper's views among Russian philosophers had some fruit: my friend Melvil, with whom I had arguments about you, writes me that his associate *B. Ustapov* (I do not know how to transliterate it) has written an objective review of LSD in Novie knigi za rubezhom, N°4, April 1960, pp. 39-43. Unfortunately I do not read Russian; but you may have seen the review. I think one should try to make contact with them. Although the older ones are impenetrable to modern logic and epistemology, the younger ones may prove more "porose". Unfortunately the present international situation is not favorable to a rencontre. (I had suggested Melvil to start a discussion on an international scale, in the review Voprosy filosofii, on subjects such as "The impact of science on philosophy", "Why I am (or I am not) a Marxist", and so on, and he reacted favorably; moreover, I suggested various names, among them yours, as possible contributors to such a discussion. But I doubt very much, after the U2 affair, that they feel like arguing with us - which is a pity for them and for world culture.)

With best wishes, I am

sincerely yours,

Mario Bunge

