Commentary: Coda—a Socratic dialogue: Plato

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Epimenides Where do you come from, Socrates, and where are you going?

Socrates Actually, it was you I was looking for in the marketplace. I just met with Theodorus and Alcibiades and we had a discussion that was well worth hearing about the interesting letter of the noble Charles Poole.

Epimenides What do you think of the present debate, Socrates?

Socrates Good heavens, I fancy you will never let me go until I have given you some sort of clarification.

Epimenides You are quite right about my intentions.

Socrates Tell me: is it not true that most if not all scientific laws or generalizations given by particular scientific disciplines are not precisely true? They are true-ish (or verisimilar) or generalizations given by particular scientific disciplines are embodying the deterministic assumption that everything that occurs is fully necessitated by antecedent conditions.

Epimenides And as things are, what can we say it is with determinism?

Socrates Very well my dear fellow. So in the present case, it is necessary to investigate what we mean by determinism. Sufficient conditions are embodying the deterministic assumption that everything that occurs is fully necessitated by antecedent facts or events: determinism is an all-or-nothing affair; it assumes a quantitative complete causal bonding and supposes exceptionless and universal laws of nature.

Epimenides Then, is it not necessary for us to start out knowing why many epidemiologists still believe in determinism?

Socrates Think of it, then, in this way. Two points are quite clear. First, determinism is completely, or almost completely, devoid of any empirical support. And secondly, our best and most successful scientific and epidemiological theories describe a probabilistic, not a deterministic world. Statistics and probability theory are currently the official mathematical language of epidemiology. Is it not surprising in these circumstances, that determinism remains a live option? Why hunt the Holy Grail when it does not exist?

Epimenides Doubtless, but give me your opinion of the following view of determinism. I fancy that the stochastic cause is just one factor entering into the situation so that if we get the full story we would know exactly what determines that effect: a stochastic cause is just one part of the full deterministic story.

Socrates Well spoken, Epimenides. The account you give of the nature of determinism is not, by any means, to be despised. Who, then could challenge so great an array and not make himself a laughing-stock?

Epimenides That would be no light undertaking, Socrates. Is it not appropriate for a scientist to attempt to explain the phenomena he observes rather than to attribute them to chance? Is not chance an epistemic condition that merely reflects our ignorance?

Socrates Well, Karl Popper provided the answer when he averred that probabilities exist in the world, and so did Nancy Cartwright—(from Stanford University of California) who was appointed in 1991 to the Chair of Philosophy at the London School of Economics, occupied by Karl Popper from 1949 to 1969—when she said they are real: probabilities are structurally pervasive in knowledge and not merely a measure of ignorance. Not only is there no convincing evidence for a complete (i.e. sufficient) causal nexus, but even further, quantitative stability of causal capacities (Cartwright) or propensities (Popper) is an empirical matter. Thus, probabilities and capacities, i.e. enduring tendencies, are basic, not exceptionless laws. And probabilities are thus measures of causal influence.

Epimenides Well I agree with you on this point at least.

Socrates Determinism is the expression of uncritical metaphysical preconceived notions; it is an epistemic fiction. You hear what we have to say, Epimenides, that metaphysics differs from science in that it is insensitive to empirical evidence: metaphysical statements can neither be empirically confirmed nor refuted. And is not this what my friend Karl Popper meant when he resolved to exclude the principle of causality, as ‘metaphysical’, from the sphere of science?

Epimenides Not exactly. Popper proposed to turn it into a methodological rule.

Socrates Quite so, my friend: we have no need for the metaphysical doctrine of determinism. To claim that there are exceptionless laws of nature resulting in a sufficient model of causality is pure metaphysical prejudice since it cannot be empirically established or rejected. Moreover it is utterly useless for scientific research. Our investigations require instead a methodological precept—and this is what determinism boils down to—in order to satisfy our commitment for an explanation of medical and epidemiological facts.

Epimenides It is now clear to me, Socrates; as epidemiologists we are involved in scientific issues; therefore, if we want to avoid boozing, let us render Caesar the things that are Caesar’s and let us leave metaphysics—a perfectly respectable, difficult and exciting discipline—to metaphysicians.

Socrates Say rather that if we have to do metaphysics, we shall do it from the bottom up, not from the top down. And so does determinism go down the drain. For if we allow stochastic elements into a causal model, we abandon determinism and substitute a quantitative explication of notion of cause, for the qualitative concept of sufficiency; we then talk about the extent to which a factor tends to cause its effect.
Epimenides Admirably put.

Socrates Well, then determinism is the principle that everything that happens is a result of causally sufficient conditions, probabilistic causality implies the non-existence of sufficient conditions.

Epimenides It certainly seems true.

Socrates Right, then if this is so, what do we mean when we say that smoking causes cancer? We mean that smoking increases the chances of getting lung cancer. For, as things are, we might thus say that smoking has a tendency in the direction of sufficientness, as measured by cohort studies, if the probability of lung cancer, given smoking, is greater than the probability of cancer, given non-smoking. And similarly, smoking has a tendency towards necessity for lung cancer, as measured by case-control studies, if the probability of having been a smoker, given cancer, is greater than the probability of having been a smoker, given no cancer.

Epimenides I share that view.

Socrates And surely again, causes come by degree and are blueprints for hypothetical interventions and effective strategies. This is the conclusion I convey to the gods of this place and that should be announced to the commonwealth of epidemiologists at-large. My own wishes and prayers are certainly to that effect.

Epimenides So be it.

Socrates By the way, Epimenides, are you acquainted with Charles Poole? Does he exist or is he the figment of someone’s imagination?

Epimenides I do not know him personally, but I can assure you that he is a highly esteemed and reputed epidemiologist.

Socrates Well so, but how far is this thought-provoking letter the mouthpiece of his own opinion?

Epimenides That could be an admirable joke, Socrates, but I am of opinion that for once you are wrong. Professor Poole really signed this letter and there is no uncertainty about it.

Socrates Very well, I shall not oppose you and we should both thank the noble Professor Poole for this opportunity for a fruitful dialogue. He is suggesting that we should examine critically all metaphysical notions, revise them and develop new ones if needed. Since metaphysical theories are impervious to empirical evidence, no further epidemiological research will help us over this exercise; we need philosophical analysis and this is what we have been doing in revising some of the received views, is it not, Epimenides?

Epimenides Certainly, Socrates.

References