KARL POPPER FOR AND AGAINST BERTRAND RUSSELL

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I. IMPACTS

The day that Popper died early in September 1994, I was in Basel, Switzerland; next day the local Sunday newspaper carried an article about him as the first page of the arts section. The day that he was cremated I was in Zaragoza, Spain; the local newspaper carried a substantial piece, probably syndicated, written by a Spaniard. Since Popper had had no special links with either city, then presumably I had randomly sampled the (non-stupid end of the) international press, and I concluded that it had given him world-wide acknowledgement. Such tribute to a philosopher had probably not happened since the death of Bertrand Russell in February 1970: then the reaction was still greater, though driven more by his general social concerns, especially the political activities of his final decade, than by his philosophical achievements.

Russell's activities crossed my path in the mid-1960s, when I was taking a Master's degree at the London School of Economics in Popper's department. In addition to the compulsory courses on philosophy, I specialized in mathematical logic and the philosophy of mathematics (as did David Miller and my colleague Allan Findlay). During the first year some of the instruction in logic was given by Popper himself, in the form of a late afternoon discourse. On one day—to be precise, Monday, 15 February 1965—our discussion was cut short, so that we three could go downstairs to hear a speech in the Old Theatre by Russell. The hall was packed and the audience expectant; Russell's status among the young was then very high, especially concerning the Vietnam War and

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the great fear of nuclear war after the Cuba crisis, and his topic was "The Labour Party's Foreign Policy" in the time of Harold Wilson's premiership. But the atmosphere sunk ever lower as the speech proceeded. One reason was Russell's delivery: suffering problems with his throat (in his last decade he lived largely on fluids due to an inability to swallow), he spoke so quietly as to be hard to hear anyway. However, the main drawback was the *manner* of delivery; as usual with him, he read out a manuscript in so robotic a fashion as to show little awareness of its content—straight from eyes to lips, as it were. The text is published in the third volume of his autobiography;[1] its, shall we say, unusual features for a piece by Russell include lengthy quotations from newspapers, one being the *News of the World*.

At that time Russell needed to raise considerable sums of money to support his various ventures, and the publication of his autobiography was one consequence. The manuscript of that volume is entirely typescript, so that the authorship(s) of the second half of it, including this speech, cannot be determined. The previous two volumes were written by him, at various times from 1931 onwards; intended to appear posthumously as a single book, they came out in 1967 and 1968, expanded into two volumes by the insertion of rather ill-chosen and -explained chunks of correspondence at the end of each chapter.[2] I have asked various people who worked with Russell in the 1960s, and they all assert that he was not senile; however, questions of his judgment hang over decisions taken during those years. Soon after his death there was published a lengthy repudiation of actions taken by his former secretary, Ralph Schoenman;[3] but by then much damage had been done, years after worried letters had been sent to Russell by friends.[4]

[1] *Auto.* 3: 205–15. My university colleague Philip Maher was also present at the lecture (we did not then know each other, and the fact emerged only during the preparation of this paper); he corroborates my impression of Russell's performance.

[2] *Auto.* 1–2.

[3] "Bertrand Russell's Political Testament", *Black Dwarf*, 14, no. 37 (5 Sept. 1970): 7–10. Repr. with attestations of authenticity in Clark, pp. 640–51; on p. 645 Russell alluded to some "folly" committed by Schoenman after the lecture at the London School of Economics.

[4] Disapproving of Russell's attitude to the USA, Popper did not join his students downstairs that Monday evening; he told me later that he did not know about Russell's circumstances during those years. He had been in the USA during the Cuba crisis of 1962, and maintained an enormous interest in it thereafter, reading many of the books written about it.

These letters can be seen in the Russell Archives, another result of his need for money. Putting his manuscripts on the market,[5] Russell sold them to McMaster University in Hamilton, Canada, where the Archive was established.[6] I had begun to work in the history and philosophy of mathematics and logic; and by coincidence at that very time I came across a large and very important collection of letters written by Russell to his former student Philip Jourdain during the 1900s, when he had concentrated upon logic and mathematics. This finding oriented my researches specifically towards Russell;[7] it also started my connection with the Archives which has continued ever since, in connection with its development and its journal *Russell*, and also the multi-volume edition of Russell's *Collected Papers*. The current publisher of the edition is Routledge, which also became Popper's house in his final years.

In the rest of this article I shall "compare and contrast" Russell and Popper in various ways, especially as philosophers. The effect will be enchanced by further comparisons with some other figures, principally Ludwig Wittgenstein (1889–1961) and Rudolf Carnap (1891–1970). On occasion I quote Popper from our conversations; the texts are based on notes which I made at the time, not on my decidedly fallible memory.

2. FROM THE CORRESPONDENCE BETWEEN RUSSELL AND POPPER

One early duty which I undertook on behalf of the Archives was to ask Popper in 1973 if they might have copies of his side of his correspondence with Russell. He replied regretting his inability to locate them; but when the Hoover Foundation at Stanford University sorted out his manuscripts, he was able in 1991 to invite me down to his home at Kenley in Surrey to give them to me, and also to talk about various

[5] Feinberg, ed., *A Detailed Catalogue of the Archives of Bertrand Russell* (1967).

[6] K. Blackwell, "The Importance to Philosophers of the Bertrand Russell Archive", *Dialogue* (Canada), 7 (1968): 608–15. At Russell's insistence, it was renamed "The Bertrand Russell Archives".

[7] This correspondence served as the base for my *Dear Russell—Dear Jourdain; a Commentary on Russell's Logic, Based on his Correspondence with Philip Jourdain* (London: Duckworth; New York: Columbia U. P., 1977).

things Russellian. On putting these documents together with those held at the Archives I found a small but fascinating exchange, which I edited as a paper in *Russell*, "the best English-language journal in philosophy" (K. R. Popper, on two occasions in my hearing).[8] Two episodes are worth noting here.

The first one concerns a lecture on "philosophical problems" which Popper delivered to Wittgenstein and his coterie on 25 October 1946. Apparently Wittgenstein waved a red-hot poker, in response to the speaker's irrational insistence that there really are philosophical problems; was told by Russell to put it down; did so but shortly afterwards departed the company in anger.[9] Two days later Popper wrote to Russell at length about the occasion, including Russell's own advocacy, in Popper's favour, of John Locke as a real philosopher. He also thanked Russell for having advised him to defend philosophical problems;[10] that is, *Russell himself* had proposed the anti-Wittgensteinian topic, or at least encouraged it.

Russell's opinion of Wittgenstein seems to have decreased monotonically over time. In their first encounters in the early 1910s Russell was

[8] I. Grattan-Guinness, "Russell and Karl Popper: Their Personal Contacts", *Russell*, n.s. 12 (1992): 3–18. The original documents are held in the Russell Archives; and at the Popper Papers, Hoover Foundation, Stanford University (microfilm at the London School of Economics), file 345.13 (broadcast review also at 27.13).

[9] I follow the account of this story given in P. Munz, *Our Knowledge of the Growth of Knowledge: Popper or Wittgenstein?* (London: Routledge, 1985), pp. 1–2. More details are given in J. W. N. Watkins, "Karl Raimund Popper", *Proceedings of the British Academy*, 94 (1997): 645–84 (at 661–3). In Popper's version, the lecture is misdated to 26 October 1946, and Wittgenstein brandished the poker at him. (See Chap. 26 of his "Intellectual Autobiography", in P. A. Schilpp, ed., *The Philosophy of Karl Popper* [La Salle, Ill.: Open Court, 1974], pp. 2–181: on the reprint of this essay in book form see n. 56). Other versions circulate (see, for example, the recent exchanges in *The Times Literary Supplement*, issues from 13 February to 13 March 1998).

Reactions among Wittgenstein's followers to this and other disputes about his life are psychologically very interesting. Other fancies include their claim that Wittgenstein played no role in the (first) English translation of the *Tractatus*, whereas, as Russell and Dorothy Wrinch firmly asserted in the 1960s, he had checked it line by line. Definitive evidence in Russell's favour here is to be found in Box 4 of the manuscripts of C. K. Ogden's solicitor Mark Haymon, which has just become available in the Archives of University College, London, and which formed the basis of the conclusion drawn by G. H. von Wright in his edition of L. Wittgenstein, *Letters to C. K. Ogden* (Oxford: Blackwell; London and Boston: Routledge, 1973).

[10] Grattan-Guinness, "Russell and Karl Popper", pp. 13–15.

deeply impressed by Wittgenstein's incisive criticisms of his logic and logicism and of his developing empiricist epistemology, and he supported the publication of the *Tractatus* in 1921 and 1922. However, doubts were soon to develop. "He was very good", he wrote of Wittgenstein to the logician H. M. Sheffer perhaps in 1923,

> but the War turned him into a mystic, and he is now quite stupid. I suspect that good food would revive his brain, but he gave away all his money, and won't accept charity. So he is an elementary schoolmaster and starves. I do not believe his main thesis; I escape from it by a hierarchy of languages. He wrote his book during the War, while he was at the front; hence perhaps his dogmatism, which had to compete with the dogmatism of bullets.[11]

The second phase of Wittgenstein's thought, where philosophy was denied a proper place, earned Russell's contempt,[12] and he must have seen Popper's lecture as an occasion for a confrontation; but the consequences were greater than he expected. In reply to Popper's letter on 18 November 1946, Russell informed Popper that he "was much shocked by the failure of good manners which seemed to me to pervade the discussion on the side of Cambridge. In Wittgenstein this was to be expected, but I was sorry that some of the others followed suit."[13]

The other episode straddles the first one chronologically.[14] It concerns the British publication of Russell's *History of Western Philosophy* and possibilities for the American appearance of Popper's *The Open Society and Its Enemies*. In August 1946 Russell recommended Popper's book, though finally unsuccessfully, to an American house (it had already appeared from Routledge in Britain). When Russell's book came out in Britain (from Allen & Unwin), Popper praised it to the heights in a broadcast on Austrian Radio in November 1947. Possibly with certain recent philosophical experiences in mind, he contrasted Russell with

> The trendy philosophers, who beguile us instead of instructing us, [and have]

[11] The original of this letter is lost; Sheffer included this passage in a letter of 27 October 1923 to the philosopher R. F. A. Hoernlé (Sheffer Papers, Houghton Library, Harvard University, Correspondence Box; copy in RA). See also n. 36.

[12] See, for example, *MPD*, pp. 215–23.

[13] Grattan-Guinness, "Russell and Karl Popper", p. 15.

[14] *Ibid.*, pp. 9–13, 19–21 (the latter my translation).

found an uncommonly simple means. They stopped putting forward arguments for their opinions. They *pose as prophets*, as men who have come to deep wisdom through deep thought, and in the richness of their wisdom give us a few lumps out of their surplus.

This philosophy of the great philosophical leaders and tempters, of the great prophets, pedants and swindlers, this philosophical Fascism, is still strong. This philosophy is a strong and a pernicious influence. But it is *not all* powerful. That it was actually not all powerful in our time, that the tradition of reason in the attack upon unreason has survived up till now, for that we thank nobody more than Bertrand Russell.

Popper's performance is indeed rather fawning; one silence will be picked up in §7 below. But the defence of philosophy remained a theme with him at that time; for example, he placed it at the head of a (rather insipid) lecture to the Aristotelian Society on "What Can Logic Do for Philosophy?"[15]

In 1959 another coincidence of publication loomed. Russell published *My Philosophical Development*, and sent a copy to Popper. In his reply Popper reported that he had on proof a *Postscript to the Logic of Scientific Discovery* and sought permission to dedicate it to Russell. The request was readily accepted;[16] however, no Russellian in publishing, Popper withdrew the book, and it appeared only in 1982 and 1983, under the editorship of W. W. Bartley III and with different dedicatees for its three volumes.[17]

By the time of the request Russell had largely abandoned philosophical work for political and related activities mentioned in §1. When not answering philosophical enquiries himself, he would refer correspondents to Popper (and to A. J. Ayer; and logical ones to W. V. Quine).

3. SOCIALISM

One feature of *The Open Society* which Russell would have liked is its implicit, even at places explicit, advocacy of socialist values. He main-

[15] K. R. Popper, "What Can Logic Do for Philosophy?", *Proceedings of the Aristotelian Society*, suppl. vol. 22 (1948): 141–54.

[16] Grattan-Guinness, "Russell and Karl Popper", pp. 16–18.

[17] K. R. Popper, *Postscript to the Logic of Scientific Discovery*, ed. W. W. Bartley III, 3 vols. (London: Hutchinson, 1982–83).

tained such views throughout his life; his speech in 1965 clearly manifested his disappointment over the current Labour government, whoever crafted the text. This side of Popper's book was unexpectedly confirmed when I asked him (on a later occasion) about influences upon him of his parents when he was young; for he chose the following episode.

In Vienna at that time, at least in the bourgeoisie to which Popper's family belonged, there operated the "*Dienstmädchen*" system of "slave labour", as he described it to me. A woman worked as servant to a family for thirteen days per fortnight, from a Sunday to the following Saturday week; then her employment would continue unless the head of the household decided that it be terminated at the end of the next fortnight. When Popper was about nine years old (around 1911, therefore) his father accused their servant of stealing an amount equivalent to £15, and dismissed her under this rule. Upon asking his father about the woman's prospects, "I did not receive a satisfactory reply." Thus the influence of his father was negative—in his own later terms, a falsification. In response to my query, he confirmed that *The Open Society* had been written to oppose that sort of system as well as the ones which the Nazis and the Communists[18] were trying to impose in the 1940s.

4. PHILOSOPHIES OF SCIENCE

Popper was of course well aware that the kind of philosophy espoused by Russell differed fundamentally from his own. Russell's kind of position(s) is characterized as "analytic philosophy";[19] but the adjective is very unhelpful. Apart from the overuse of the word "analytic" in philosophy anyway, this kind is associated with the philosophy of language (or sadly, to be more accurate, the philosophy of English), which never became a principal concern for Russell although his theory of definite descriptions has been a key technique in it. His own name for his position, "logical empiricism", is far better: "logical" reflects the major influence on his epistemology of the logical enterprise culminating in

[18] "Communism will always revive", Popper said to me on another occasion.

[19] On this question see, for example, R. Monk and A. Palmer, eds., *Bertrand Russell and the Origins of Analytic Philosophy* (Bristol: Thoemmes P., 1996), esp. Chaps. 1–4. On Russell's own uses of "analysis" see P. Hager, *Continuity and Change in the Development of Russell's Philosophy* (Dordrecht: Kluwer, 1994), Pt. 1.

Principia Mathematica (1910–13); "empiricism" captures the aims of his epistemological period beginning with *The Problems of Philosophy* (1912) and especially *Our Knowledge of the External World as a Field for Scientific Method in Philosophy* (1914)—to quote for once its highly instructive title in full (as does not happen even in some reprintings of the book). Both stances were importantly inspired by his adoption around 1899 of G. E. Moore's anti-idealist stance, which involved a desire to avoid deploying abstract objects.[20]

Russell did not often consider the philosophy of science; but one case is a popular book of 1931 on *The Scientific Outlook*, which began by stating inductivist epistemology as the scientific method: observations first, build-up of theories from "a careful choice of significant facts" afterwards.[21] Popper owned a copy of this book, and showed me this passage as an example of how not to philosophize about science. For example, the "careful choice" transcends observation, and also empiricism.

Russell's philosophy greatly influenced Carnap, especially from the mid-1920s when he greatly (though not entirely) reduced the role of the neo-Kantian philosophy that he had taken largely from Hugo Dingler (1881–1954).[22] Indeed, Carnap's epistemological programme from then to the Second World War, outlined initially in a book with the Russell-like title *Der logische Aufbau der Welt* (1928), very much fused the techniques of Russell's symbolic logicism (especially *Principia Mathematica*) with the aims of Russell's prosodic epistemological writings (especially *Our Knowledge*) to produce a formal quasi-axiomatic epistemology with a strong preference for notions from physics.[23] This kind of philosophy

[20] See *MPD*, Chap. 4.

[21] *The Scientific Outlook* (London: Allen & Unwin, 1931), pp. 15–16. *Cf.* Popper's discussion of Russell's affirmation of induction in *Postscript* (n. 17), 1: 52–92 *passim.*

[22] In the 1910s and 1920s Dingler was an influential figure in the (neo-Kantian) philosophy of mathematics and logic. While not of the calibre of, say, Ernst Cassirer of that ilk, his work needs revival for historical purposes. Its general lines are disclosed in U. Weiss, *Hugo Dinglers methodische Philosophie* (Mannheim: Wissenschaftliche Buchgesellschaft, 1991).

[23] For the central role of Russell in Carnap's philosophy at this time, see my "A Retreat from Holisms: Carnap's Logical Course, 1921–1943", *Annals of Science*, 54 (1997): 407–21. This view conflicts in balance with the opinion in much writing on Carnap, but accords with Carnap's own recollection ("Intellectual Autobiography", in P. A. Schilpp ed., *The Philosophy of Rudolf Carnap* [La Salle, Ill.: Open Court, 1964], pp. 1–84 [at 13]). The word "logicism" is due to Carnap, proposed in a book on Russell's (and Whitehead's) logic which is almost completely ignored by Carnap specialists: *Abriss der Logistik, mit besondere Berücksichtigung der Relationstheorie und ihre Anwendungen* (Vienna: J. Springer, 1929), pp. 2–3. See also n. 36.

Among retained neo-Kantian elements in Carnap, note, in particular, the "autopsychological basis" of the single person rather than the "heteropsychological" basis of a community in the *Aufbau*. For commentary, see M. Friedman, "Epistemology in the *Aufbau*", *Synthese*, 93 (1992): 15–59.

became predominant in the group around Moritz Schlick which (to the annoyance of most members) became known around 1929 as the "Vienna Circle".[24] Carnap and Schlick were perhaps its two leading thinkers; they shared a distaste for metaphysics, Carnap even looking forward to its "overcoming" by "the logical analysis of language".[25] Russell may be another influence here; his acceptance of Moore's conversion engendered much reluctance over metaphysics, although he always granted it a place in philosophy, for example to accommodate the unavoidable need for universals.[26]

Onto this threadbare philosophical fabric came the young Popper, with his ideas about science being falsifiable guesswork. His book *Logik der Forschung* (1935) was published in a book series associated with the Circle of which Carnap was a co-editor,[27] and it was praised by several members;[28] but they seem not to have realized that the clash between falsification and verification was a fundamental issue, both serving as a special case of fallibilism against certainty and involving the status of metaphysics.[29]

[24] Outstanding among the writings on the Circle is the descriptive survey and bibliographies in Friedrich Stadler, *Studien zum Wiener Kreis: Ursprung, Entwicklung und Wirkung des logischen Empirismus im Kontext* (Frankfurt am Main: Suhrkamp, 1997); it also includes a conversation between the author and Popper (pp. 525–45).

[25] R. Carnap, "Überwindung der Metaphysik durch die logische Analyse der Sprache", *Erkenntnis*, 2 (1932): 219–41.

[26] See, for example, *IMT*$_2$ (1940), p. 149.

[27] K. R. Popper, *Logik der Forschung* (Vienna: J. Springer, 1935).

[28] Felix Kaufmann was especially admiring (Carnap Papers, University of Pittsburgh Archives, file 28–20), while Ernst Nagel even thought Popper to be similar to the positivists (29–05). By contrast, Otto Neurath was critical, because the incompleteness of scientific theories apparently made falsification into a philosophical error (29–09).

[29] Did Popper, or his editor uncle (Popper n. 9, Chap. 16), design the published version of this book to try to accentuate these differences? In particular, the chapter on corroboration is badly placed as the last one (Chap. 10 instead of Chap. 5), and the notion is often not granted the importance needed for a proper appreciation of fallibilism. Also, Popper's choice of "the logic of scientific discovery" as the title of the

At that time and until about 1950 Carnap and Popper maintained a cordial connection;[30] but after that contact seems to have fallen off considerably, as the differences between their philosophical directions became clearer. One divide concerned the status of metaphysics, as Popper showed in his contribution to the Schilpp volume for Carnap.[31] Another cleft involved the role and epistemological interpretation of probability theory—where Carnap filled a considerable gap in the philosophy of Russell, who for some reason never attended properly to the subject.[32]

When a conference on the philosophy of science was planned to take place in London in July 1965, Carnap was hesitant to attend in case relations with Popper became difficult.[33] However, no disaccord arose, and an extra gathering took place on the Saturday morning when the two men debated induction and probability. While each man stood up and spoke, the other sat at the front; and by chance during Popper's contributions Carnap sat next to me on the second row. At one point Popper tried to present on the blackboard one of his criticisms, namely the failure of the transitivity law for conditional probabilities when zero probabilities were involved; but surprisingly he messed up the derivation, and Carnap did not dispute the property anyway.[34] Old irritations now surfaced, for my neighbour muttered a question which maybe

English edition (1959) is unfortunate: "investigation" would have been both more accurate and appropriate a rendering of "*Forschung*".

[30] Carnap Papers, file 102–59; Popper Papers, file 282.24.

[31] K. R. Popper, "The Demarcation between Science and Metaphysics", in Schilpp, ed., *Carnap* (n. 23), pp. 183–226. First published in Popper's *Conjectures and Refutations* (London: Routledge and Kegan Paul, 1963), Chap. 11.

[32] Russell's most substantial account of probability theory occurs in *HK* (1948), Pt. 5, a section of around 80 pages; it treats axioms, frequentist and logical interpretations, probabilistic inference, and scientific induction. The BRA contain about 65 typed pages of preparatory notes for this Part and others (at RAI 210.006903–F5). A shorter presentation had occurred in *An Outline of Philosophy* (London: Allen and Unwin, 1932), Chap. 25. Neither passage seems to be greatly significant or innovative. Popper's contributions to probability theory are well encapsulated by D. Miller in "Sir Karl Raimund Popper, C.H., F.B.A.", *Biographical Memoirs of the Royal Society of London*, 43 (1997): 367–409.

[33] Carnap Papers, file 27–31–63. Russell was too busy with his various activities to take part.

[34] Compare Popper (n. 31), art. 6. In his classes on logic mentioned in §1 he stated that, since Carnap took the logical probability of a scientific theory to be zero, the philosophical enterprise seemed to be pointless.

only Popper and I heard: "Why don't we discuss whether 21 is a prime number or not?" After that the atmosphere became detectably frosty: Popper had intended to slay the inductivist dragon; but he had muffed it, and moreover not on an essential matter.[35] Apart from personal factors, the differences between their philosophies were central, with Russell's position a principal source of cleavage.[36]

5. THEORY OF TRUTH AND PHILOSOPHY OF LOGIC

Russell adopted the correspondence theory of truth between propositions and facts, although he found it difficult to accommodate the "objective falsehoods" corresponding to false propositions.[37] The status of truth was especially hard to locate in his logicism because he did not envision metalogic as distinct from logic; thus, to take another example, he was notoriously unclear on the relationships between implication, inference, entailment and consequence. Curiously, as he mentioned in the quotation in §2 above, he did alight upon the idea of hierarchy of languages in 1922 when writing his preface to the English translation of Wittgenstein's *Tractatus*;[38] but he never recognized its importance, especially when ignoring it completely on revising *Principia Mathematica* very soon afterwards! The general recognition of metatheory from theory is due principally to two other logicians: Kurt Gödel (1906–1978) (partly under the influence of David Hilbert's programme of metamathematics), whence it bore heavily upon Carnap; and Alfred Tarski (1902–

[35] For Quine's recollection of this session, see his *The Time of My Life* (Cambridge, MA: The MIT P., 1985,), p. 337.

[36] One should add, however, that by the late 1930s Russell himself had become sceptical about Carnap's enterprises, especially over the degree of formalism deployed and the physicalistic reductionism (see, e.g., *IMT*$_2$, esp. pp. 93, 267, 275, 310–11). Later he judged Carnap's conception of language to be somewhat detached from reality ("Logical Positivism", *Polemic*, no. 1 [1945]: 6–13; repr. in *Papers* 11: 147–55). In later life Sheffer came utterly to deplore the activities of "Carnap and Co." (I. Berlin, *Concepts and Categories; Philosophical Essays*, ed. H. Hardy [London: Hogarth P., 1978], pp. vii–viii).

[37] See, for example, B. Russell, "On the Nature of Truth", *Proceedings of the Aristotelian Society*, n.s. 7 (1906-07): 28–49. Russell omitted the last section, on objective falsehoods, from the reprint in *Philosophical Essays* (London: Longmans, 1910), Chap. 6.

[38] B. Russell, "Introduction", in L. Wittgenstein, *Tractatus Logico-Philosophicus*, 2nd ed. (London: Routledge and Kegan Paul, 1961), pp. ix–xxii (at xxii). Repr. in *Papers* 8: 96–112 (at 111–12).

1983), who duly imparted it to Popper in 1935.[39] The distinction has major consequences for logic and philosophy, and underlies many differences between Russell's and Popper's philosophies (and also of both from that of the later Wittgenstein, who rejected it entirely).

One consequence of the distinction is Tarski's assignment of the truth of a proposition in a formal language to its metalanguage, by means of a semantic device called "satisfaction" of a proposition under correspondence with facts.[40] Like Tarski and Russell, Popper was also a correspondence theorist, and claimed that Tarski's theory buttressed his own philosophy of science by vindicating his objective view of (fallible) knowledge.[41] However, Tarski had asserted that his theory was epistemologically neutral; hence, for example, both Carnap and Popper gained great benefit from it.[42] In this and other ways Popper went beyond the bounds that Tarski had correctly set for his theory of truth.[43] Russell appreciated Tarski's theory in his *Inquiry into Meaning and Truth* of 1940,[44] but he did not see it as requiring any major revision of his epistemology; but by the time of *Human Knowledge* eight years later, truth was once again "a property of beliefs" and of its attendant sentences, and Tarski was out of sight.[45]

One main source of the distinction was Gödel's incompletability theorem of 1931 and its corollary about not being able to prove the consistency of axiomatic systems. Another consequence was that a logicist

[39] See Popper's recollection in his (n. 9), Chap. 17.

[40] A. Tarski, "Der Wahrheitsbegriff in den formalisierten Sprachen", *Studia Philosophica*, 1 (1935): 261–495. Repr. in *Collected Papers* (Basel: Birkhäuser, 1986), 2: 51–198. English translation in *Logic, Semantics, Metamathematics* (Oxford: Clarendon P., 1956; 2nd ed., Indianapolis: Hackett, 1983), Chap. 8.

[41] See K. R. Popper, *Objective Knowledge* (Oxford: Clarendon P., 1972), Chap. 1.

[42] See A. Tarski, "The Semantic Conception of Truth and the Foundations of Semantics", *Philosophy and Phenomenological Research*, 4 (1943–44): 341–75. Repr. in *Collected Papers* (n. 40), pp. 661–99.

[43] See I. Grattan-Guinness, "On Popper's Use of Tarski's Theory of Truth", *Philosophia*, 14 (1984): 129–35.

[44] *IMT*$_2$, pp. 62–5. Russell had been aware of Tarski's work but not of its details since at least 1929; on 23 December 1929 he preferred Leon Chwistek for a chair for Lvóv University (see J. J. Jadacki, "Leon Chwistek–Bertrand Russell's Scientific Correspondence", *Dialectics and Humanism*, 13 [1986]: 239–63 [at 243]). He became better acquainted with Tarski's work during their common sojourn in the USA: see Russell's letter of 1939 to Quine in *Auto.* 2: 225–6.

[45] See *HK*, pp. 164–70.

reduction of mathematics to mathematical logic could not be achieved. Afterwards logico-mathematical programmes became relatively more modest in scope and pragmatic in practice. In particular, when Popper became interested in logic in the late 1940s, he tried to develop an approach based upon taking logical consequence as a primitive notion.[46]

However, on one aspect Russell and Popper were agreed: adhesion to bivalent logic. Russell saw the law of excluded middle (LEM) and its equivalents as essential for logic and did not embrace the modal systems proposed in his time; he also argued for the law in his epistemology, preferring the "logical" theory of truth (LEM always valid, but the truth -value of a proposition not always known) over its "epistemological" competitor (knowledge tied to experience, so that LEM not always tenable).[47] Popper grounded his preference for LEM in his fallibilism; that logic provides the strongest criticism. An important figure for comparison is Quine, also an adherent who protects the honour of LEM with the "maxim of minimum mutilation",[48] and at his start the principal follower of Russell's type of logico-mathematical construction.[49] Logical pluralists such as myself find the criticism rather too brute for this often continuous and vague world (and thereby its science), and see delicacy rather than mutilation in the broader view. The favourite example, "snow is white", is indeed a good source for unclarity!

6. THE FORMATION OF LANGUAGE

Popper's main address to the conference of 1965 dealt with "Rationality and the search for invariants". While acknowledging that scientific the-

[46] As Popper recalled ([n. 9], Chap. 32), his efforts were not very successful. For modifications see C. Lejewski, "Popper's Theory of Formal or Deductive Inference", in Schilpp, ed., *Popper* (n. 9), pp. 632–70; and for appraisal see P. Schröder-Heister, "Popper's Theory of Deductive Inference and the Concept of a Logical Constant", *History and Philosophy of Logic*, 5 (1984): 79–110. Popper also considered intuitionistic negation at that time.

[47] I hope that this summary captures the purpose of Russell's long and difficult discussion in *IMT*$_2$, Chaps. 20–1.

[48] W. V. Quine, *Philosophy of Logic*, 2nd ed. (Cambridge, MA: Harvard U. P., 1986), pp. 7, 86.

[49] See J. Ferreiros, "Notes on Types, Sets and Logicism", *Theoria*, 12 (1997): 91–124.

ories often had to follow the "Parmenidean" tradition and propose invariants or constants of some kind as key notions, he recommended that rationality could permit "swimming against the tide" in contexts where effect may not equal cause, or life is not always zero sum. He gave as examples thermodynamics, quantum mechanics, and economics.[50]

Another target for anti-invariance was Noam Chomsky's theory of deep structure to explain the formation and development of natural languages in children. On several of the occasions when we met Popper assailed me on this topic, clearly hinting that I should take it up; the outcome was a short essay published in 1995, of which Popper read the draft late in 1993. He seemed to be unaware that Chomsky's theory had not enjoyed a great press among linguisticians in recent years, so I embodied his alternative view within rather more general considerations.[51]

Popper's position grew out of the evolutionary epistemology which he advocated from the 1970s onwards, and specifically from the four different functions of a natural language which he had learnt from his teacher Karl Bühler.[52] Popper thought that one-word sentences, along with body actions, gestures, and tones of voice, are the basic building-blocks not only of the learning of language but also of its formation. Further development happens (if at all, for a given person or community) in response to problems (such as ambiguities over the words themselves), and takes the form of the emergence of two-, three-, ... word sentences; in due course syntax and grammar gradually supplanting actions and tones. As parents and child psychologists know well, the initial speech utterances by children normally take the form of single words or even noises. They are usually expressed in varied and varying tones and levels of voices, and accompanied by body signals and gestures; all these qualify as sub-languages of their own, often of a (too) general character. Further, these processes are integral to the human species; they cannot

[50] Popper's lecture is unpublished; drafts may be found in the files for the conference (Popper Papers, file 80.1–20).

[51] I. Grattan-Guinness, "Experience or Innateness? Sir Karl Popper on the Origins and Acquisition of Natural Languages", *Languages Origins Society Forum*, no. 20 (Spring 1995): 16–25.

[52] See, for example, K. R. Popper and J. C. Eccles, *The Self and Its Brain* (Berlin: Springer, 1977), pp. 57–9.

be explained by evolution from animal languages. They are also enough; no supplementary structure is needed, deep or otherwise. On the contrary, structures then develop in the language in order to distinguish the various functions mentioned above.

Unlike Popper, Russell was a parent, and even an educator, running a school for children in the 1920s. But when he wrote a book *On Education, Especially in Early Childhood* at that time, he omitted the question of language formation; indeed, then in his behaviourist phase, he emphasized gestures and even doubted the merits of teaching words at all.[53] In a later book he considered single words and sentences in children, but he did not allow for anything in between.[54] As Popper was aware, Chomsky had put forward his theory in opposition to behaviourism; but he had gone too far for Popper, who saw this neo-evolutionary approach as a kind of middle way.

7. CONTRASTS

A main point of contrast between the two philosophers concerns the certainty for knowledge. Russell began a manuscript note for his *History* thus:

R's Philosophy.
(1) Quest for certainty (2) [Derivative] Analysis of data and premisses.
(1) ...
(2) *Method* Occam's Razor: assume science true, what is minimum assumption involved.
Minimum vocabulary and minimum premisses[55]

By contrast, for Popper philosophy was an "unended quest", as he entitled his autobiography on its separate publication.[56] Many philos-

[53] *OE*, p. 77; *cf.* his *IMT*$_2$, pp. 65–8. In a curious coincidence Quine has recently been considering this problem, in a ms. on "The Growth of Mind and Language". Much more empiricist than Popper but less behaviourist than Russell, he tries to build up knowledge inductively from "observation sentences" of (nearly) similar perceptions.

[54] Russell, *Outline* (n. 32), pp. 54–7.

[55] RAI 210.006746; *cf.* the rather perfunctory treatment in *HWP*, Bk. 3, Chap. 21.

[56] K. R. Popper, *Unended Quest* (n.p.: Fontana/Collins, 1976), a separate and slightly revised edition of his (n. 9).

ophies, especially those greatly concerned with epistemology (of some kind), have hoped for certainties;[57] but Popper's falsificationism and its maturity into fallibilism brought him to uncertainty as the key,[58] and to emphasize "the growth of scientific knowledge" (the subtitle of *Conjectures and Refutations* of 1963) from state to state rather than resting in any particular state. In later years he came to espouse evolutionary epistemology, although its kinship to the scientific theory of evolution is not clear;[59] by contrast, Russell had told Jourdain in 1910 that "anything evolutionary always rouses me to fury".[60]

Allied to this difference is the role of the cognitive agent. The passively empiricist side of Russell's logical empiricism is an example of "the bucket theory of the mind", as Popper called it.[61] By contrast, his own activist line sees the source of conjecture in the fallibility of our human enterprise. Further, while empiricist Russell wished to avoid any third world of abstract objects, Popper was content to admit such a "World 3",[62] and indeed to overpopulate it to such an extent that anything and everything could be real there. If Russell's threadbare thought-world may seem to be a philosophical stupidity, then Popper's World 3 is the opposite one,[63] in which all questions concerning ontology are overly

[57] Russell's quest faltered in 1901–02 with the discovery of his paradox of set theory, together with his new awareness of suffering and the loss of love for his own wife, Alys. In his recollection of the period in his autobiography he described this triple setback in an intermingled manner which seems to be unintentional; moreover, they refute isomorphically the three aims of his life set out in the prologue (*Auto.* 1: 144–7, 13). I made these points in my (n. 7), p. 160, and then found that Popper had partly anticipated me (see his comments in B. Magee, *Modern British Philosophy* [London: Secker and Warburg, 1971], p. 144).

[58] And is that for sure? On the meta-epistemological issues surrounding "comprehensive critical rationalism" see, e.g., the papers in *Philosophy*, 46 (1971): 43–61.

[59] See, for example, M. Ruse, "Karl Popper's Philosophy of Biology", *Philosophy of Science*, 44 (1977): 638–61. In a lengthy and positive appraisal of evolutionary epistemology Munz does not seem to address this issue fully ([n. 9], Chap. 6).

[60] Quoted in *Dear Russell—Dear Jourdain*, p. 126. A related point of difference concerns C. S. Peirce. Russell almost entirely ignored him, concerning both logic and philosophy; for example, nothing of significance is stated in the *History*. Popper was quite praising, especially in his "Replies to My Critics" in Schilpp, ed., *Popper* (n. 9), pp. 961–1197 (at 1072); see also his (n. 41), pp. 212–16. However, he did not much use Peirce's philosophy, and gave to Miller his copy of the 1930s edition of Peirce's works.

[61] See Popper (n. 41), Chap. 2 and appendix.

[62] See, e.g., Popper (n. 9), Chap. 38; or Popper and Eccles (n. 52), esp. Chap. P4.

[63] For a good reposte see J. Cohen, "Some Comments on Third World Epistemology", *British Journal for the Philosophy of Science*, 31 (1980): 175–80.

trivialized.[64]

The divide between the two philosophies was cast principally by Immanual Kant—or rather, by positive and negative reactions to him. When Popper broadcast his eulogy to Russell's *History* he must have realized how unsympathetic was its chapter on Kant, regarding both content and influence.[65] By contrast, Popper developed his philosophical position very much under the influence (largely negative) of Kant's treatment of induction and demarcation,[66] and in his maturity he wrote admiringly on Kant, especially the activism.[67]

Another consequent difference is the role of history. Popper's fallibilism is intrinsically historical, in that the sequence of conjectures and refutations (or criticisms) that a theory undergoes is built into the form that it takes (even the first theory in a given context probably uses antecedents from somewhere); such background should be recognized and understood, at least in its main lines. By contrast, the positivists see themselves on their own each time, and regard the past (including their own) as largely nostalgia at most. Carnap regarded himself "as unhistorically minded a person as one could imagine".[68]

There were also differences of personality which may have accentuated the intellectual ones, at least for Popper. One marks in particular the contrast between a worldly member of the Empire-owning British Victorian aristocracy who led one of the main philosophical traditions of his time and country, and an emotional loner from a persecuted race living in foreign lands to whom such traditions were alien.[69]

[64] See my "What Do Theories Talk About? A Critique of Popperian Fallibilism, with Especial Reference to Ontology", *Fundamenta Scientiae*, 7 (1986): 177–221.

[65] *HWP*, Bk. 3, Chap. 20. The following Chap. 21 on Hegel is no better—but many people say the same of Chap. 12 of Popper's *Open Society*.

[66] See in particular, K. R. Popper, *Die beiden Grundprobleme der Erkenntnistheorie*, ed. T. E. Hansen from a manuscript of the early 1930s (Tübingen: Seebeck/Mohr, 1979). This text seems to me superior to *Logik der Forschung* in this and some other respects.

[67] See, for example, (n. 31), Chaps. 7–8.

[68] According to the testimony of Bernard Cohen, in his "History and the Philosopher of Science", in F. Suppe, ed., *The Structure of Scientific Theories* (Urbana: U. of Illinois P., 1974), pp. 308–73 (at 310).

[69] The isolation of Popper, and even more that of his wife, is finely captured in M. H. Hacohen, "Karl Popper in Exile: the Viennese Progressive Imagination and the Making of the *Open Society*", *Philosophy of the Social Sciences*, 26 (1996): 452–92.

In 1962 Popper hoped to write "on what I consider to be Russell's greatest contribution to philosophy"; sadly, he never did, and the source of praise was not identified.[70] A hint may come from a letter of 1980 to the Bertrand Russell Society, when he stated his favourite Russell books to be *The Problems of Philosophy* (1912) and *Mysticism and Logic* (1918)[71]—two of the shortest ones, albeit the first a prolegomena for Russell's logical empiricism. There may be here a residue of the great influence of both Russell's logic and his logicism upon the Vienna Circle (especially for Carnap and Schlick[72]), the environment within which the young Popper developed his first philosophical ideas. Personally he never belonged to the Circle; but his early philosophy and his first book did, and Russell was a major father figure there. Popper judged Russell's logical enterprise as exceptionally heroic, even though its aim was not achieved.[73]

Popper appraised Russell to me one day as "not a great philosopher, although a brilliant writer". But he also had in his home a large photograph of Russell, which he encouraged me to photograph him holding:[74] "I loved Russell. This is Russell as I remembered him."[75]

[70] Correspondence between Popper and Schoenman, Popper Papers, file 276.19. The book was to be, eventually, R. Schoenman, ed., *Bertrand Russell, Philosopher of the Century* (London: Allen and Unwin, 1967).

[71] Popper Papers, *ibid.*

[72] Although Schlick published little on mathematical logic, he took a great interest in it, using Russell's version for his student seminars in 1925–26 (one student was a certain K. Gödel) and 1932 (Schlick Papers, State Archives of North Holland, Haarlem, The Netherlands, files 52/B32-2 and 58/B38). From his early days he was an enthusiastic anti-metaphysician (file 82/C1).

[73] See Popper's appraisal in Magee (n. 57), pp. 142–4. However, in an irony of history, he relied on Russell's own recollection of writing *PoM* (1903) in *MPD*, pp. 72–4, which is very inaccurate: the much more complicated but human story is reconstructed in I. Grattan-Guinness, "How Did Bertrand Russell Write *The Principles of Mathematics* (1903)?", *Russell*, n.s. 16 (1996): 101–27.

[74] Grattan-Guinness, "Russell and Karl Popper", p. 5.

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