

## Introductory note to 1949a

This paper, written for a collection intended to honor and to discuss the work of Einstein, appears to be the only published piece by Gödel that deals with philosophical issues not directly concerned with mathematics. In it Gödel argues, on the basis of the very interesting cosmological solutions of Einstein's general-relativistic field equations obtained by him (1949), that those philosophers are right who have denied the "objectivity of change".<sup>a</sup>

A caution seems in order concerning the use in the title of this paper of the phrase "idealistic philosophy". The word "idealism" has been used historically in connection with a very diverse class of metaphysical views, whose common characteristic is the claim that what is ultimately "real" is something fundamentally "mental". By no means all such philosophies have denied the objectivity of change—for change may be attributed to minds or their contents. On the other hand, the contention that change is not objective, but is in some sense a "mere appearance", need not be associated with the view that all that is real is mental; and, indeed, it is far from plain in Gödel's paper that the latter is his own view, since he bases his argument on the physical possibility ("compatibility with the laws of nature") of worlds in which temporal relations have the bizarre characteristics he describes: thus his conclusion seems to be, not that the world of physics is grounded in something "mental", but that our conception of the world as *changing* is subjective or illusory—a contribution of our minds.

<sup>a</sup>One point in Gödel's discussion of his cosmological solutions perhaps deserves comment, although it does not substantially affect the argument of the paper. Gödel defends these solutions against a charge of absurdity by the consideration that the "time travel" that is physically possible in the "worlds" they describe would not be *practically* possible. Others have in fact rejected these solutions as "unphysical" because of the possibility of time travel. But it is hard to see the cogency of this rejection—or the need for the defense Gödel offers. Objections of the type "What if I were to go back and, for example, murder my own younger self?" admit a perfectly straightforward answer: in a cosmos of the sort in question, that act would simply not be possible. It would seem, in fact, that such a cosmos would have to be regarded as fully deterministic—or fully determinate; but Gödel's own argument against "the objectivity of change" leads in any case to determinateness as characteristic of things. And, after all, *classical* physics was generally conceived as deterministic. However obnoxious this notion has been to some philosophies, the objection "But I can always *choose* whether or not, for instance, to lift my arm" has never really carried any weight; and the objection raised in the context of time travel, although in some sense more poignant, is fundamentally of the same type.

This conclusion has a distinct relation to the position of Kant, to whom Gödel refers and who himself *repudiated* metaphysical idealism, but asserted what he called the “transcendental ideality” of time (as well as of space). The force of this assertion was that spatial and temporal attributes fundamentally characterize, not things “as they are in themselves”, but a certain relation of those things to us—to our faculties of perception and representation. In particular, it is the special constitution of these latter faculties, according to Kant, that is responsible for the general structures of space and time that form the subject of geometry and of what may be called “pure chronometry”; in this sense, Kant characterizes these disciplines as concerned with the “pure form” of our “intuitive” (that is, our receptive or sensitive) faculty. As to the issue of metaphysical idealism, Kant rejects altogether any claims to knowledge of what things are apart from our experience (what they are “in themselves”); but *within* experience—that is, within the entire field of what can in any way be known—the structures of space and time by his doctrine are fully objective; as “forms” that condition the very possibility of perception, they constitute a universal framework for all objective scientific knowledge. Thus, affirming the “transcendental ideality” of space and time, Kant as emphatically asserts their “empirical reality”. Furthermore, on his doctrine, these universal and empirically real structures can be *known* independently of experience, just because they are effects of our own constitution and are *conditions* of all possible experience.

On this latter point, it is evident that Gödel cannot adhere to Kant’s view, since his own examples depart radically from the structure Kant thought necessary a priori for science, and since, far from claiming a grounding in something like Kant’s “pure intuition”, he emphasizes the “astonishing” and “strange” character of the results that form the basis of his argument, and their departure from “the intuitive idea” of an absolute and objective lapse of time. Further light is thrown on the question of Gödel’s own conception of the relation of his view to Kant’s by an as yet unpublished manuscript (found in his *Nachlass*, and bearing the title “Some observations about the relationship between theory of relativity and Kantian philosophy”), which discusses that relation in some detail and which makes explicit that a central difference from Kant concerns just this point: Kant, in Gödel’s opinion, overemphasized in his epistemological discussion the dependence of spatiotemporal structure upon our faculty of representation, and was led by this into two errors—he concluded, erroneously, that the temporal properties of things (perhaps one should rather say, “of events”) must be the same for all human beings (since human beings all have the same species of representational faculty); and he failed to see that geometry is at least in one sense an empirical science.

Thus, so far as Kantian philosophy is concerned, the principal analogy that Gödel has in mind between it and relativity theory concerns the strong sense in which temporal properties become (in general) well defined only relative to certain structures within the world: the world-lines of bodies. In the case of the bodies of sentient beings, these world-lines are also the loci of their immediate sensual contact with the reality outside themselves—so that in this special case the relation can be said to be “to the sensibility of the observer”. This relativity of course affects the notion of “change” or “passage”, centrally emphasized in the present paper. But to be relative is not to be illusory: in this paper, Gödel speaks of “an unequivocal proof for the view of those philosophers who . . . consider change as an illusion due to our special mode of perception”, whereas in the manuscript referred to (which does not explicitly mention “idealistic philosophy”) he puts great stress upon the *objective* character of the relations in question.

In view of Gödel’s well-known, long-standing, and deep interest in philosophical matters, it is cause for great regret that what we thus far possess of his reflections on such matters is so meager. The apparent discrepancy just noted between the present paper and the unpublished manuscript makes one wish both to know their comparative dates (if that can be determined) and to obtain further light—perhaps reconciling what appears discrepant—upon the metaphysical view here too briefly adumbrated. There is even greater need for clarification of the epistemological side of these views: we have so far in print only a brief comment, quoted (from a letter) in *Greenberg 1980* (page 250), suggesting that Gödel did believe that we have in some sense an a priori “physical intuition” of spatial structure “in the small”; and some enigmatic but intriguing remarks (*Gödel 1964*, pages 271–272, and *Wang 1974*, pages 84–85) about the relation to reality of human knowledge. It is very much to be hoped that the materials found in the Gödel *Nachlass* will help to illuminate our understanding of his philosophical position.

Howard Stein