May Gödel’s Ideas Be Addressed Philosophically?

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ABSTRACT: Gödel emphasised philosophy as an important tool in science. Much less is known about his religious background. We should bear in mind that our evaluational perspective differs very much from the one in which Gödel lived. He was personally sure that there must be another existence after death – an afterlife (“of unlimited life span”). As a “Baptized Lutheran” he did not include “Trinity” in his creed. He was also certain that mind is separate from matter. This text tries to include Libet’s “readiness potential” into the debate concerning the specificity of the mind. Neither Gödel’s identification of materialism with mechanism nor his vision of the “spirit” are a viable solution of the problem.

Gödel’s views, especially his revealing—and not to say stunning—contributions to the theory of mathematics, have already been dealt with, and with much admiration, for three quarters of a century. Gödel’s own interest in simultaneously drawing philosophical consequences from his logical analyses is well known, too. Some ten years ago (exactly in 1995), Gödel’s ontological proof of God came to be known. It attracted due interest. Last not least, the close friendship of Gödel with Einstein and their clear, outspoken and resolute emphasis on philosophy as an important tool in science should not be overlooked when reflecting not only on philosophy but on God, too. Gödel’s belief in the possibility of finding an exact metaphysics and Einstein’s belief in “God not playing dice” might provide an opportunity here for a contemplation of such themes under a shifted perspective of the beginning 21st century. Though tempting, the status of contemporary philosophizing will not be derived from a positivistic approach (of the Vienna circle type). Relatively recent conflicts between science and religion in connection with the so-called “Intelligent Design” are not relevant here either. Nevertheless, the contemporary rather loose semantic background of the usage of the expression “philosophy” cannot be ignored in this reflection.

One hundred years ago Kurt Gödel was born here in Brno (1906). Moreover, in two years’ time the thirtieth anniversary of his rather sudden death will be remembered (2008). Although Gödel’s logical and mathematical insight should also inspire at least some philosophical considerations and the corresponding philosophical conclusions, Gödel has been mentioned in philosophical vocabularies and encyclopedias mostly as a logician only. Gödel’s possible relevance for theology has been neglected nearly totally.

Questions have got their background. Gödel’s questioning should be first confronted with Hilbert’s and the then contemporaneous traditional optimism of mathematicians feeling that the status of their discipline surely had signs of unmistakable perfection. Answers cannot be adequate in one form for all questions; moreover different subjects require different structure, contents and simplification in their received answers. Preliminary boundaries have been set for each field of study and its specific treating
of problems from the viewpoint of historical time, its technical possibilities and felt priorities. For some “standard” situation, its describing terms do not often change, but different concepts may be bound with them all the same. There is no “synchronicity” (not to be taken in the technical Jungian sense) within the development of different human activities and their mental reflection as far as their rhythm and general influence in other spheres of human life is concerned. We have been confronted with too many changes in our life in the 20th century. Gödel’s adult life started well before WW II and, at that time, his famous results were reached. More than sixty years after the 2nd world war we are now trying to evaluate his heritage. It is paradoxically easier to comment on Gödel’s impressive results in mathematics than to try to give a righteous and impartial judgment of his philosophy be it not his technical Platonism. Both his general “philosophical” outlook as a contemplated methodical tool in science (with some conceivable inspiration for everyday life), and his religious views as a non-scientific (or extra-scientific) expression of a belief attitude and behaviour, are probably more difficult to treat impartially.

1. Some preliminaries for a viewpoint

First of all, some disciplines have been conceived as “hard”; they are based on mathematics, can be falsified by experiment, use strictly defined methods/procedures and apply logic. The results reached in older epochs are mostly uninteresting in them; new knowledge is important for their development. Research in such a “hard” subject area must bring something intrinsically new to be positively evaluated. “Soft” branches of knowledge, on the other hand, live from their history. Contrary ideas may be equally precious in them; older ideas can be revived, thus being sometimes more valuable than something contemporaneous when compared. In a “soft” field of activity even a reformulation of an old question may sometimes be valuable, be the answer as such of not much practical application.\[1\]

In the 20th century, the “hard” subject areas have been marked by a rather rapid development. Already at the beginning of the last century physics started with two completely new directions, the relativity theory and quantum mechanics. At the time the atomic structure was not known. In forty years’ time the world had to familiarize itself with the first atomic bomb. The war then and the so-called cold war afterwards stimulated a rapid unfolding of two other important scientific fields, computers and the cosmic technology. In physics and cosmology of the second half of the 20th century new areas were opened through astrophysics and big supercolliders.\[2\] The second half of the century was also marked by a steep development of microbiology. At the start of the 21st century we can already read the human genome; proteomics starts to be the central problem. During the last 25 years scientists, being based in several new non-invasive procedures, could register much new knowledge of the human brain and its phenomenal activities; all that, of course, took place after the death of K. Gödel. Within these asynchronous developmental trends of several subject fields we cannot forget to quote the spectacular results of contemporary neuroscience and, of course, the fantastic progress in transplantation technology and prothetics.

Our evaluational perspective differs very much from the one in which Gödel lived. Not only science but philosophy, too, found itself confronted with new, not easily to be assimilated, stimuli for its further development. In our context, it would be rather awkward to try to describe the basic currents in philosophy in the last 130 years not ignoring, at the same time, its slowly but continuously decreasing influence on science. Towards the end of the 19th century, it was yet possible to find an important scientist (a biologist) consciously taking a turn to philosophy; let us quote Driesch as a case in question. Today, I can hardly believe somebody—as a scientist—would be motivated to read works of philosophers, as an important inspiration in physics, in a similar way as Einstein had done, by way of a natural and relevant occupation for a scientist, one hundred years ago. A contemporary of both, a famous Czech intellectual (and, later on, the first president of the Czechoslovak Republic, from 1918 till 1935), Thomas Garrigue Masaryk, was sure that science encompasses man as a whole, including philosophy and religion.\[3\] On the other hand many mysteries of the past, including the molecular frame of life on earth, remained outside of a scientific explanation not only one hundred years ago but still half a century ago. The Darwinian theory of evolution was comparable to a daring conjecture as far as
man was concerned till 1924 when the first link to pre-human development was discovered. Till our
time, the human psyche, in the reflections of many, seems to be more than a remarkable quality of the
brain. Various imaginations sometimes accompany our so-called “soul” letting it, under the disguise of
“spirituality”, mysteriously wander into other dimensions or other times.

There are still questions where we can, to a substantial degree, mutually differ in answering them
even when the problems and their solutions seem to be objectively approachable. Many a time—and
owing to a special philosophical background we take for granted—we treat reality as “empiricists” or
“rationalists” (to say nothing now about “naturalism” and “physicalism”, or “spiritualism”). Not
knowing exactly what makes mental events of various physiological states of the brain, we then
believe it collects “ideas” (“atomic thoughts”) by way of linear association, or by combining them in a
vertical structure. The former treatment represents the “step by step” method, the latter is an
expression of the connective procedure in a web (or a “tree model”). Moreover, as human beings we
are sure we need some patterns to organize our world. Or else there would not be a good orientation in
it, not to speak of predicting its due course. We seem to rely on causality in many respects till now.
Randomness makes us often uneasy. And, in addition to it, many of us seem to be sure that processes
just do not happen, but are intimately bound with reasons and values. So it may be natural that we still
need philosophy, and religion, too. — Is there a good reason to revive Gödel’s heritage in these two
areas of human interests even today then?

2. The greatest logician of the 20th century praises philosophy
Towards the end of his life Gödel (1975) expressed the view that “[p]hilosophy consists of pointing
tings out rather than arguments.” (Wang, p. 209.) In another formulation, from 1954 (quoted in
Wang, p. 119), he made a similar observation: “Engaging in philosophy is salutary [wohltätig
(wohltuend?)] in any case even when no positive results emerge from it (and I remain perplexed
[ratlos]). It has the effect [Wirkung] …that reality appears more clearly [deutlicher] as such.” One
may think here of the fuzzy Cartesian criterion of “clare et distincte” (intelligere), i.e., to understand
clearly and distinctly. The latter assertion was written in Gödel’s private notebooks. Another
formulation, from the same passage, emphasizes the fact that the fundamental philosophical concept is
cause. In another, yet earlier, passage (from 1944; Wang, p. 120) this cause was linked with “an a
priori proof of the existence of God”.

So, during the second half of his life Gödel remained firm in his belief in the value of philosophy
in a similar way he was attracted to during the first half of the 20th century. Let us not forget that, from
the end of the 19th century until the 2nd world war, the course of science progressed steadily but rather
slowly when compared with what, so steeply, followed in the last sixty—or in a yet more marked way
in thirty—years of its development. And one hundred years ago the term “philosophical analysis” was
mostly not yet conceived in a very narrow sense of its only contextual application, but also—if not, at
least on the European continent, more so—in its “real” counterpart, i.e., ontologically. Such a double
conception could be found, e.g., in Russell’s “On Denoting” (from 1905). The importance of logic for
such analyses—which liquidating the traditional conception of “narrative” philosophy—can be directly
seen, in a model way, in Carnap or Ayer in the 1930s.

Considering the preceding intellectual climate in 19th-century Europe, the English philosophy was
an expression and tool of experience, German philosophers treated their preferred discipline outside
science, and the French conceived philosophy as a summary of scientific knowledge. Simultaneously
and as if inherited from previous times, the Continent felt as a necessity to cope oneself both with
Descartes and Kant. Descartes emphasized the necessity of metaphysical roots for science and
philosophy in general; Kant on the other hand was sure that metaphysics cannot be applied in science,
and philosophy could not be more than a synthesis of what had been presented as results of the
scientific inquiry. At the end of the 19th century, mathematics was seen as a perfect model of science,
exemplary in its exactitude, architecture and demonstrability; Hilbert’s various efforts should be
mentioned here. Some disciplines were believed to be final in their development at the time; Newton’s
mechanics was a model in case. The basic composition of matter was not known at the beginning of
the 20th; such physicists as Mach could rather safely refuse to accept the idea of atom in those
Radioactivity and X-rays were comparable to something really miraculous, if not moreover magical and wholly incomprehensible.

At the beginning of the 20th century we can find Husserlian phenomenology as one of the last serious attempts to evaluate science for a conception of the world from the viewpoint of philosophy. Towards the middle of the last century (and afterwards) Karl Popper’s influence as a theorist of knowledge and science cannot be overlooked. Landgrebe’s hermeneutics should not be forgotten either. Also Kuhn’s paradigms awakened much interest within the philosophy of science from the 1960s on. Lakatos’ core structures ought to be remembered within this context, too. Existentialism, Marxism, and the so-called post-modernism do not contain much to be considered in science. And what about some form of a “general philosophy” (philosophy in form a “worldview”)? Has it still its special field of study and independent interpretation? If it were not for a treatment and analysis of concepts—as it is the case within analytic philosophy—there is probably not much to be had as “philosophy” in our contemporaneity. The term has been widely used as a vague (though “ennobling”) expression to quote some not immediately defined tactics or procedures in politics, management, sport or everyday life.

When speaking about Gödel’s relationship to philosophy, one is strikingly confronted with his very articulated need to evaluate philosophy as a discipline engaged with what is fundamental (as he often put it). In the summary of his manuscripts (written in his own hand, moreover in shorthand) “philosophical assertions” were classed first. Several thousands of pages were filed as “philosophical excerpts and literature”. (Wang, pp. 95-96.) Gödel’s follower and sensitive interpreter Hao Wang, after a straight question he addressed to him, stated that “his general philosophical theory is a Leibnizian monadology with the central monad (namely God)” (Wang, p. 87). In Wang’s words, “Leibniz rather than Spinoza” (Wang, p. 112). Spinoza should be considered here as an important herald of rationalism and a thinker who—as if also in agreement with Einstein—posted a “desirable state of unity with nature as God and makes one unafraid of death” (Wang’s formulation, p. 146).

Fascination with Leibniz is one thing. Wang found Leibnizian influence on Gödel’s work “in the case of his ontological proof” (Wang, p. 113; Febr. 10, 1970). In an excerpt from 1954 we can read in the first of five points that the ontological proof of God “must be grounded on the concept of value” (Wang, p. 119). It cannot be doubted in Gödel’s thinking that “any systematic procedure for solving problems of all kinds must be nonmechanical” (Gödel in Wang, p. 202; sub 6.3.16).

On the other hand, Gödel’s captivation with the “central monad”, though consistent with the Leibnizian system, is not so easily understandable when metaphysics might be put aside. Gödel read Kant; he classed his works as “good books in philosophy” (in a letter to his mother, from 12. 9. 1961, a quotation in Wang, p. 41). As we can see it in Gödel’s high and very positive evaluation of Leibniz, he did not follow Kant in his criticism of metaphysics. Why? I somewhat hesitate to follow my thoughts in this respect further.

I can find some evident similarity with Descartes here: they both of them wanted to dispose of a fixed and firm basis for their intellectual constructions; namely metaphysics. More than that: Directly in Gödel, there seems to be an outward sign of internal behavioural insecurity. He married a woman, several (seven) years older than he himself was, as if he subconsciously wanted to have somebody near himself as a surrogate mother. At the same time, he—during all his life—was in a remarkably regular contact with his own mother; it surely is not self-evident and obvious that he exchanged his views with her on nearly every aspect of human life. Also his continuous (and later in life yet more outspoken) anxiety, not to say panic, of contaminated food and fear of medical treatment are a sign not only of his mental “ailment”, but his conscious and continuous striving after safety, too. Philosophy (be it Leibnizian or Husserlian, with Platonist overtones) was “Sicherheit” (security) for him. With its metaphysical roots, philosophy was similar to the ancient and medieval ideal of a centrum securitatis.

And, last but not the least, when Gödel reflected about the nature of mathematics he first disproved nominalism (with its syntactical conventions) together with its “more general view that mathematics is our own creation” (Rodríguez-Consuegra, p. 145). When considering three other “philosophical” alternatives for a background in mathematics, Gödel rejected both “psychologism” and “Aristotelian realism” leaving for himself Platonism as the “only one tenable” view (Rodríguez-Consuegra, p. 147).
As far as psychologism is concerned, mathematical concepts given only as dispositions in human mind (or “wheels of our thinking machine”, ibid. p. 146) or, moreover, as “something purely subjective or mental” (ibid.) seemed to be “quite unnatural and unacceptable” (p. 147) to him. The “Aristotelian” realism asserting that mathematical concepts are pure “parts or ‘aspects’ of space-time things” (p. 147), were hardly acceptable for Gödel either. In accord with Gödel’s view, mathematical objects cannot be treated solely as something like “heaps of pebbles”; and moreover, “it is very hard to think of all possible worlds as parts of the real world” (ibid., p. 147). In this context, Gödel characterized his formulations as “rather loose considerations” (p. 147); but one cannot fail to notice his statement that the “Platonic view is the only one tenable” (p. 147). Gödel himself explained it in the following words: “Thereby I mean the view that mathematics describes a non-sensual reality, which exists independently both of the acts and the dispositions of the human mind and is only perceived, and probably perceived very incompletely, by the human mind.” (Ibid., p. 147.) Something should be added here. Gödel annexed a short citation in French which could be of interest for the next section of this contribution. “There exists—if I am not mistaken—a whole world which is a set of mathematical truths accessible only through intellect, as well as there exists the world of physical realities; one and the other independent of us, both of them of divine creation.” (Ibid., p. 147.)

3. The greatest logician of the 20th century and theology (or religion)

One of the main tasks in the 20th-century philosophy probably was to give the insecure world a reliable meaning (or, in the analytical philosophy, to give a precise meaning to lexical expressions). In this connection are interesting the four letters Gödel wrote to his mother between July and October 1961 (see the texts in Wang, pp. 105-108). It has already been hinted above at the connection Gödel felt between the “rationally constructed” order in the world (23. 7. 1961) and its metaphysical background, or foundation, being based in God. Gödel underlined the role of science in this respect. In accord with his view, science shows order in the world. And at the same time such an order, as a substantial fact, reveals that this world has got a meaning. Even if there are many gaps in understanding this world (and many potentialities of human rational capacities have not yet been sufficiently applied), pure reasoning is taken by Gödel to be the right and satisfactory means to substantiate the belief in an afterlife. If order “is a form of rationality [Vernünftigkeit]” (Wang, p. 106) and if modern science provides us with the knowledge of the beginning and end of this world, we should also somehow guess man could “attain a better existence—that is, give more meaning [Sinn] to his life” (ibidem, p. 106).

In the first of these four letters Gödel wrote: “But why, then, should there exist only this one world—for just as we one day found ourselves in this world, without knowing why and wherefrom, so can the same thing be repeated in the same way in another world too.” (Wang, 23. 7. 1961, p. 106.) Speaking about this “doubling [Verdopplung]” he characterized it as a “philosophical lecture” (ibid.). In the third letter he then explained: “If one objects that it would be impossible to recall in another world the experiences in this one, this [objection] would be quite unjustified, for we could in fact be born in the other world with these memories latent within us. Besides, one must, of course, assume that our understanding [Verstand] will be considerably better there than here, so that we will grasp everything of importance with the same absolute certainty as 2 x 2 = 4, where a mistake is objectively excluded.” (Wang, 12. 9. 1961, p. 107.) And again he adds (as he remarked, in a similar way, at the end of his previous letter): “But I’m afraid that I am again going too far into philosophy. I don’t know if one can understand the last ten lines at all without having studied philosophy. N.B. Today’s philosophy curriculum would also not help much in understanding such questions, since in fact 90 percent of today’s philosophers see their main task [as] getting religion out of people’s heads, so that their effect is similar to that of the bad churches.” (Ibid., p. 107.) At the beginning of the letter just quoted Gödel used the term “theological” in quotation marks mentioning by this his previous “rather deep philosophical questions” (ibid.).

And, last not least, he repeats the same statement in the fourth letter (from 6. 10. 1961, in Wang, p. 108). He first dissociates himself from “religious occultism” or from the “Catholic” dogma of the
“Hell for all eternity” for nearly all “except the good Catholics, who constitute only a fraction of the Catholics themselves,” as Gödel immediately added. He underlines the benefit of applying “the intellect [Verstand] to any area” and shows the difference between the knowledge and technical skill in between of 3000 years ago and his contemporaneity; his examples having been: knowledge of many important properties of distant stars in astronomy, and ability to build TV-sets. In the following paragraph he gives yet another example of an originally unfounded conception presented 2500 years ago, the atomic hypothesis, formulated “on purely philosophical grounds” and today so “brilliantly confirmed” and serving as the “foundation for a very large part of modern science.” And here Gödel went immediately on: “Of course, one is today a long way from being able to justify the theological view of the world [das theologische Weltbild] scientifically, but I believe that it may also be possible today to conceive, by pure reasoning (without depending on any particular religious belief), that the theological view of the world is entirely consistent with all known facts (including the conditions present on our Earth).”¹⁵ He referred to Leibniz as his cue and repeatedly explained: “The thing that I call the theological worldview is the concept that the world and everything in it has meaning and sense [Sinn und Vernunft], and in particular a good and unambiguous [zweifellosen] meaning.”

The last two sentences of this fourth letter are—as if—a shortcut to Gödel’s scientific and/or philosophical assurance of the “principle that everything has a cause”, coupled with his personal certainty that there must be another existence after death — an afterlife. The preceding quotation has been followed by the subsequent formulation: “From this it follows directly that our presence on Earth, because it has of itself at most a very uncertain meaning, can only be the means to the end [Mittel zum Zweck] for another existence.” (Ibid., p. 108.¹⁶)

In his personal faith, Gödel obviously was more than only a “Baptized Lutheran” whose belief was “theistic” (see in Wang, p. 27). This, rather categorical, proclamation was expressed by the genial logician at the end of his life (in 1975) and thus it has to be taken as a true and nearly “definitive” expression of his religious views. If one is allowed to follow the meaning of the accompanying ideas coupled with the words used, it points out the creed supported by the belief in the God of the Scriptures. But Gödel—as it was to be anticipated—did not mention “Trinity”; and so, evidently, his “Lutheranism” actually was only a shared—but later not insignificantly adjusted—inheritance from his youth. At the same time, it might seem strange that Gödel did not immediately complete this rather final and “definitive” information by mentioning his firm “apostolic” creed in the next life in eternity.

4. Some second thoughts, also about the human “mind” (or also “soul”?)

Let us repeat it in another wording once more: As if “on purely philosophical grounds,” we are confronted here with a “theological” conclusion based on a natural principle — “that everything has a cause.” In this context, we have not been forced to preliminarily refer to God to follow this Gödelian reasoning. The “next world” seems to be, in this connection, as if only an open opportunity for our human imperfection to go on improving and upgrading our previous abilities which we started our lives with.

We can see now why there was such an intense talk of “philosophy”—and high esteem of it—in Gödel. And we have also some reason to presume that, on such a basis, one is not forced to immediately look for a safe shelter in the Saint Scriptures to believe in some kind of an afterlife. For Gödel, human mind is more than only a—“Turingian”—machine. In this connection (quoted in Wang as 6.3.14, p. 200), we can read the following conjecture by Gödel: “Although at each stage of the mind’s development the number of its possible states is finite, there is no reason why this number should not converge to infinity in the course of its development.” I think there is no talk here about any similarity to a Turing Machine. We need only to remember the preceding, here also just quoted, sequence of ideas concerning an afterlife. And there we are: a “mind” living in an afterlife till eternity surely is a case in question here. Then such a formulation cannot be a version of the problem of a relationship between a mechanical and another, non-mechanical, entity. Under such conditions, any possible comparison drawn between a neural system and a computer with its algorithmic (or also
probabilistic) characteristics—many-valued Turing Machines being included—would not serve the purpose as an explanation to the point.

Let us turn our attention once more to Gödel’s conception of the human mind. In the famous “Gibbs Lecture” (from 1951), Gödel said that it was “conceivable” that some day “it would be known with empirical certainty (1) that the brain suffices for the explanation of all mental phenomena and is a machine in the sense of Turing; (2) that such and such is the precise material structure and physiological functioning of the part of the brain which performs mathematical thinking.” (In Wang, as a motto to Chap. 6, p. 183.) During his discussions with Wang twenty years later, Gödel strongly argued against this presupposition; he rejected both these alternatives as false. He referred to the fact that the “creator necessarily knows all properties of his creatures” and that “this alternative seems to imply that mathematical objects and facts (...) exist objectively and independently of our mental acts and decisions” (Wang, 6.1.6, p. 186). Moreover the human mind has been defined by Gödel as an “individual mind of unlimited life span” (Wang, 6.1.23, p. 189). In accord with this surprising statement, any kind of “psychoneural parallelism” or “identity theory” should not be considered as valid, to say nothing of “epiphenomenalism” and similar materialist (or reductionist) trends in cognitive philosophy.

Moreover Gödel claimed that “[m]atter and mind are two different things,” (Wang, 6.2.4, p. 191) or that “[m]ind is separate from matter: it is a separate object” (Wang, 6.2.9, p. 192). He even emphasized that “[i]t is a logical possibility that the existence of mind [separate from matter] is an empirically decidable question,” adding that it is “not a conjecture” (Wang, 6.2.3, p. 191). He relied on the well known experience that “the mind is capable of recalling all details it ever experienced,” being sure that “there are not enough nerve cells to accomplish this” (Wang, 6.2.5, p. 191). He also expressed the following statement: “Even if the finite brain cannot store an infinite amount of information, the spirit may be able to. The brain is a computing machine connected with a spirit.” (Wang, 6.2.14, p. 193.) As another argument in the same matter, he could probably use language as a limited source of expressions and rules allowing innumerable performances in individual speech. (Let us not forget here the same argument applied by Descartes as a proof of the creative quality of the human spirit as against a reflex—and only “animal”—mechanism in his famous Discours.) Mind activities seem to be limitless and infinite, and adaptive to the always changing body constitution and its neighbourhood.

It does not necessarily follow for us from this that the “mind” is a metaphysical unit similar to a Leibnizian “monad” or a system only loosely and strangely coupled with the brain (somehow as an “external”—and ‘mental’—memory”). Here we should possibly add an experience described by Benjamin Libet that no mental synchronicity with its physical counterpart in the brain can be proved experimentally.21) A “readiness potential” (called “Bereitschaftspotential” by H. Kornhuber and L. Deecke, 1965; Kornhuber, 1984) precedes our volition by an interval of at least 350 msec. It does not mean man has thus lost his freedom of the will. It means what it says: before exactly knowing we would like to reflect on something our brain is physiologically ready to start this reflection. Or else, a conscious mental process has been tested as an activity which comes after a small fraction of time when the brain is ready for some thinking, volition or any other mental activity. The first such news about this paradoxical phenomenon concerning our psyche and its relationship to the brain started to disconcert the scientific public a quarter of a century ago; that is, after the death of Gödel. Thus some of the physical prerequisites for the operational activity of our human brain could be tested. Thus, nothing has been explained concerning the “gap”—or “transition”—between the neural (physical) level and the “mental” one. We should bear in mind that there are two different categories of reality here not mutually translatable without a shift in meaning or a simplifying reduction. The metaphor making an analogy between the brain and its mind as against a computer’s hard- and software still holds. Any software being left without its application (i.e., without its interpreted program or decoding) is immediately short of this comparison. The specificity of the mind, although based on the whole body (including especially the brain and a series of developed neural subsystems), brings a special internal experience both of the internal and external world we call the “psyche” (or “mind”, or the “mental”, or also the “rational”).
On the other hand, we should constantly bear in mind that Gödel, separating “mind” from matter, made it identical with “soul” (Wang, 9.4.12, p. 314), or “spirit” (Wang, 6.2.14, p. 193, and elsewhere). In a summary, prepared in 1972, he was sure that “mechanism in biology is a prejudice of our time which will be disproved” (Wang, 6.2.11, p. 192). When using the term “mechanism in biology,” he meant his version of Darwinism, i.e., a mechanical “evolution” of assembled parts. Gödel used the expression “life force” and reserved “holistic laws” for it to dispose of a good platform to refute mechanical “Darwinism” which, of course, is not identical with authenticated Darwinism.

In such a case a possible question of whether a Turing Machine can serve as a model of a human mind, immediately seems not to be to the point. Gödel conceived human understanding as a quality going very substantially beyond any mechanical procedure. For many centuries chess was believed to be such a mental game where no mechanical procedures can be successfully applied. The project called “Deep Blue” (of 1997; some twenty years after Gödel’s death in 1978) could already analyze $200.10^{10}$ moves in a second and beat G. Kasparov in a game or end in a draw. Its follower, “Deeper Blue”, could already beat the World Champion in this “royal” game in a tournament. At first, it seemed “obvious” sounds and colours had to be technically reproduced solely by means of an analogue procedure. Now a digital process can do this more faithfully and efficiently. The abbreviated terms “CD” or “DVD” used by hundreds of millions of fans have been an excellent example of the technical progress initially thought impossible. A digital display of the size 10 x 13 ft and with 20 million pixels realized five years ago was already near the acuity of the human eye. To say nothing of the still valid “Moore’s law” prophesizing the exponential growth of the number of transistors in a chip in 1965. As if the so-called “singularity” were near (as it has been recently proclaimed by Kurzweil in a voluminous book$^{22}$); the corresponding exponential curve was calculated some forty years ago, and some 25 years from now in the future the prognosticated technical singularity may be the fact…

Man, of course, is not only a rather small parcel of neurons. Through our lives we introduce something singular, or unique, into our surroundings. As we can veto the realization of our deeds, we also bear responsibility for them, be the Libetian “readiness potential” explained in whatever way possible. And if human conscience is still a “hard” problem for neuroscience, we might be reminded of Wigner’s answer when he was asked whether physics was about to solve the conscience puzzle: “Physics can’t even explain physics.”$^{23}$ In a similar way, we could also say that logic can’t even explain logic. Gödel’s Leibnizian monadology and his ontological proof of God are to be included within the same domain of not adequately solving the somewhat exaggerated task which it was meant for. It does not, of course, say that Gödel’s phenomenal discoveries should be reconsidered; those ones formulated three quarters of a century ago and giving a positive solution to the completeness theorem and, shortly afterwards, setting the limits to the then felt (and exaggerated) assurance of provability.

It is surely remarkable that Gödel could so efficiently bridle mathematics in its previous so “natural” (and very “traditional”) beliefs by his—now so famous—incompleteness theorem. On the other hand he took “philosophy” as an “exact theory”. If we take it as a Platonist theory of “sharp concepts”, it would probably not cause much controversy. But if Leibnizian monadology and imaginations of an independent “spirit” mysteriously accompanying its “material” brain are to be annexed as constituting parts of such a “philosophy”, it surely would not be easy to call this an “exact theory”. In our context, it would also be more than reductionism to accept Gödel’s identification of materialism with mechanism. Such a Gödelian “mechanism” presupposes definitive physical laws and no open ends for our reality. It does not allow a scientific explanation of the world and, at the same time and in a “Cartesian way,” it separates mind (or the hypostatized “spirit”) from its brain. The pretext that the human mind must rest within a domain outside of algorithmic rules is surely too one-sided. To include, in a harmonious and “consistent” way, such ideas into the contemporaneous “scientific philosophy” (if there is something like the term and behind it semantically), seems to be a task which I think cannot be reasonably fulfilled.
NOTES:
1) The so-called “Third Culture” trying to mutually couple the results of both the spheres here just quoted will not undermine the prerequisites of our analysis. Neither any form of “consilience” is here attempted.
2) Theory now expects the existence of several Boson fields, probably five, to rationally stabilize human imaginations about the microstructure of the world.
3) K. Čapek, Hovory s T. G. Masarykem (Discussions with T. G. Masaryk); Čs. spisovatel, Praha 1990, p. 226.
4) See cited in Literature below.
5) Instead of “salutary” I would translate “beneficial”, and instead of “perplexed” I would rather say “helpless” (or “at a loss”). But the general meaning of the quoted statement remains nearly the same.
6) We can see it as a paradox that the road of discovery did not start with the atomic nucleus but with an incomparably much smaller electron (J. J. Thomson, 1897); to say nothing of the atomic structure and its representation. Cathode rays—as “rays”—could serve as a proof of the existence of small charged material parts in atoms.
7) Popper’s falsification method has to be underlined here.
8) Marxism was proclaimed a “scientific view of the world,” but its basic tenets were mostly grounded in 19th-century science.
9) “Post-modernism” is a rather precarious, if not misleading, term, though it is still used as if being an apt terminological signboard of our time. What exactly is it and after what does it come? This term has nothing to do with possible “clues” for the interpretation of science and technology development in the 20th, to say nothing of the 21st, centuries.
10) Let us not forget misused expressions like the “philosophy of our enterprise,” “philosophy of our game,” “philosophy of our policy-making,” “sales booth philosophy,” etc.
11) Under the editor’s name you can find the quotation of Gödel’s words, see in Literature below.
12) Rodríguez-Consuegra, p. 157; in Notes, No. 33. - Gödel’s words: “Platonism remains the only conception understandable for the human mind.”
13) Translation mine, M. D.; author G. Darboux, 1912.
14) Would it not be better to translate here “Vernünftigkeit” by “reasonableness”? Bold letters by M. D.
15) Were it not better here to translate these expressions by “purpose and rationality, or reasonableness”? Bold letters by M. D.
16) Underlined by M. D.
17) Bold letters by M. D.
18) In bold by M. D.; compare with Wang, 9.4.12, p. 314, with the same formulation, though in another frame.
19) See his Mind Time: The Temporal Factor in Consciousness, with Bertram Feinstein, Harvard UP, Cambridge, Mass., 2004; or an older title edited by B. Libet, A. Freeman, and J. K. B. Sutherland, on The Volitional Brain: Towards a Neuroscience of Free Will, orig. in: Journal of Consciousness Studies, Issue 8-9/1999 (and in book form: Imprint Academic, 1999). — Libet’s first experiments started in 1957.
20) Ray Kurzweil, The Singularity Is Near: When Humans Transcend Biology; Viking, New York 2005.
21) Quoted by Libet, in “Mind Time” (here cited in note 21), p. 6.
LITERATURE:
Kurt Gödel, *Unpublished Philosophical Essays*, ed. Fr. A. Rodríguez-Consuegra; Birkhäuser Verlag, Basel, 1995.
Hao Wang, *A Logical Journey: From Gödel to Philosophy*; The MIT Press, Cambridge, Mass., 2001 (second printing).