Synthese (2010) 175:33–45
DOI 10.1007/s11229-009-9532-x

Gödel's philosophical program and Husserl's phenomenology

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Received: 1 December 2007 / Accepted: 10 July 2008 / Published online: 9 April 2009

Abstract Gödel's philosophical rationalism includes a program for "developing philosophy as an exact science." Gödel believes that Husserl's phenomenology is essential for the realization of this program. In this article, by analyzing Gödel's philosophy of idealism, conceptual realism, and his concept of "abstract intuition," based on clues from Gödel's manuscripts, I try to investigate the reasons why Gödel is strongly interested in Husserl's phenomenology and why his program for an exact philosophy is unfinished. One of the topics that has attracted much attention recently is the development of Gödel's philosophical thoughts and its connection with other philosophical ideas. For instance, some scholars are searching for the possible connections between Gödel's philosophy and Husserl's phenomenology and examining if there is any solid evidence of Husserl's influence on Gödel from Gödel's works (Tieszen, Bull Symbolic Logic 4(2):181–203, 1998; Huaser, Bull Symbolic Logic 12(4):529–588, 2006). Why is Gödel' s interested in Husserl? How should this turn to Husserl be interpreted? Is it a dismissal of Leibnizian philosophy, or a different way to achieve similar goals? Way did Gödel turn specifically to Husserl's transcendental idealism? (Van Atten and Kennedy, Bull Symbolic Logic 9(4):425–476, 2003) I believe, the reason is that Gödel has a valuable program for "developing philosophy as an exact science" and he believes that Husserl's phenomenology is relevant to the realization of this program. So far there are no sufficient evidence to show that there is a direct inheritance relation between Gödel's and Husserl's thoughts. However, from the clues in Gödel's idealistic philosophy, conceptual realism, and his concept of "abstract intuition," we can perhaps explore some similarities between his thoughts and Husserl's thoughts, and analyze the reason why Gödel is interested in Husserl's phenomenology and why his program for an exact philosophy is unfinished.

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Keywords Gödel's philosophical program · Husserl's phenomenology · Conceptual realism · Abstract intuition · Essential insight

1 Gödel's interests in Husserl are related to his program for an exact philosophy

Gödel was an independent thinker. He openly opposed the idea that "philosophy is Zeitgeist." He believed that the era of his life was not an era for producing good philosophy, mostly because of the influences of early theology, modern materialism, and positivism caused various prejudices in philosophy. His ideal philosophy was a systemized "exact theory" that should be "an exact science just as the Newtonian physics." Such an exact theory must be a complete and integrated system, with components deducible from fundamental concepts and principles that are exact and certain. Therefore, the program to "develop philosophy as an exact science" is a major part of his philosophical ideal.

Since Gödel wants to fully develop in his philosophy the Platonic conceptual realism and a metaphysics that places minds prior to materials, and since he wants to construct a "rationalistic, idealistic, optimistic, and theological" image of the world, he claims that his ideal philosophical picture will take a format much like Leibniz's Monadology with God at its center. Therefore, he formulates the three major tasks of philosophy as: (1) determining the primitive concepts of metaphysics, (2) with some methods for grasping the essence of concepts, fully grasping and analyzing those concepts, and looking for proper axioms about them, and (3) constructing a corresponding metaphysics based on those axioms.

As early as the 1940s, Gödel already suggested that Carnap should develop philosophy as an exact science—with "God," "soul," and "ideal" as the core concepts. In the 1960s and 1970s, he claimed again that "the fundamental philosophical concept is "*cause*," which involves "will, force, enjoyment, God, time, and space" (Wang 1996, p. 294). However, what always troubled Gödel until his later days was the fact that he had not found the proper primitive concepts for building such an axiomatic metaphysics, Gödel believed because all historical and contemporary philosophical concepts lack the required clarity and transparency, so that one cannot clearly see that the axioms based on them are true. Therefore, we must shake off philosophical prejudices and try new explorations:

> My working hypothesis is that the project under consideration has not yet been studied from the right perspective. Specifically, previous attempts have been hampered by one combination or another of three factors: (1) lack of an exact development of science, (2) theological prejudices, and (3) a materialistic bias. The pursuit, unhampered by any of these three negative factors, hasn't been tried before. (Wang 1996, p. 293)

In Gödel's view, for the realization of this program, time is not the problem. The problem is that we need to find a method for gaining the primitive concepts and tracing back to the foundations of philosophy. In the early 1960s, he believed that this method can be found from phenomenology.

It is certain that, in the thirty years before Gödel started studying Husserl seriously in 1959, he already had some knowledge of phenomenology. At least, he had many channels for getting in touch with phenomenology during the period when he attended the Vienna Circle's activities. For instance, Husserl gave lectures in Vienna several times, and members of the Vienna Circle and others had criticized Husserl's epistemology, especially his transcendental idealism. Gödel was already aware of phenomenology. However, in response to a question that Barry Smith asked in 1975, Gödel claims: "I can say that my conceptual realism, which I holding since about 1925,was in no way brought about by phenomenology. I have a high regard for Husserl, but I did not get acquainted with his writings before many years, after I emigrate to the U.S." (Van Atten and Kennedy 2003, p. 427). In 1959, Gödel started his systematic study of Husserl's phenomenology. Why does Gödel spend so much energy on Husserl's phenomenology after thirty years? It is obviously related to his philosophical program.

In fact, before 1959, on several occasions Gödel already expressed views similar to Husserl's phenomenological realism and "essential insight." Gödel was clearly more interested in Husserl's position after Husserl finished the transcendental phenomenological turn.

As we know, Husserl believed he could rebuild the foundation of philosophy by way of a systematic reflection upon mathematics, logic, the modern sciences, and the history of philosophy. After some painful intellectual crises, he found the method of essential insight for clarifying concepts and the methodology of phenomenological reduction, which set the foundation for his transcendental idealism and initiated "philosophy as a rigorous science." Gödel's route extended his rationalist optimism based on mathematics to philosophy, Gödel starts from objectivism in number theory and gradually generalizes the realistic position to bigger sets and classes, until it is extended to abstract concepts and finally results in conceptual realism. This position is expressed in several important philosophical articles (Gödel 1944, 1947/1964, *1953/1959, 1958, *1961/?) and some of his manuscripts and letters in his later days. The following expresses the core idea behind Gödel's conceptual realism, and an important characteristic of conceptual realism is that it is closely connected with mathematical intuition:

> Besides numbers and sets, classes and concepts may, however, also be conceived as real objects, namely classes as 'pluralities of things' or as structures consisting of a plurality of things and concepts as the properties and relations existing independently of our definitions and constructions."… "It seems to me that the assumption of such objects is quite as legitimate as the assumption of physical bodies and there is quite as much reason to believe in their existence. They are in the same sense necessary to obtain a satisfactory system of mathematics as physical bodies are necessary for a satisfactory theory of our sense perceptions.… I shall use the term 'concept' in the sequel exclusively in this objective sense (Gödel 1944, in Gödel CWII, p. 128). […] The truth, I believe, is that these concepts form an objective reality of their own, which we cannot create or change, but only perceive and describe. (Gödel *1951, in Gödel CWIII, p. 320)

As a Platonic conceptual realist, besides being deeply influenced by the tradition of rationalism since ancient Greece, Gödel had a strong penchant for German idealism. Before studying Husserl, he was already familiar with Plato, Leibniz, and Kant. He knew very well that precision and conceptual clarity is critical to philosophical research. He wanted to provide a forceful defense for Platonic conceptual realism that he held since 1925. He was already aware that his philosophy was incomplete during the Gibbs Lecture in 1951, when he was not able to offer completely convincing evidence to show that "Platonism view is the only one tenable." In 1953–1959, he spent six years writing a paper that criticizes logical positivism, but never published it because he realized that his own conceptual realism was not yet built upon a solid foundation. Gödel holds that "general philosophy is a conceptual study, for which method is all-important" (Wang 1996, p. 287). The mission of his philosophical program is to clarify concepts, develop an axiomatic metaphysical system in the format of Leibniz' Monadology with ultimate certainty, and finally transform philosophy into an exact science. It was in such a situation that Gödel saw that phenomenology might provide a more rigorous theoretical analytic tool for proving the feasibility of Platonic conceptual realism, for proving the indispensability of abstract mathematical intuition, and for providing a new way to realize his program of idealistic philosophy:

> Obviously not, or in any case not exclusively, by trying to give explicit definitions for concepts and proofs for axioms, since for that one obviously needs other undefinable abstract concepts and axioms holding for them. Otherwise one would have nothing from which one could define or prove. The procedure must thus consist, at least to a large extent, in a clarification of meaning that dose not consist in giving definitions…. Now, in fact, there exists today the beginning of a science which claims to possess a systematic method for such a clarification of meaning, and that is the phenomenology founded by Husserl. (Gödel *1961/?, in Gödel CWIII, p. 383)

Henceforth, Gödel and Husserl share the same convictions in their fundamental goal of constructing an exact philosophy and in their philosophical methodologies.

2 Deliberations on the foundational issues in mathematics lead Gödel to Husserl's phenomenology

From the available literatures so far, the *1961/? talk "The Modern development of the foundations of mathematics in the light of philosophy" is the representative work that shows the affinity between Gödel's philosophical position and Husserl's. In the manuscript, Gödel highly praises Husserl's philosophy and further explains his earlier views expressed in various philosophical papers and manuscripts (Gödel *193?, 1944, 1947/1964, *1951, 1958, 1972, *1953/1959). Many comments there obviously express his rejection of the main stream philosophy and more explicitly express the expectation to search for a new philosophy apart from the Zeitgeist by means of phenomenology. Some authors believe that the whole (*1961/?) paper describes, from one aspect, a route from the foundational researches in mathematics to Husserl's phenomenology (Tieszen 1998, pp. 181–203).

Gödel views that, in his mathematics program, Hilbert tries to use finitary methods to prove the consistencies of the axioms of Peano arithmetic and more advanced mathematical systems to assure the certainty of the entire mathematics. This program assumes only concrete objects and their combinatorial properties of finite objects that are discrete and can be immediately grasped by intuition in space–time, without considering the meanings of the symbols involved in the formalization. Moreover, mathematics taken as an a priori science, because of its abstract character, always inclines away from empiricism, positivism, and skepticism. The Hilbertian combination of materialism and aspects of classical mathematics thus proves to be impossible, "It is impossible to carry out a proof of consistency merely by reflecting on the concrete combinations of symbols, without introducing more abstract elements" (CWIII, p. 370). In other words, consistency proofs must resort to infinite objects and abstract concepts, based on analyzing the meanings of those concepts, and must resort to transfinite and non-constructive methods. That is, they require some sort of insight into the meanings of combinations of symbols in the proofs. According to Gödel's exposition in (*1961/?), they require Husserl's phenomenological essential insights (Gödel *1961/?, in Gödel CWIII, pp. 374, 380).

In fact, a similar position can be found in the six manuscripts of "Is mathematics syntax of language?" where Gödel argues for the significant role of abstract mathematical concepts and the indispensability of mathematical intuition (Gödel *1953/1959). By acutely criticizing conventionalism in the foundations of mathematics, he shows the non-eliminability of abstract mathematical intuition. Gödel summarizes Carnap's mathematical conventionalism, where mathematics can be reduced to linguistic syntax into three theses: (1) Mathematical intuition can be replaced by conventions on syntactic rules governing symbols, (2) Mathematics is without content and there are no mathematical entities or mathematical facts, and (3) As a system of linguistic conventions, mathematics cannot be refuted by any experiences, and therefore a priori certainty of mathematics is consistent with strict empiricism. Gödel develops three arguments against Carnap' position: (Gödel *1953/1959, in Gödel CWIII, pp. 345–348, 357–358).

(1) For a formal system that reduces mathematics to syntax, the syntactic rules of the system must be consistent, but according to the incompleteness theorem, this consistency cannot be proved within the system, and the system must contain mathematics that cannot be captured by syntactic rules. Therefore, it is not true that mathematics is merely linguistic syntax. (2) In realizing the syntactic program for mathematics, the axioms characterizing abstract concepts and the transfinite cannot be replaced by finite conventions on combinations of symbols and their properties and relationships, because the "class of non-finite concepts" consisting of abstract concepts and the transfinite is not directly given. Therefore, "mathematical content and intuition has non-eliminability." (3) Claiming that mathematics does not have any content is obviously based on the a priori assumption that content means physically factual content. However, what mathematics adds to natural laws are not new physical properties, but concepts that bear some connections with physical reality, namely, concepts about physical things and relationships between these concepts. Therefore, mathematics cannot be replaced by conventions. It can only be replaced by conventions plus intuition, or some conventions plus related empirical knowledge, which is in some sense equivalent to mathematical content.

We will see in the following that Gödel's understanding of the meanings of abstract concepts and his idea of abstract mathematical intuition are essentially different from Kantian intuition and Brouwerian intuition, but are closely related to Husserl's idea of essential insight.

3 Gödel's abstract intuition and Husserl's essential insight

According to Parsons (1995), Gödel uses the word "intuition" in two senses, one for the intuition of some objects and the other for a propositional attitude, as in "intuition that." Moreover, the difficulty in understanding Gödel's concept comes from the fact that concepts are also objects of intuition for him, and while he uses the word "intuition" in the sense of some conceptual perception, according to Gödel, this intuition also generates propositional knowledge about abstract concepts (Parsons 1995, pp. 45, 58–59).

Gödel (1958, 1972) contends that the best translation of Kant's "Anschauung" should be "Kant's intuition," or "concrete intuition," or "concretely intuitive." Hilbert's finitism is just "concretely intuitive mathematics" based on Kant's concrete intuition. This mathematics deals with combinatorial properties of finite, discrete, concretely representable objects, and it rejects a huge amount of abstract concepts. Therefore, Gödel says, "I prefer a concept of abstract intuition stronger than Kant's intuition" (Gödel 1972, footnote b; Wang 1996, pp. 217–218). Furthermore, Gödel notes:

> Our real intuition is finite, and, in fact, limited to something small. Kantian intuition is too weak a concept of idealization of our real intuition. I prefer a strong concept of idealization of it. Number theory need concrete intuition, but elementary logic does not need it. Non-elementary logic involves the concept of set, which also needs concrete intuition. Understanding a primitive concept is by abstract intuition. (Gödel 1972, footnote b; Wang 1996, pp. 217–218)

On the other hand, Gödel believes that Brouwer's intuition is "strictly constructive abstract intuition." Brouwer emphasizes that our intuition of time is the only a priori source for mathematical knowledge. He holds that, "The fundamental intuition in mathematics is no other than consciousness about time." Based on this intuitionistic theory of mathematics, Brouwer accepts only mathematical knowledge obtainable by constructive proofs, which could not go beyond countable infinity. More importantly, Brouwer never uses intuition in the sense for gaining insight into the obviousness of truths.

Gödel analyzes Kant's and Brouwer's intuitions against the background of our knowledge about the incompleteness of mathematics and the necessity of abstract concepts for proving the consistency of classical arithmetic. He points out the essential difference between his own concept of intuition and those of the two others.' What Hilbert means by Anschauung is substantially Kant's space–time intuition confined, however, to configurations of a finite number of discrete objects. Abstract concepts, in this context, are essentially of the second or higher level, i.e., which do not have as their content properties or relations of concretes (such as combinations of symbols), but rather of thought structures or thought contents (e.g., proofs, meaningful propositions, and so on),where in the proofs of propositions about these mental objects insights are needed which are not derived from a reflection upon the combinatorial (space–time) properties of the symbols representing them, but rather from a reflection upon the meanings involved" (Gödel 1972, in Gödel CWII, pp. 271–272).

Gödel emphasizes that to prove the consistency of mathematics (even if limited to classical arithmetic) and to look for stronger axioms for resolving the core foundational problems in mathematics, we must resort to mathematical entities sanctioned by Gödel's mathematical realism and resort to abstract concepts with meanings inaccessible to concrete intuition. We also must go beyond Hilbert's finitism based on concrete intuition and constructive methods, and we must resort to some abstract intuition that is more insightful than Kant's and Brouwer's intuition and that belongs to higher and higher ranks. And such abstract intuition includes perceptions of mathematical objects and abstract concepts, which includes insights about which propositions can be the appropriate axioms of the system, that is, "essential insights" for clarifying the meanings of concepts and for grasping mathematical truths. This is exactly a feature of Husserl's essential insight. Gödel (*1961/?) suggests an effective way for synthesizing in philosophy: trying to construct axiomatic systems by deepening our understanding of abstract concepts, gaining insight into which propositions are appropriate as axioms by clarifying concepts, and finally obtaining a method for resolving all critical problems in the foundations of mathematics and reaching the goal of a philosophy as exact science. Gödel believes that this route is just Husserl's phenomenological methodology (Gödel *1961/?, in Gödel CWIII, p. 383).

According to Husserl's phenomenology, human cognition always has intentionality. Our mental states and cognitive acts are always about some object of consciousness and essence. Essence is embodied in the cognition of objects. Directly grasping invariable essence among various realistic contents and fleeting intentional content is called "categorical intuition" (kategoriale Anschauung) or "essential insight" (Wesensschau). For him, essential insight is some sort of "seeing" primitively given. It is actually "seeing" concepts, or "seeing" essence. He claims that everyone "is seeing" concepts, or "is seeing" essence, and even continuously doing so. He holds that is an act with various forms and is therefore similar to sensual perception but different from imagination. In the theory of essential insight, Husserl has a concept "evidence" (Evidenz). In "Logical Investigations," Husserl defines "evidence" as "experiencing truths," and "evidence" in the strict sense is "the correspondence experience of truth." The objective correspondent of evidence is "the existence of truth, or just truth." Husserl differentiates two levels of evidence: the evidence from intuition about individual objects is "assertional evidence," and the evidence from essential insight is "apodictic evidence." The former is a hypothetical judgment on individual objects, and the latter is our insight about essence, which is what phenomenology attempts to reach.

On the other hand, according to Husserl's views on perception and essential insight, there are two types of intuition. One is perception, where the objects of intuition are physical objects, and the other is categorical or eidetic intuition, where the objects of intuition are abstract objects. Both concrete and abstract objects are recognized by intuition as objects with various properties and mutual relations. Intuition offers Evidence by judging what properties and relations those objects have and by paying attention to such acts of judgment. However, Husserl holds that even a perception of a physical object is not completely sensual, for it always contains features that are beyond pure sense perceptions. On the other side, neither perception nor categorical intuition is a reliable source of Evidence, for both involve many features of objects that are not clearly recognized yet or that are not predictable, and both perception and categorical intuition can make mistakes (Dagfinn Føllesdal, Introductory note to Gödel *1961/?, in Gödel, CWIII, pp. 364–373).

A distinctive feature of phenomenology, however, is the doctrine that essences are (higher-order) objects that can be "perceived" via faculty of intuition. In many ways, this parallels what Gödel said about concepts and our epistemic access to them, and it is worth noting that he thought of the intuition of essences as an affirmation of the Leibnizian "ideal of seeing the primitive concepts clearly and distinctly" (Huaser 2006, p. 551).

I believe that Gödel's concept of intuition is similar with Husserl's essential insight in the following three aspects: (1) Mathematical intuition can decide the truth of some mathematical propositions (such as the axioms of arithmetic and set theory), for there are non-empirical, non-conventional mathematical truths not requiring any empirical evidence or deductive proofs, and one way to know such truths is to use abstract mathematical intuitions. (2) Intuition is the state of consciousness and act of cognition by which we can gain a grasp of the essence of abstract concepts: "intuition is not proof; it is the opposite of proof. We do not analyze intuition to see a proof but by intuition we see something without a proof. We only describe in what we see those components which cannot be analyzed any further." (3) Undeniably, mathematical intuition and perception share some similarities.

Regarding (1), from the 1930s to the 1970s, Gödel believed that constantly developing mathematical intuitions will eventually lead us to decisions about new mathematical axioms for resolving some core problems in the foundations of mathematics. He says, "In particular, such intuition allows us to have insights about the truth of the axioms for deciding the Continuum Hypothesis." And: "In mathematics, sometimes we resolutely refuse to introduce some propositions as axioms, and the only reason for explaining this is that we firmly believe in the power of our intuition."

As for (2), Gödel expresses his agreement with Husserl:

> Now in fact, there exists today the beginnings of a science which claims to possess a systematic method for such a clarification of meaning, and that is the phenomenology founded by Husserl. Here clarification of meaning consists in concentrating more intensely on the concepts in question of by directing our attention in a certain way, namely, onto our own acts in the use of those concepts, onto our powers in carrying out those acts, and so on. In so doing, one must keep clearly in mind that this phenomenology is not a science in the same sense as the other sciences. Rather it is a procedure or technique that should bring forth in us a new state of consciousness in which we see distinctly the basic concepts we use in our thought, or grasp other basic concepts, hitherto unknown to us. I believe there is no reason at all to reject such a procedure as hopeless at the outset. Empiricists, of course, have the least reason of all to do so, for that would mean that their empiricism is, in truth, an a priorism with its sign reversed. (*1961/?, in Gödel CWIII, pp. 383–384)

Gödel once claimed that set theory was just following this direction of analysis by intuition in its developments, "We have a clear mathematical intuition, which allows us to have an openly extending sequence of axioms of sets." Iteration is our basic method for obtaining higher and higher ranks of sets.

As for (3), Gödel's interpretation is,

> But, despite their remoteness from sense experience, we do have some thing line a perception also of the objects of set theory as is seen from the fact that the axioms force themselves upon us as being true. I dot see any reason why we should have less confidence in this kind of perception, i.e., in mathematical intuition, than in sense perception, which induces us to build up physical theories and to expect that future sense perception will agree with them. (Gödel 1947/1964, in Gödel CWII, p. 268)

If we start with a vague intuitive concept, how do we find a clear and crispy concept faithfully corresponding to it? Gödel's answer is that the clear and crispy concept is always there. It is only that we did not perceive it at the beginning. For instance, before Turing, we did not perceive the clear and crispy concept of mechanical procedures, and then Turing proposed a correct perspective, and after that we are able to perceive that crispy concept clearly. He says: "Trying to see or grasp a clear concept more clearly, that is the right way of expressing it. [...] There is currently a method for clearly seeing or grasping a clear concept. That is the method of essential insight in phenomenology" (Gödel *1961/?, in Gödel CWIII, pp. 383–384). Even in philosophy, we can also clearly perceive the primitive concepts of metaphysics so as to allow us to construct the corresponding axiomatic system. In Gödel's view, Plato's "ideal," Husserl's "essence," and his "concept" are all to be obtained by phenomenological reduction.

My view is that although Gödel is not directly related to Husserl in terms of scholarly lineage or intellectual ideal, and there is no obvious evidence of Husserl's direct influence in Gödel's work, they have many things in common in pursuing a rationalist philosophy. Gödel and Husserl may have different accounts of reason and may have some different research methods, but for Gödel, what is praiseworthy about Husserl is his predilection for conceptual certainty and ultimate certainty, and his attitude for reason and intuition, namely, "the reason and intuition that are recognized by Leibniz, Husserl and himself, but are denied by Kant and empiricist-positivists" (Wang).

4 Possible reasons for the un-fulfillment of Gödel's enterprise

As an "old-fashioned rationalist" who first praises Plato and Leibniz, why do Gödel's interests turn to Husserl? Is it a dismissal of the Leibnizian philosophy, or a different way to achieve similar goals?

In fact, as Wang points out, Gödel proceeds further where Kant and Leibniz retreated. He wants to analyze concepts more thoroughly, to let concepts in physics merge with primitive concepts in metaphysics, and to set up a foundation for ultimate human reason. According to Gödel, to explore a way to realize this, Kant had an ideal notion of "metaphysics as an exact science." However, because of the lack of clarity in his language for expressing his idealism, Kant was unable to proceed along the right direction to realize his ideal. Husserl's phenomenology, with its peculiar type of idealism, comes back to Kant's ideal at its central points. It is the first philosophy that properly deals with the central ideas of the Kantian view, and phenomenology completely avoids both the death-defying leaps of idealism into a new metaphysics as well as the positivistic rejection of all metaphysics . There are reasons to support Husserl's phenomenology (Gödel *1961/?, in Gödel, CWIII, pp. 386–387). And Gödel reaffirmed his belief in phenomenology in a draft letter to Rota from 1972, "[Husserl's] transc[endental] phen [omenology] carried through, would be nothing more not less than Kant's critique of pure reason transformed into an exact science, which far from destroying traditional metaph[ysics] … would rather prove a solid foundation for it." (Van Atten and Kennedy 2003, pp. 470–471).

From the surveys above, we are essentially clear about the relationship between Gödel's philosophical program and Husserl's phenomenology. Gödel's rationalist optimism holds that there are "systematic methods for solution all problems (also arts)." Therefore, he hopes to find this method along Leibniz' path and realize Kant's ideal of "building metaphysics as an exact science." According to Gödel's analysis, the incompleteness theorem already tells us that this systematic method neither can be offered by a formal system and nor can it be characterized by a mechanic procedure. It requires an axiomatic system that can develop a rationalist, idealist, and theological worldview and that is constructed on the basis of some core primitive concepts. However, to clarify the meanings of these primitive concepts and discover new axioms, we must resort to the power of abstract intuition. And the required procedure cannot amount to explicit definitions for concepts or proofs from axioms, it must consist in a clarification of meaning as opposed to explicit defining. Currently, phenomenology as a procedure and technique shows us an effective way to reach this goal. Phenomenology is a praiseworthy method not only to consolidate and elevate Leibniz' monadology but also to lead us to comeback to Kantian idealism and to the right track toward rebuilding philosophy.

Developing philosophy as an exact science is Gödel's unfulfilled enterprise, in my point of view, we can summarize as follows the real reasons why Gödel's philosophical program failed to be realized:

First, his entire philosophical program lacks a systematic exposition for the theory of intuition. Gödel's philosophical program is based on his conceptual realism, and an important feature of his conceptual realism is the presumption that some Gödelian abstract intuition is indispensable. In other words, Gödel relies on the indispensability of abstract intuition in defending his Platonist conceptual realism. In his series of expositions, we see that he always endeavors to build some sort of necessary connection between Platonist conceptual entities and abstract intuition. Therefore, in Gödel's philosophy, the existence of abstract intuition seems to imply the existence of Platonist conceptual entities. However, as we have seen, while Gödel holds a rather strong stance regarding intuition and has explicitly pointed out the difference between his notion of intuition and that of Kant's, Brower's, and Hilbert's, he has never given a systematic exposition of the theory of intuition. His application of abstract intuition to defend his Platonist conceptual realism may be useful in criticizing nominalism and linguistic conventionalism in mathematics, but it never shows that "Platonist conceptual realism is the only tenable position."

Second, Gödel's philosophical program lacks a theory of concept and meaning as its necessary basis. Although Gödel repeatedly claims that the realization of his philosophical program depends on the method for clarifying meanings of concepts, he never gives in-depth discussions on what meanings of concepts are and how our conscious acts assign meanings to the objects of our intention. In his article on Russell's philosophy (1944), he gave such a definition on analytical propositions: "A proposition is called analytical if it holds 'owing to the meaning of the concepts occurring in it,' where this meaning may perhaps be undefinable." This definition is apparently different from the definitions by others. It distinguishes between analytical propositions and tautologies, which is directly related to his appreciation of Husserl's phenomenology. However, as a matter of fact, from his close attention to the richness of meanings of concepts, to his discussions on this richness as an epistemological problem, Gödel never gives a complete theory of meaning. This makes his program lacks a theory of concept and meaning as its basis.

Third, to illustrate the richness of meanings of concepts, Gödel delineates a conceptual world separated from the real world, and he believes that both worlds have reality, but he never explains the relationship between the conceptual world and the real world or the relationship between us and reality. Gödel (*1961/?) discusses how we know these two worlds from the point of view of children's cognitive development. He believes that children develop in two directions. They develop their sense organs and motor systems by contacting the external physical world and they also reach a higher-level conscious state for understanding concepts by continuously improving their language understanding and by learning logical deductions. In the conscious state of phenomenological eidetic intuition, we can describe and understand in detail the basic concepts employed in our thoughts, and we can further grasp other basic concepts unknown to us previously (Gödel *1961/?, in CWIII, p. 386).

Gödel (1947/1964) also introduces the notion of "data" or "the given," which hints the relationship between us and reality:

> It should be noted that mathematical intuition need not be conceived of as a faculty giving immediate knowledge of the objects concerned. Rather it seems that, as in the case of physical experience, we form our ideas also of those objects on the basis of something else which is immediately given. Only this something else here is not, or not primarily, the sensations. That something besides the sensations actually is immediately given follows (independently of mathematics)from the fact that even our ideas referring to physical objects contain constituents qualitatively different from sensations or mere combinations of sensations, eg, the idea of object itself, whereas on the other hand, by our thinking we con not create any qualitatively new elements, but only reproduce and combine those that are given. Evidently the "given" underlying mathematics is closely related to the abstract elements contained in our empirical ideas. It by no means follows, however, that the data of this second kind, because they cannot be associated with actions of certain things upon our sense organs, are something purely subjective, as Kant asserted. Rather they, too, may represent an aspect of objective reality,

but as opposed to the sensations, their presence in us may be due to another kind of relationship between ourselves and reality." (Gödel, 1947/1964, in CWII, p. 268)

What does it mean to say that the presence of this second kind of data in us "may be due to another kind of relationship between ourselves and reality"? Perhaps, it means the special relationship between our intentional acts and the objects of intention. In our views, this is the place where Gödel has a close connection with Husserl's phenomenological realism. However, Gödel never clarifies this point (See Huaser 2006 for another discussion on this point).

Last and most importantly, Gödel extends his rationalist optimism based on mathematics to philosophy, hoping that he can merge Platonist–Leibnizian idealism, rationalism, optimism, and the theological world view that he cherishes along with Husserl's transcendental phenomenology. However, he does not really apply Husserl's phenomenology to do concrete analysis on primitive concepts, and we never see his special contribution to phenomenology. Apparently, Gödel did not find the appropriate primitive concepts for building his ideal metaphysics. He acknowledges that time is not the real problem in terms of the reason why his philosophical program cannot be realized; the more serious problem is that it is still unknown when the correct concepts can be constructed and when we can grasp these concepts. Perhaps, the true reason for Gödel's unfulfilled enterprise is just that the fundamental problem of how to merge Plato's and Leibniz's idealistic, rationalistic, optimistic, and theological world view with Husserl's transcendental phenomenology has not been resolved.

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