

Addenda and Corrigenda to "The Published Work of Kurt Gödel"

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Since the printing of my annotated bibliography of Gödel's work (this *Journal*, vol. 24 (1983), pp. 255–284), a few additional items have come to light. They are collected together here, along with some additional commentary and a brief list of corrigenda. I wish to thank all readers who responded to my request for additions and corrections, especially Georg Kreisel and Eckehart Köhler.

ADDENDA

Addenda are grouped in sections corresponding to those of the original bibliography, to which page citations in the text below refer.

I Articles, abstracts, and translations

1. The decision problem cited as open in the annotations to [1932a], pp. 258–259, and [1933j], p. 262, has since been solved (negatively) by Warren Goldfarb.
2. By way of clarification, it should be noted that the word "fields" (p. 260) in my translation of [1933d] is a rendering not of the German *Körper*, but of *Felder*. I am indebted to Judson Webb for pointing out that the modern term is *Verbände* ("lattices"), *Felder* having formerly been used to emphasize certain structural analogies between lattices and algebraic fields. (Even so, precisely what Gödel meant by his remark remains unclear. Long afterward, on January 2, 1968, Karl Menger wrote to Gödel for clarification. In his reply of January 22, Gödel acknowledged that "some propositions about points could be expressed in the restricted system" and that "only if both [existential and universal quantifiers] occur interlocked [will] no proposition about the defined term" be so expressible. The correspondence is preserved in Gödel's *Nachlass*.)

3. In the citation of [1936], p. 262, "(II. Mitteilung)" should be inserted following the title of Wald's paper. For a recent criticism of [1936], see footnote 11, pp. 10–11 in E. Roy Weintraub, "On the existence of a competitive equilibrium," *The Journal of Economic Literature* XXI (1983), pp. 1–39.
4. In the annotation to Gödel's relativity papers, p. 266, it should have been mentioned that the correctness of Gödel's results in [1949] was subsequently challenged in print by Chandrasekhar and Wright ("The geodesics in Gödel's universe", *Proceedings of the National Academy of Sciences, U.S.A.* 47 (1961), pp. 341–347). Their objections were later answered by Howard Stein ("On the paradoxical time-structures of Gödel", *Philosophy of Science* 37 (1970), pp. 589–601).
5. The statements (p. 267, lines 19–25, and p. 270, last line) concerning work stimulated by Gödel's *Dialectica* paper should be understood in a general sense. In particular, as Kreisel has taken pains to point out, bar recursion (a central concept in Spector's consistency proof) is demonstrably false for Gödel's original description of primitive recursive functionals of finite type. Gödel's treatment in [1958] is in fact not very detailed—it has rather the character of a broad outline; but (as Kreisel has again perceptively observed) it is just this character that has stimulated others to exploit the flexibility of the underlying scheme, modifying or extending it in various directions.
6. In my annotation to [1965a], p. 268, I neglected to note that there Gödel introduced the concept of general recursive function, modifying a suggestion made to him by Herbrand. Cf. [Kleene, 1981], pages 59–60, for more detailed discussion.
7. An abridgement of [van Heijenoort, 1967] has been published separately (and is listed in the Addenda to the References). The following citations should be added to p. 269:

[1970]	Reprint of [1967a], pp. 86–87 in [van Heijenoort, 1970].
[1970a]	Reprint of [1967b], pp. 87–107 in [van Heijenoort, 1970].
[1970b]	Reprint of [1967c], pp. 107–108 in [van Heijenoort, 1970].
8. Add the following new item to p. 270:

[1974]	"Ce este problema continuului a lui Cantor?," Romanian translation of [1947] by Ilie Pârnu, pp. 317–338 in Ilie Pârnu (ed.), <i>Epistemologie. Orientări contemporane</i> , Editura Politică, București, 1974.
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Correspondingly, add to the cross-reference indexes, pp. 279–280, the entries "Romanian: [1974]" and "[1974]: [1947] (Ro)", respectively.
9. The volume containing [1979g] (p. 270) was edited by Ulrich Felgner.

II Reviews by Gödel *Nachlass* sources have led to the discovery of six more reviews by Gödel, all published in the (separately paginated) *Literaturberichte* section of *Monatshefte für Mathematik und Physik*. Accordingly, add the following citations to pp. 272–273:

- [R1931b] M38, Lb.5 Betsch, Chr., *Fiktionen in der Mathematik*, Fr. Fromanns Verlag, Stuttgart, 1926.
- [R1931c] M38, Lb. 5-6 Becker, O., *Zur Logik der Modalitäten*, Max Niemayer Verlag, Halle, 1930.
- [R1931d] M38, Lb. 37 Hasse, H. and H. Scholz, *Die Grundlagenkrise der griechischen Mathematik*, Pan-Verlag Kurt Metzner, Charlottenburg, 1928.
- [R1931e] M38, Lb. 39 von Juhos, B., *Das Problem der mathematischen Wahrscheinlichkeit*, Ernst Reinhardt Verlag, München, 1930.
- [R1932k] M39, Lb.9 Dingler, H., *Philosophie der Logik und der Arithmetik*, Ernst Reinhardt Verlag, München, 1931.
- [R1933c] M40, Lb. 20-22 Hahn, H., *Reele Funktionen*, Akademische Verlagsgesellschaft, Leipzig, 1932.

Of these six reviews, [R1931d] and [R1933c] are quite laudatory, while [R1932k] dismisses as trivial Dingler's purported consistency proof for arithmetic. The other reviews are essentially reportorial.

III Correspondence, extracts, and quoted remarks In addition to the items listed on pp. 274–275, I neglected to cite the two-sentence “Greetings from Dr. Gödel” appearing on p. viii of [Bulloff, Holyoke, and Hahn, 1969], and the two-sentence statement of regret (concerning Richard Friedberg's intention to study medicine) quoted in *Time*, March 19, 1956, p. 83. Note also the paraphrase of Gödel's views on certain aspects of large cardinals, footnote 1, p. 189, of W. N. Reinhardt, “Remarks on reflection principles, large cardinals, and elementary embeddings,” in *Axiomatic Set Theory, Proceedings of Symposia in Pure Mathematics*, 13(2), American Mathematical Society, Providence, 1974.

Appendix A: Index to reviews of Gödel's publications The following review was somehow overlooked and should be added to p. 275:

[1931] A. Fraenkel, *JFM*, vol. 57 (1931), p. 54.

Appendix B: Published photographs of Kurt Gödel

1. The photo of Harvard honorary degree recipients, listed as item 3. under “Anonymous” (p. 277), should be attributed to Walter R. Fleischer, and item 4. there should be attributed to Oskar Morgenstern.

2. Add to p. 277 the following new citation:

Henrik Boudakian

1. *Rockefeller University News and Notes* 3:10 (July 1972), p. 1.

A group photo of Rockefeller University honorary degree recipients.

3. Photo 1 by Alfred Eisenstaedt (p. 277) has also appeared in Rudy Rucker, *Infinity and the Mind*, Birkhäuser Boston, Cambridge, Massachusetts, 1982,

- p. 220, and in *Elektronische Rechenanlagen*, 20. Jahrgang, Heft 5 (1978), p. 211.
4. Photo 2 by Orren J. Turner (p. 279) has also appeared in the *Mathematical Intelligencer*, vol. 5 (1983), no. 1, p. 50 and no. 3, p. 48, and in Philip J. Davis and Reuben Hersh, *The Mathematical Experience*, Houghton Mifflin, Boston, 1981, p. 228.
 5. A caricature of Gödel by D. Levine appeared in the *New York Review of Books*, December 6, 1979, in conjunction with a review of [Hofstadter, 1979] by Edward Rothstein.

References

1. Add to the citation of [Kreisel, 1980], p. 282: "Further corrigenda, vol. 28 (1982), p. 718."
2. Add to the list of References, p. 283:
 van Heijenoort, Jean (ed.), *Frege and Gödel: Two Fundamental Texts in Mathematical Logic*, Harvard University Press, Cambridge, Massachusetts, 1970.

CORRIGENDA

Negative line numbers denote lines counted upward from the bottom of the page.

1. Page 256, lines –18 to –9: The statement that Gödel's dissertation included the compactness theorem is incorrect. It appeared only in the published version [1930].
2. Page 256, lines –3 to –2: Gödel's talk, September 6, 1930, was officially part of the Tagung für Erkenntnislehre sponsored by the Gesellschaft für empirische Philosophie (cf. also the following corrigendum). The Tagung was held in conjunction with, but apart from, the meeting of the Deutsche Mathematiker-Vereinigung.
3. Re the annotation to [1931a], p. 257: Strictly speaking, the Königsberg symposium was organized not by the Vienna Circle, but by the Gesellschaft für empirische Philosophie (Berlin), while *Erkenntnis* was published jointly (in effect, by Carnap and Reichenbach) on behalf of the Gesellschaft für empirische Philosophie and the Verein Ernst Mach (Vienna), the latter a legally constituted society whose membership overlapped to a large extent with Schlick's informal circle.
4. Re [1944] and [1949a], pp. 264 and 266: Prof. Charles Parsons has pointed out that the publishing history of the Schilpp volumes is rather complex. In the citations of [1944] and [1949a], for "Northwestern University Press, Evanston", read respectively, "Northwestern University, Evanston and Chicago" and "The Library of Living Philosophers, Evanston". The Russell volume was subsequently reissued by The Library of Living Philosophers

(Evanston, 1946), by Tudor Publishing Co. (New York, 1951), and in paperback by Harper and Row (New York, 1963). The Einstein volume was also reissued by Tudor in 1951, and simultaneously in 1970 by Open Court Publishing Co. (LaSalle, Illinois) and Cambridge University Press (London).

5. Page 266: To accord with the format of listing works by date of publication rather than presentation, item [1950] should properly be cited as:

[1952] “Rotating universes in general relativity theory,” pp. 175–181 in *Proceedings of the International Congress of Mathematicians in Cambridge, Massachusetts, U.S.A., August 30–September 6, 1950*, I, American Mathematical Society, Providence, 1952.

Correspondingly, “[1950]” should be replaced by “[1952]” in all later occurrences (p. 266, line –8; p. 271, line –8; and p. 277, line 1). Also, page 266, line 11, insert “intending” after “originally”.

6. Page 267, line 18: The date, 1942, taken from [Wang, 1981], is incorrect—as are several other dates in that memoir. In particular, records of Yale University date Gödel’s lecture there as April 15, 1941.

7. Page 275, line –4, and p. 276, line 1: Busemann’s review is actually of [1932c].

8. The following typographical errata have been noted:

p. 260, line 16	For “ $p \supset \sim \sim q$ ” read “ $p \supset \sim \sim p$ ”.
p. 263, line 10	For “continuum hypothesis” read “continuum-hypothesis”.
p. 270, lines 5–6	For “Bertrand Russell” read “ <i>Bertrand Russell</i> ”.
p. 270, lines 7–9	The sentence beginning “In comparison . . .” should be set off as an annotation, below the citation of [1972].
p. 271, line –22	For “[1965]” read “[1965a]”.
p. 275, line –17	For “[Rautenberg, 1965]” read “[Rautenberg, 1968]”.
p. 275, line –2	For “p. 13” read “p. 193”.
p. 276, line 5	For “p. 13” read “p. 193”.
p. 278, line 15	For “p. 260” read “facing p. 261”.
p. 278, line 18	Insert period after “3”.
p. 279, line –18	For “[1965]” read “[1965a]”.
p. 280, line 17	Delete, and list “[1981](S)” on the following line, after “[1979](P)”.
p. 281, line 9	For “New York” read “Hewlett, N.Y.”.
p. 282, line 17	For “mathematik” read “Mathematik”.
p. 282, line 18	For “Gronzgebiete” read “Grenzgebiete”.
p. 282, line –1	Delete “Press”.