
Kurt Gödel, *Maximen IV / Maxims IV*, ed. by Eva-Maria Engelen, transl. from German by Merlin Carl (Berlin, Boston: Walter de Gruyter, 2023), 272 pp. (*Philosophische Notizbücher / Philosophical Notebooks*, vol. 4).

Philosophical aspects are known to be part of Gödel's interests and thought (as is the case in the present volume) since his early times, prior to his studies at the University of Vienna. They are present in his dissertation (1929), in his published works, and particularly in his posthumously published lectures and papers (cf. *Collected Works [CW]*, ed. by S. Feferman et al., Oxford University Press, vol. 3, 1995). Gödel's first substantially philosophical published paper is "Russell's mathematical logic" (1944), followed by other notably philosophical papers (all published in *CW* 2, 1990), such as the papers on absolute demonstrability and absolute definability (1946), on the continuum problem (1947, 1964), on idealistic philosophy and time (1949), the so-called "Dialectica paper" (1958, 1972 version posthumously), and the note on decidability and developing mind (1972, posthumously). The interest in Gödel's philosophy was especially awakened by the publication of Hao Wang's books based on his conversations with Gödel and excerpts from Gödel's *Nachlass* (*Reflections on Kurt Gödel*, 1987; *A Logical Journey*, 1996), and by the publication of Gödel's ontological proof (1987, in J.H. Sobel's "Gödel's ontological proof"). The publication of the last-mentioned works revealed many new details of Gödel's philosophical approach and views (largely non-mainstream, although rooted in contemporary discussions and history), which were not as apparent in the papers published during his lifetime. In particular, Palle Yourgrau's books (1991, 1999, 2005) are seminal works on Gödel's philosophy of time. What the researchers are mostly focused on are, among other topics, Gödel's philosophy of mathematics, his cosmology and philosophy of time, ontotheology, concept theory, phenomenological method, as well as his relationship to Leibniz, Kant, Husserl, Russell, Brouwer, Carnap, and others.

The systematic publishing of Gödel's philosophical notebooks (including *Maximen IV* = *Max IV* in Gödel's abbreviation) is of the highest importance for the philosophical and foundational research of Gödel's work. These notebooks, divided in four groups, date from 1934 to 1955, and are preserved in the Firestone Library of the Princeton University,

under the unpublished copyright by the Institute for Advanced Study in Princeton. The publication of Gödel's complete philosophical notebooks was started by the research team led by Gabriella Crocco and resulted in the publication of the third group of notebooks: volumes Max IX–Max XII (Max XIII is lost 1946), published online from 2017 to 2021 at the HAL repository (<https://shs.hal.science/>), and in the preparation of the fourth group: Phil XIV and Max Phil XV (at the same repository), beside a number of research papers on this material (cf. *Kurt Gödel Philosopher – Scientist*, ed. By G. Crocco and E.-M. Engelen, Presses Universitaires de Provence, 2016). Eva-Maria Engelen commenced the German-English edition of the notebooks, of which four volumes (including the present one) have been published since 2021. First two volumes comprise the first group of notebooks: Philosophy I Max 0 (in the 1st volume), and Max I–II (in vol. 2), containing Gödel's philosophical reflections, and maxims for his work and life. The publication continued, to date, with Max III, Max IV (in vols. 3 and 4, respectively) and, in preparation, Max V (vol. 5), which belong to the second group of notebooks (Max III – Max VIII, with Gödel's pagination 1–680). Deciphering Gabelsberger shorthand, a writing system used by Gödel, is one of the main challenges and difficulties in editing Gödel's notebooks.

The present book is volume IV of Gödel's Notebooks in the series edited by Eva-Maria Engelen. It contains Gödel's notebook "Maximen IV" ("Max IV"), that is, original pages 152–286 of the second group of manuscripts (Max III – Max VIII). The notebook dates back to the period from 1941 to 1942 (according to Gödel: from ca. May 1, 1941, to ca. April 30, 1942). It encompasses notes in philosophy, foundations, psychology, theology, and personal reflections. The text is not a systematic presentation of a theory or a doctrine. Instead, it consists of a series of explicitly or implicitly interconnected remarks, statements, questions or problems, having theoretic, practical (e.g., ethical, religious), heuristic, and methodological value. According to the editor, when compared to the previously published volumes (1–3) in the series, this notebook is the most complex and "multifaceted" (p. 14).

With its ninety pages of printed original text, accompanied by an English translation, this notebook is not meant to be read linearly within a couple of days. It requires careful study and rereading, comparing and searching for interconnections. As Gödel himself advises, it should be read "always slowly (every day just something), with a viewpoint [importance, correctness, division in the practical, the theoretical, and the sciences]" (p. 47 [152], original text pagination in brackets). Gödel's text

can serve as a resource for individual topical research, possibly through a historical perspective, or specifically aiming to understand Gödel's philosophical and foundational statements and approach, as well as his philosophical development leading up to his Russell paper (1944) and his later philosophical views.

For the general orientation within the notebook, based on Gödel's designation of certain portions of the notebook, the following general division of the content can be recognized (sections designated by Gödel are italicized, our indications of content are in parentheses):

0. pp. 47–49 [152] (introductory remarks: method of reading, division of the text, revisited parts),
1. pp. 49–60 [153–166] (e.g., signification, sense, systematic proceeding),
2. *Mountain Ash Inn*, pp. 60–77 [167–190] (e.g., concept, symbol, object, psychological acts),
3. pp. 77–103 [191–239] (mainly foundations and logic),
4. *New Beginning of Philosophy* ["Neuer Beginn der Philosophie"], pp. 103–106 [239–243] (e.g., ideas, picture of the world),
5. *Brouwer, interruption by foundations* ["Unterbrechung durch Grundlagen"], pp. 106–117 [243–258],
6. pp. 117–126 [258–269] (e.g., language, conceptual cognition, world),
7. *Philosophy of the 'Principia'* ["Philosophie der *Principia*"], pp. 126–136 [270–286].

The majority of the remarks in Gödel's manuscript are labeled as philosophy, foundations, psychology, theology, or simply as maxims. Gödel revisited remarks on theology, philosophy and psychology (p. 49 [152]), which also suggests a possible way of reading: first, topics of our own interest (for instance, philosophy or psychology), and then extending the reading to the rest of reflections (foundations, maxims, and others). In addition, Gödel explicitly establishes some topical interconnections and references within the text, which we may wish to trace across sections of the manuscript, and even across various Max Phil volumes. Such interconnections include the universal solvability of problems, the idea of absolute proof, and the definition of iota operator (definite descriptions). One specific perspective through which to study the notebook is its relation to Gödel's Russell paper (1944), with a focus on (a) semantics, definite descriptions and impredicativity, and (b) various interpretations of Russell's type theory (psychological, objectivistic, nominalistic).

The editor highlights several additional texts that bear a particular relation to Max IV. Firstly, there is the Introduction to Sue Toledo's dissertation, which Gödel commented on (as recorded by Toledo). In the editorial introduction to Max IV by E.-M. Engelen, the following topics are emphasized: Gödel's relationship to Hilbert, Brouwer, and Russell, the interconnections between philosophy and mathematics, and the role of objectivity, "meaning" and "sense" in mathematics. The reason why Gödel, in Max IV, does not appear to engage in a criticism of Hilbert's, Brouwer's, and Russell's views and theories (although he seems to approve Toledo's exposition of his divergence from them) could lie, besides in his interest in "plurality" (ftn. 28, pp. 28–29) and variety, even more in his interest in unity and harmony from a broader, "right" viewpoint, and in understanding and relative justification of various specific perspectives. This approach is evident in his study of Kant (cf. Gödel's cosmological work on time from 1946–1949 in *CW* 3, 1949a in *CW* 2, and his 1961 paper in *CW* 3: "Kant understood correctly", pp. 386/387), as well as, apparently, in his views on Hilbert (e.g., 1931, *CW* 1 p. 194), Brouwer (e.g., Max IV) and, to some extent, Russell (Max IV, Russell paper 1944). Another text closely connected to Max IV, according to the editor, is Gödel's "Resultate Grundlagen IV" ("Results on Foundations IV", dated January 1, 1942, reproduced on pp. 45–46), where Gödel discusses definability in the "absolute sense", an important topic within Max IV.

Furthermore, the relationship between Max IV and the final part of Phil I Max 0 (vol. 1), which addresses the perception of objects and semantics, is of particular interest. These texts appear to have been written during the same period (for overlapping time frames, see the aforementioned Crocco, Engelen 2016, p. 42, and Engelen's introduction to *Philosophische Notizbücher*, vol. 1, p. 30). At the very end of Phil I Max 0, Gödel addresses the topics of understanding a sentence and the signification of words, which are further discussed at the beginning and in later parts of Max IV.

The first remark after the introductory notes in Max IV (p. 49 [153]) clearly delineates most of the topics in the notebook: signification (*Bedeutung*), sense (*Sinn*), and language (symbols), viewed from both an objectivistic (realistic), and a psychological constructive viewpoint. From the objectivistic viewpoint, signification depicts objectivity (cf. *Abbildung*), while sense communicates signification in an understandable way. From the constructive viewpoint, we ourselves build the signification through a "psychical act", where the constructed signification, as we can

interpret, is already the sense, since learning and mastering (repeatability of) the construction procedure implies the understandability and communicability of the constructed signification. In Max IV, Gödel reflects and comments upon distinct cases of the general themes just mentioned, such as ordinals, proofs, concepts, body and soul, ordinary language, and others. He also analyzes critical examples like definite descriptions and impredicative definitions, which aid in discerning and deciding between objectivist, constructivist, and other concurrent approaches. In addition, Gödel reflects on possible generalizations or applications of these examples, on philosophical presuppositions and consequences of the discussed topics, and considers psychological aspects and theological context. Even Gödel's personal notes and "maxims" are relevant here, as they could be understood from the viewpoint of the development of personal faculties in confronting the previously noted questions.

Let us briefly outline the main topics of individual sections of Max IV, with a specific focus on philosophical and logical aspects.

In the first section (after the introductory notes), which begins with the aforementioned remark on p. 49 [153], Gödel continues with reflections on Russell's theory of descriptions, the intuitionistic definition of ordinal numbers, impredicative elements in Brouwer, and on Russell's vicious circle principle. Gödel also reflects on the Hilbertian idea of the "systematic solution of all problems". He mentions the probable presence of both synthetic and analytic propositions in mathematics and considers their last ground: "Is not the highest (synthetic) principle (sense [Sinn]) of the world aesthetical? And does this not yield a theory of mathematics?" (p. 51, 52 [155] / 182, following the slash is the corresponding page of the English translation). He reminds himself to "pay more attention to the "philosophical" side of mathematics" (p. 56 [160]). Furthermore, Gödel provides a list of "essential philosophers" to be studied: Plato, Aristotle, Thomas, Descartes, Leibniz, Locke, Kant, Hegel, Plotinus (p. 58 [164]).

In the second section ("Mountain Ash Inn"), which has a distinctly philosophical character, Gödel focuses on the relationship between a symbol and a concept, in various, especially philosophical and foundational, aspects. Some of the problems addressed by Gödel include: (a) symbol, apparently as the body of a concept; concept as a function (predicate) and an argument; body and soul; substance and accidents; one object and its various aspects; intensional differences and the identity of a thing; the "right" division of a concept; (b) psychological sense and decision procedures; psychological acts such as perception, cognition,

action, senses and understanding; (c) the role of verbs in a sentence; “is” and “not” in Russell’s antinomy; concept and space; intuitionism and ordinary language; the distinction between mathematics and logic.

In the subsequent section (pp. 77–103 [191–239]), the focus shifts to foundations and logic. Gödel reflects on the following topics: definite descriptions in Russell and Peano, the construction of objects in the sense of acceptance (of their existence, fulfilling some conditions), plurality and unity, definitions (including Aristotelian ones), thing and concept, state of affairs, the need of the intensional in mathematics. He revisits the methods of universal problem-solving, Brouwer’s definition of ordinals, as well as the problem of signification and sense.

The short section “New Beginning of Philosophy” (pp. 103–106 [239–243]) comprises several philosophical remarks, for example, on the understanding of ideas and their objective foundation, as well as on the religious and scientific picture of the world (the construction of a contradiction in mathematics supports the former and opposes the latter picture).

In the remarks related to reading Brouwer (pp. 106–117 [243–258]), Gödel reflects on topics such as the constructive essence of number and of concept, introducing subordination (on summands, on the ordinals of the second number class), exactness and knowledge, perception (as “something positive”) and construction in mathematics, “pure” (a priori) psychology of inner perceptions (seeing, understanding, accepting, cognition), primitive concepts, signification relation and designation (*Bezeichnung*) relation.

The sixth section (pp. 117–126 [258–269]) follows, consisting of the notes, for example, on grammatical time, language and the conceptual world, cognition, essence of time, unity and plurality in things, conceptual cognition, and the conceptual structure of the world.

In the final section of his notes in Max IV (pp. 126–136 [270–286]), Gödel examines interpretations of *Principia mathematica*: psychological (“natural interpretation”), nominalistic, “idealistic”, and “extensional”, considering the last two interpretations objective. Gödel establishes the ordering of determination as follows: “the sign determines the idea, the idea determines the behavior, the behavior determines the class” (p. 127/254). There are also remarks on definition of an object (descriptive and non-descriptive, intensionally and extensionally correct, impredicative and predicative), on idealization, identity of signification, and intentional objects. Gödel analyzes the nominalistic interpretation, based

on a non-recursive “universal language” (“in which everything can be expressed”), and proposes a way to avoid contradictions.

Let us add some comments on editing and translation.

As previously mentioned, the text is a demanding reconstruction from Gabelsberger shorthand. Only a few scholars are currently able to read such Gödel’s texts. Uncertain readings and illegible places, as well as necessary grammatical completions that affect the meaning, are appropriately indicated in the text. Alternative readings, as well as editorial corrections and improvements—typographical, grammatical, and some meaning-related—are noted in the margins. Original logical notation is preserved in the German text. Gödel’s pagination appears within the text, but indicating it in the margins would facilitate finding cross-references within Gödel’s remarks and comparing the English translation with the original text. Editorial remarks in footnotes also aim to make the text accessible to non-experts in the respective fields, and provide explanations (often just general and informal) of concepts or names occurring in Gödel’s text (e.g., “propositional logic”, “polynom”, “Fermat’s theorem”, “ \aleph_0 ”, “impredicative”, “Lebesgue measure”, “embryology”, “essential/substantial definition”, “*noūs poiētikós*”; there are no notes for “prime number theorem”, p. 60/190, “rule of import[ation]”, p. 83/212, “well-ordering theorem”, p. 102/230). In addition to the index of names and the index of referenced works, the book also includes brief biographical notes on almost all individuals listed in the name index.

In general, Merlin Carl’s English translation can well assist readers in following Gödel’s line of thought and arguments. Let us add some comments. ‘Bedeutung’ is translated as ‘meaning’, and ‘Sinn’ as ‘sense’ (p. 179), but often ‘Sinn’ is also translated as ‘meaning’ (pp. 181, 186, 187, 193, 195, etc.). For comparison, it is worth noting that Gödel himself (Russell paper 1944, p. 122 and ftn. 4) suggests ‘signify’ for ‘bedeuten’ and uses ‘signification’ for ‘Bedeutung’ (also in Frege’s sense), while mentioning Russell’s ‘signification’ as “the psychological correlate of the fact” (Gödel uses ‘meaning’ for Frege’s ‘Sinn’). In the translation in the present book, ‘Abbildung’ is understood as ‘reference’ (p. 179), thus losing the connotation of ‘depicting’, which can be important, for instance, for considering Platonic traits in Gödel’s thought or for comparison with Wittgensteinian views. There are inherent English–German problems, such as ‘Verstand’ being standardly translated as ‘understanding’ (an alternative could be ‘intellect’), but then, in the translation, we encounter “understanding = understanding of concepts ...” for “Verstand =

Verstehen der Begriffe” (pp. 187, 57). Furthermore, it is unclear why “Einteilung in” (typically translated, e.g., as “division into”) is rendered as “categorization as” (pp. 47, 177). Aside from such cases, the book offers a readable, high-quality translation, enabling non-German readers to enter the world of Gödelian thoughts. The English translation (pp. 137–263) is printed separately, following the German original (pp. 7–136). Notwithstanding some resulting difficulties in correlating the English translation with the original text, this makes both the original text and the translation more perspicuous and readable.

The publication of Gödel’s Max IV, as part of the publication of his complete philosophical notebooks, is of extraordinary importance. It contributes to better understanding of the complex development of Gödel’s philosophical thought, and, alongside the other published notebooks, it is a further contribution to modifying a conventional view on the 20th-century philosophy, where Gödel should be recognized as one of the most important and profound philosophers. Moreover, his questions, problem formulations, and ideas, particularly as presented in his philosophical notebooks, transcend the historical distance and can immediately resonate with and inspire the current philosophical research.

SREĆKO KOVAČ

Institute of Philosophy, Zagreb, emeritus
skovac@ifzg.hr

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