Reflections on Russell

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Musings on a Multidimensional Man

By

Chad Trainer

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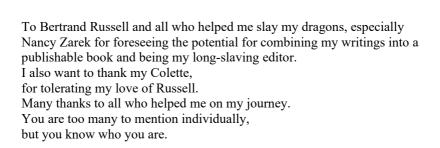This book first published 2022

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INTRODUCTION

All of my life that I can remember I have felt the more important a matter appears, the more it is worth thinking about. Also, it seems the truer something really is, the more it should be able to withstand questioning and scrutiny. Having a Catholic upbringing, it was always impressed upon me that there was something unrefined and indelicate about questioning religious tenets. Uncritical acceptance of the Catholic orthodoxy was considered a mark of good breeding. In my early teens, I discovered Bertrand Russell. He made me aware that my questions and reservations about religion were perfectly reasonable and religion may do more harm than good. The urbanity and erudition with which Russell expressed these views were most welcome and reassuring to me during adolescence. I began reading more and more of Russell's writings.

Biography

Bertrand Russell was a 20th century reincarnation of the Enlightenment polymath supplemented with the genius of a mathematical logician. He shared with Voltaire a comparatively large audience and an elegantly iconoclastic wit.[*] Never one to acquiesce uncritically in sanctimonious claims to knowledge and undefended assumptions about what is real, he subjected pompous declarations to a withering critique with a consummately straightforward and lucid prose. Along with George Edward Moore (1873-1958), Russell became one of the founders of analytic philosophy. This had as its inspiration "the idea that many concepts of ordinary language are vague, and that the purpose of philosophy is to make them more precise, and thereby advance our ability to establish which ideas are true and which are false."[1]

   Russell was the grandson of Lord John Russell, who introduced the Reform Bill of 1832, was twice prime minister during Queen Victoria's reign and, as a reward, was made an earl in 1861. The Russells were a renowned Whig family who, like most Whig families, owed their dynastic status to King Henry VIII. King Henry created a new aristocracy from the

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[*] "It is safe to say that not since Voltaire has there been a philosopher with such an enormous influence" (Edwards 1967 7:235).

booty of his attacks on the old Catholic nobles and monks. With this rise in status, the Russells also inherited a variety of titles. But, in his biography of Bertrand Russell, Ray Monk notes

> For Lord John, and subsequently for Bertrand Russell, the family history begins, not with the huge gifts given by Henry VIII to the first Earl of Bedford, but four generations later with the stand taken by Lord William Russell against the succession to the throne of the Catholic James II. And this stand is interpreted, not as the expression of religious intolerance against Catholicism (still less, of course, as the desire to protect what had been church property), but as a principled defence of constitutional liberties. In Lord John's eyes, Lord William was *the* family hero, for, in opposing James's succession, he – along with Lord Shaftesbury, John Locke and others – founded the Whig tradition. Moreover, he gave his life to the cause. In 1683, he was executed for his part in the Rye House Plot to kill James and his brother Charles II, and became in consequence the first Whig martyr and subsequently a hero of the Glorious Revolution, his death a symbol of the right of parliament to oppose the power of the Crown (Monk 1996 5-6).

"From this perspective," Monk explains, "the history of the Russell family is characterised, not by the ever-greater accumulation of wealth and political influence, but rather by centuries of commitment to 'civil and religious liberty', the power they received from the Crown largely forgotten in favour of an emphasis upon the power they used against the Crown."[2]

Bertrand Arthur William Russell was born into this aristocracy on May 18, 1872 at Ravenscroft in Trelleck, Wales. He was the second son of Viscount Amberley and his wife, Katherine, daughter of the 2nd Baron Stanley of Alderley. Bertrand's parents were freethinkers (John Stuart Mill was Bertrand's secular godfather.) who envisioned raising Bertrand and his brother, Frank, according to their own unorthodox views. Instead, both boys were orphaned at an early age and litigation resulted in these freethinking parents' provisions being set aside by the Court of Chancery. Bertrand and his brother were placed in the care of his paternal grandparents, Lord John Russell and Lady Frances Russell who resided at Pembroke Lodge, a gift of Queen Victoria to Lord John. With Lord John dying two years later, Bertrand's upbringing was then in the hands of his grandmother. The designation of freethinkers as guardians having been disaffirmed, his grandmother and father's brother (Bertrand's uncle) Rollo were established instead as his guardians. Biographer Ronald Clark reports:

> Lady Russell's evangelical concern to press her younger grandson into a mould of her own choice stamped him physically, intellectually and emotionally with marks that lasted all his life. A puritan despising comfort,

> indifferent to food and hating wine, she decreed that the day begin with a cold bath all year round, followed by half-an-hour's piano practice before family prayers at eight. The availability of sufficient servants in the rambling house did little to ameliorate the spartan conditions, the strictly enforced self-discipline, or the sense of public duty which permeated the household like the smell of hops in a brewery….Ironically enough, Lady Russell's high fervour did her cause little good. The tough physical regime hardened Russell but at the same time generated a permanent allergy to muscular Christianity; the tempering of his intellectual steel turned it into a bright weapon with which to fight the religion that governed the Orders of the Day at Pembroke Lodge (Clark 1975 27-28).

Instead of attending school, Bertrand Russell was educated by governesses and tutors. Cambridge University's Trinity College, entering in 1890, was his first formal schooling. In his fourth year at Cambridge, he turned to philosophy, which was the "only formal philosophical training he ever had."[3]

After two years at Cambridge, Russell went on to lecture in the United States on non-Euclidean geometry, traveled to Germany to study economics, and was appointed first lecturer at the London School of Economics. He then returned to Cambridge, wrote the landmark work *A Critical Exposition of the Philosophy of Leibniz*, and subsequently applied himself to his main work on *logicism*, which is the belief that all mathematics is reducible to logic. He was a lecturer at Cambridge until the First World War. In the meantime, he was elected a fellow of the Royal Society in 1908, and President of the Aristotelian Society in 1911. Russell's activities as a pacifist during the first World War resulted in his being fined, dismissed from his lectureship, and imprisoned for six months.[*] (In addition to his imprisonment in 1918, he was jailed a second time in the 1960s also for his political activism.)

Russell had always been interested in politics. He was an unsuccessful candidate for Parliament three times. In 1920, he visited Russia and wrote a book about his impressions about how woefully short the actual Bolshevik Russia was compared with the Bolsheviks' vision. It has been said to be the "first book from the left to warn of the dangers of dictatorship under communism" (Griffin 2003 8). Russell taught at the University of Peking for a year. In 1919, Einstein's General Theory of Relativity was confirmed, and when returning from China, Russell was perfectly situated to cash in on the popular interest in the new physics. He then wrote two related books, *The ABC of Atoms* [1923] and *The ABC of*

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[*] While in prison, he wrote *Introduction to Mathematical Philosophy*.

Relativity [1925]. Remarkably, in the former book, Russell presciently predicted that work on the atom's structure would "ultimately be used for making more deadly explosives and projectiles than any yet invented."[4] How prophetic! During this time, Russell also worked as a journalist. He returned to philosophical writing in 1927 with *The Analysis of Matter*. That same year he and his second wife, Dora, set up their own experimental school, Beacon Hill, which he did not consider a success. In fact, he had to earn money by lecturing in order to pay for the school.

Compelled to earn a living during the 1930s he engaged in popular writing and public lecturing, Russell then became intent on finding an academic appointment. Ultimately, at the end of that decade, he had appointments both at the University of Chicago and UCLA. In 1940, after being offered an appointment at City College of New York, he was judicially declared unfit for that position on grounds primarily of his views on sex and religion. This development prompted Albert Einstein to comment "great spirits have always encountered violent opposition from mediocre minds…." Russell then accepted an offer from Albert Barnes to lecture for five years at the Barnes Foundation in Pennsylvania.[*] He was able to convert these lectures into his best-selling book *A History of Western Philosophy*, which finally freed him from financial difficulties.

Subsequently, Russell returned to Trinity College, Cambridge, which at that time awarded him a full-fledged Fellowship. He became more respectable in the eyes of the establishment. He lectured in Australia in 1951. He appeared on the BBC's "Brains Trust" programs, delivered the first Reith lectures, became an honorary member of the British Academy, received the Order of Merit, and was awarded the Nobel Prize for Literature. He then became less involved in philosophy proper and more interested in international politics. In 1955, Russell and Einstein issued the Russell/Einstein Manifesto detailing the horrors of a nuclear war and the need for scientists on both sides of the Iron Curtain to petition their governments to not resort to war to further their purposes. He had also helped establish the Pugwash movement, as well as the International War Crimes Tribunal for investigating the U.S. war in Vietnam. As an activist in opposing the atomic bomb, nuclear weapons, and U.S. involvement in Vietnam, his "respectability" suffered. Russell died on February 2, 1970.

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[*] For an article on a couple of Russell's Pennsylvania residences, see "Russell's Pennsylvania."

Philosophy

The question "What is real?" is one all philosophers ponder. Russell recommended *metaphysical economy*, also known as Ockham's razor (named after the medieval theologian William of Ockham). Ockham's razor is the guideline conventionally rendered as "entities ought not to be multiplied beyond necessity." This guideline is not only useful in the realm of traditional medieval metaphysics, but has applications in Russell's own specialization, mathematical logic.

The philosophers of the Vienna Circle maintained, in the tradition of Austrian philosopher and physicist Ernst Mach (1838-1916), that sensory perceptions are the "sole ultimate ground of knowledge" and that theoretical entities are fictions, or logical constructs, that ought only to be postulated to the extent that they can be based on empirical observations. Russell's most important work in mathematical logic was *Principia Mathematica* (1910-1913), which he wrote with Alfred North Whitehead (1861-1947). The Vienna Circle philosophers, along with other empiricist thinkers, turned to *Principia Mathematica*'s formal apparatus for framing their epistemic arguments, which, at their most ambitious, would arrive at a system of unified science constructed around Russell's symbolic logic. Interestingly, Russell himself had misgivings about this program's formulation of its "verification" approaches.

The propositional calculus Russell and Whitehead helped develop can *seem* to have little practical value. However, as Monk explains, "Russell and Whitehead *had* shown something interesting and important: they had, at least, demonstrated that a good deal of mathematics, if not quite all of it, could be derived from within a formal, axiomatic system (whether one thinks of it as a system of logic or of mathematics). And, in the process (and this is perhaps where the most lastingly important aspect of the work lies), they had given an enormous boost to the development of mathematical logic itself, inventing techniques and suggesting lines of thought that would provide the inspiration for subsequent mathematical logicians, such as Alan Turing and John von Neumann, whose work, in providing the theoretical basis for the theory of computing, has changed all our lives."[5] Russell scholar Ronald Jager remarks "many decades after such systems were developed by Russell and Whitehead, they have proved indispensable for devising intricate electrical circuits, which circuits are used to build computers, which in turn can devise different logical systems, which can help build better computers, which can…."[6]

Initially, Russell postulated an eternal world rife with mathematical and logical entities, which, he eventually acknowledged, was a rather

luxuriant universe. But there were "weeds in the mathematical garden" that not only called for removal but may have never sprouted had Russell taken the 17th century philosopher Leibniz's philosophy of mathematics more seriously. According to Leibniz, mathematical entities are not "really found in nature as such" but are only "means of making accurate calculations of an abstract mental kind."[*]

If one believes there is no such thing as a Platonic realm, one might find Russell's work in mathematical logic less engaging. Fortunately, however, it was increasingly the case that, "from the first decade of the twentieth century, Russell turned his method of analysis from mathematics and logic to other philosophical concerns such as epistemology, metaphysics, philosophy of language, and philosophy of science. In all cases, philosophical analysis was aimed at a non-empirical intellectual discovery of propositions and concepts from which could be fashioned premises for the basic data from which the analysis had begun."[7]

Although the empiricist's findings are bereft of mathematics' certainty, mathematics eventually amounted to no more than tautologies to Russell. Russell made a point of crediting the Anglican bishop George Berkeley with anticipating the linguistic theory of mathematics to which Russell himself eventually subscribed. Even though he thought the defects of Berkeley's philosophy were obvious, some of the ways Russell respected the Anglican bishop are surprising.[†]

As did many other 20th century philosophers, Russell had an interest in language. An assumption of Russell's was, as Antony Flew says, that "Once the real, as opposed to the apparent, structure of our statements is made explicit, we can discover, he thought, an isomorphism between this structure and that of the world."[8] However, Russell never resolved the tensions between his reverence for mathematical logic and his self-described "retreat from Pythagoras." One could argue that his philosophy of language in particular seems riddled with residues of his earlier philosophy and the innovations of his later thinking.[‡]

Russell deemed sensory data and the laws of logic the most nearly certain knowledge available. While he accepted skepticism is irrefutable, he believed it was useless. It is indeed interesting to look at the rival claims of dogmatism and skepticism and how he attempted to mediate their competing claims.[§] There were elements of the rationalist and empiricist

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[*] See "Russell's Resistance to Leibniz's Conceptualism."
[†] See "Bereft of God and Anglican Complacency: A Comparison of Russell's Empiricism with that of Berkeley."
[‡] See "Language: A Leading Or Lagging Indicator of Truth for Russell."
[§] See "Bertrand Russell: A Carneades Reincarnate."

alike in Russell's philosophy. Admittedly, one cannot characterize Russell as an empiricist without qualification. There is significant debate over the degree such a designation is appropriate.[*]

Concerning liberal education, Russell strongly advocated for the inclusion of science. He noted "it seems to be genuinely held indisputable that a literary education is superior to one based on science….But even if there be, in present fact, any such inferiority in the educational value of science, this is, I believe, not the fault of science itself, but the fault of the spirit in which science is taught. If its full possibilities were realised by those who teach it, I believe that its capacity of producing those habits of mind which constitute the highest mental excellence would be at least as great as that of literature."[9] Science, as Russell sees it, "is at no moment quite right, but it is seldom quite wrong, and has, as a rule, a better chance of being right than the theories of the unscientific. It is, therefore, rational to accept it hypothetically."[10]

When the likes of Stephen Hawking and Laurence Strauss ridicule philosophy as "medieval" in its interests, Russell would have been exquisite in impressing upon the scientific community their naivete with respect to all the premises it adopts uncritically notwithstanding the purported rigor of its approaches.[†] While there is much to be said for the position that "beliefs caused by perception are to be accepted unless there are positive grounds for rejecting them,"[11] there is no denying that, generally, "Empiricists fail to realize that much of the knowledge they take for granted assumes events that are not experienced."[12]

In addition to empiricism, rationalism, and skepticism, another view of knowledge Russell discussed was mysticism. Rather than view mysticism as something to be swallowed wholly or rejected, he differentiated between what he saw as its good and bad elements. He held one view of religion and "spirituality" as an aesthetic outlook on life.[‡] This religious attitude he supported toward the universe had important repercussions for Russell's views on Spinoza and Locke.[§] But Russell had a much lower estimation of religion when it comes to "spirituality" in the area of metaphysics.[**]

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[*] See "Russell's Empiricist Propensities: Empiricism's Survival of Russell's 'Last Substantial Change'."

[†] See "Bertrand Russell's *Analysis of Matter* Nearly a Century Later: How Dated a Document Is It?"

[‡] See "'Waking Up' to Bertrand Russell's Anticipation of Sam Harris' 'Spirituality without Religion."

[§] See "Poetic Emotion *versus* Truth: Russell's Preference for Spinoza over Locke."

[**] See "Slaying the Dragon: Russell's Critique of Religion."

Russell believed ethics ought to have a "this-worldly" justification and ought to be calculated to promote human happiness. Ethics, when viewed philosophically, he thought, does not consist of *facts*. "A judgment of fact," he maintained, "is capable of a property called 'truth', which it has or does not have quite independently of what any one may think about it….I see no property analogous to 'truth', that belongs or does not belong to an ethical judgment." Questions of *values* lie "wholly outside the domain of knowledge," or "the realm of truth and falsehood." Questions of values ultimately defy an intellectual resolution. "Reason'…signifies the choice of the right means to an end that you wish to achieve. It has nothing whatever to do with the choice of ends." Instead, questions of values can be reduced to differences in people's *emotions*, or *tastes*. We can neither deduce values from facts nor facts from values.

Politically, Russell falls basically into the liberal tradition. He had been in the Liberal Party until joining the Labour Party in 1914. He was a Labour Candidate for Parliament in 1922 and 1923. An interesting study is that of the proper place a decent, civic-minded person has in the world of politics. As Russell saw things, "only the energetic can hope for political influence, and…, as a rule, only those who love domination are energetic….[A]ny attempt to improve the world politically rouses fierce opposition, and…only people with all the Bolshevik defects can hope to combat the opposition successfully, while only people utterly unlike the Bolsheviks could make any good use of victory. So the whole political method of seeking progress came to seem useless."[13] * Russell took greater interest in international rather than domestic politics, the stakes being higher in the former. Interestingly, his estimate of Thomas Hobbes' political philosophy varied according to whether the matter was one of domestic or international politics.†

In his disappointment with the ability of the United States or United Nations to effectively serve as a world government and fend off the then recent heightened threat of nuclear war, Russell was aligned with Joseph Rotblat and the writing in the *Bulletin of the Atomic Scientists*. Were he alive today, Russell would probably have contended that now, more than ever, even with its attendant risks, efforts should be directed toward power being concentrated in a world government. Apropos of Russell's

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* In 1922's *The Problem of China*, when reflecting on Occidental politics, the way Russell states the matter is "all politics are inspired by a grinning devil, teaching the energetic and quick-witted to torture submissive populations for the profit of pocket or power or theory" (Russell 1922 14).
† See "Solitary, Poor, Nasty, Brutish, and Short: Russell's Views of Life without World Government"

aforementioned "religious" reverence and awe toward the cosmos, it is noteworthy that such an outlook made him wary of the human race's "invasions" of outer space. He was critical of space exploration for a variety of reasons.[*] One wonders "What he would think of present-day space exploration?".

As only becomes a reflective man, Russell appreciated leisure as opposed to the hustle and bustle of the busy work life.[†] This same aversion to the hustle and bustle in life might have made Russell highly critical of the distracted, interrupted life so encouraged by the high-tech world we currently inhabit.[‡] The capitalistic agendas of the high-tech world could well be just one of the incarnations of capitalism Russell would have decried. He abhorred unbridled capitalism and would have deplored our current "neoliberal" era and the consequent, increasing income inequality. It is the working people, according to Russell, who make the world go round, and one ought to deplore any economy that "squeezes" them.[§]

Bertrand Russell was a multi-dimensional man. He believed the way universities are divided into departments can be counterproductive. He thought one of the reasons progress in mathematical logic had taken so long to develop was because mathematics and logic are *specializations* and university faculties' protocols dictate mathematicians and logicians dare not tread on one another's turf.[14] He also deemed it noteworthy that "modern Platonists, almost without exception, are ignorant of mathematics, in spite of the immense importance that Plato attached to arithmetic and geometry, and the immense influence that they had on his philosophy. This is an example of the evils of specialization: a man must not write on Plato unless he has spent so much of his youth on Greek as to have had no time for the things that Plato thought important."[15]

It is little wonder that Albert Einstein could say "I owe innumerable happy hours to the reading of Russell's works, something which I cannot say of any other contemporary scientific writer, with the exception of Thorstein Veblen."[16] As the academic world becomes increasingly professionalized and over-specialized, Bertrand Russell serves as an exquisite example of the public intellectual in the tradition of the classical, Renaissance, and Enlightenment polymaths. He exemplifies the value the polymath can have in our society. Recognition and appreciation of this fact is long overdue.

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[*] See "Earth to Russell."
[†] See "In *Further* Praise of Idleness."
[‡] See "Would Bertrand Russell Use E-mail?."
[§] See "*Roads to Freedom* a Hundred Years Later."

Notes

[1] Stone 2016 15
[2] Monk 1996 5
[3] Griffin 2003 4
[4] Russell 1923a 5
[5] Monk 1996 195
[6] Jager 1972 120
[7] Hager 2003 311
[8] Flew 1979 287
[9] Russell 1913 34-35
[10] Russell 1959b 13
[11] Russell 1940a 133
[12] Russell 1940a 217
[13] Russell 2001 209
[14] Russell 1919 194
[15] Russell 1945 132
[16] Einstein 1954 18-19

RUSSELL'S RESISTANCE TO LEIBNIZ'S CONCEPTUALISM*

> …mathematicians travel to very exotic places indeed. We might also note that many of them admit to being philosophical Platonists, without feeling any apparent need to consult a trained philosopher for an exorcism.
> Sam Harris' *The End of Faith* 182-3

Abstract

Principia Mathematica is frequently touted as Bertrand Russell's most substantial contribution to the field of philosophy. Yet something we lose sight of is the fact that Russell was ultimately less impressed with what he accomplished in this work than he was at the time he was working on it.

There is a sense in which Russell's philosophical development represented a dialectical process between his revolt against British Idealism, on one hand, and his appreciation of Ockham's razor, on the other. British Idealism was a school of thought believing "all rested in the mind of the beholder."[1] As Russell biographer Ronald Clark says, "Hegel maintained that ultimate reality consists of mind or spirit rather than matter; that all the objects of external perception will dissolve, when subjected to critical scrutiny, like Prospero's gorgeous palaces and solemn temples."[2] Russell eventually turned against Hegel's "idealism" replacing Hegel's "monism," or the belief that all is one, with a Platonically lavish pluralistic world. Ockham's razor is a principle of "metaphysical economy" according to which you ought not to explain with more what you can explain with less, or *entities are not to be multiplied beyond necessity*.

As the role of Russell's Platonically lavish pluralistic world began to wane and considerations of Ockham's razor began to wax, Russell increasingly adopted a *conceptualist* philosophy of logic and mathematics. "Conceptualism" means the view that "universal concepts are simply conceptual constructions."[3] The 17th century German philosopher Gottfried Wilhelm Leibniz exposed Russell to conceptualism much earlier. Russell

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rejected Leibniz's conceptualism at the time as part of his opposition to British Idealism. Had Russell subscribed to Leibniz's conceptualism at the time of his lectures on Leibniz (1899), it is questionable whether Russell would have thought it worthwhile to undertake all the work involved in writing *Principia Mathematica*.

After some introductory considerations, this chapter will review the Platonism of Russell's earlier views on logic. Next, it will touch on Leibniz's conceptualism and then an explanation of how Russell considered Leibniz's philosophy defective because of its confinement to the subject/predicate syntax. I next turn to Russell's eventual interest in avoiding the multiplication of entities beyond necessity and conclude with Russell eventually developing a lower opinion of his accomplishment in the field of mathematical logic than many of his admirers appreciate.

Introduction

The empiricist legacy of John Locke, George Berkeley, and David Hume, sustained by later empiricists such as Jeremy Bentham, James Mill and John Stuart Mill, kept empiricism intact as the paramount philosophic school of Britain from the time of Locke to the middle of the 19th century. However, James Hutchison Stirling's 1865 publication, *The Secret of Hegel*, substantially altered the terrain by causing idealism to emerge as a dominant trend in Britain, displacing empiricism. Consequently, during Russell's fourth year at Cambridge, when he first plunged into philosophy, the influences around him were such as to predispose him toward Hegelian idealism. Toward the end of 1898, George Edward Moore and Russell began to have doubts about this idealism to which they had hitherto subscribed.[4] Russell had grave reservations about the subject-predicate analysis of propositions that he saw as the basis of monistic philosophies, such as Hegelian idealism. Upon review of the matter, Russell reflected "The question whether all propositions are reducible to the subject-predicate form is one of fundamental importance to all philosophy, and especially to a philosophy which uses the notion of substance."[5]

Gottfried Wilhelm Leibniz's work on logic is considered to have been the beginning of modern logic. As Czeslaw Lejewski surveys matters,

> Modern logic began in the 17th century with Leibniz and developed in partnership with mathematics….The use of numerals to represent unanalyzable notions would hopefully enable the truths of any science, when formulated in terms of the universal language, to be computed by arithmetical operations. Neither the idea of an artificial language nor that of reducing reasoning to computing was entirely new; it was owing to Leibniz'

vision and confidence, however, that the two ideas came eventually to fruition—as witnessed by the arithmetization of logical languages by Kurt Gödel, a Moravian-U.S. mathematical logician, on the one hand, and by the emergence of contemporary computer science, on the other. Leibniz's more concrete contributions to the development of logic appear to be twofold: he successfully applied mathematical methods to the interpretation of the Aristotelian syllogistic, and in proposing a 'calculus of real addition' he showed that parts of algebra are open to nonarithmetical interpretation….

Leibniz' logical papers remained for the most part unknown until *La Logique de Leibniz* was published by Louis Couturat, a French philosopher of mathematics, in 1901. Had these papers been published during the lifetime of Leibniz, the revival of logic, which in fact occurred in the mid-19th century, would have happened much earlier (Lejewski 234-5).

In his *Critical Exposition of the Philosophy of Leibniz*, Russell reflects on how "His [Leibniz'] importance as a philosopher has become more evident…owing to the growth of mathematical logic and the simultaneous discovery of his MSS on that and kindred subjects. His philosophy of the empirical world is now only a historical curiosity, but in the realm of logic and the principles of mathematics many of his dreams have been realized, and have been shown at last to be more than the fantastic imaginings that they seemed to all his successors until the present time" (Russell 1900 viii-ix).

Leibniz had dreams of creating a kind of "universal characteristic" in which "all truths of reason would be reduced to a kind of calculus."[6] [*] According to Leibniz's understanding, "although characters are arbitrary, their use and connection have something which is not arbitrary, namely, a definite analogy between characters and things, and the relations which different characters expressing the same thing have to each other."[7] The contemplation of agreed-upon, even if arbitrary, characters via a "mechanical thread of meditation" was thought to be the avenue to the "interior of things."[8] He believed a language, or "characteristic," including both the arts of discovery and judgment to be crucial to this undertaking.[9]

One of Russell's Cambridge colleagues, J.M.E. McTaggart, regularly lectured on Leibniz. However, in the academic year of 1898-9,

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[*] According to Russell, "Two hundred years ago, Leibniz foresaw the science which Peano has perfected, and endeavoured to create it. He was prevented from succeeding by respect for the authority of Aristotle, whom he could not believe guilty of definite, formal fallacies; but the subject which he desired to create now exists, in spite of the patronizing contempt with which his schemes have been treated by all superior persons. From this 'Universal Characteristic', as he called it, he hoped for a solution of all problems, and an end to all disputes" (Russell 1901 79).

McTaggart wanted to travel to New Zealand, and he asked Russell to fill in for him. Until this point, Russell had not been especially familiar with Leibniz's philosophy, so he welcomed this opportunity to become more acquainted with the great German philosopher's thinking. Russell's lectures on Leibniz were delivered during the Lent Term of 1899.

Louis Coutarat (1868-1914) invited Russell to present a paper at the International Congress of Philosophy held in Paris the summer of 1900. Russell reports: "It was at the International Congress of Philosophy that I became aware of the importance of logical reform for the philosophy of mathematics."[10] The work of Leibniz, along with that of Louis Coutorat, stimulated much of Russell's interest in symbolic logic. In his study and critique of Leibniz, Russell was able to develop the modern views on logic.[11]

The Platonism of Russell's earlier views on logic

Russell's Platonism at the time of his *Critical Exposition of the Philosophy of Leibniz* seems significantly to arise out of his revolt against Hegel.[*] Russell had previously been intent on proving that mathematics is independent of the mathematicians.[12] The basis on which the Hegelians were critical of "the sort of things dealt with by mathematics and physics"[13] was their axiom of *internal relations*. This "axiom of internal relations" involves the conclusion that "there are no relations and that there are not many things, but only one thing."[14] Russell claims:

The axiom of internal relations is…equivalent to the assumption of ontological monism and to the denial that there are any relations. Wherever we seem to have a relation, this is really an adjective of the whole composed of the terms of the supposed relation.

The axiom of internal relations is thus equivalent to the assumption that every proposition has one subject and one predicate. For a proposition which asserts a relation must always be reduced to a subject-predicate proposition concerning the whole composed of the terms of the relation

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[*] *A Critical Exposition of the Philosophy of Leibniz*, Ray Monk claims, "though Moore is never once mentioned in it – becomes a sustained argument for the importance of Moore's theory of propositions in 'The Nature of Judgment', and helps to explain why Russell invested that theory with such momentous significance" (Monk 1996 119).

It is unclear why Monk considers Russell to have never credited Moore here because Russell expressly says in the very same work "I have to thank Mr. G.E. Moore…for reading the proofs and for many valuable suggestions" (Russell 1900 xv).

(Russell 1910b 142). In that case, every true proposition attributing a predicate to a subject is purely analytic…" (Russell 1910b 145). [W]hen I rejected this axiom, I began to believe everything the Hegelians disbelieved. This gave me a very full universe. I imagined all the numbers sitting in a row in a Platonic heaven….I thought that points of space and instants of time were actually existing entities, and that matter might very well be composed of actual elements such as physics found convenient. I believed in a world of universals[*]… (1959b 48-9). [T]he most interesting aspect of the matter to me was the logical aspect. I was glad to think that relations are real, and I was interested to discover the dire effect upon metaphysics of the belief that all propositions are of the subject-predicate form….In the study and criticism of Leibniz I found occasion to exemplify the new views on logic to which, largely under Moore's guidance, I had been led (1967 199).

At this stage, analysis, far from being a merely linguistic exercise, is an *ontological* activity.[†] The primary value for Russell of logic and mathematics was their inherent transcendent beauty. Their pedagogical utility was quite secondary.[‡]

        As Russell biographer Ronald Clark succinctly explains, "There were, towards the end of the nineteenth century, two contrasting views on the nature of mathematical propositions. Mill and his followers had seen them as empirical generalizations, supported by what appears to be an almost infinite number of examples; the Kantian view was that they were synthetic *a priori* truths. Neither analysis satisfied Russell who since his later days at Cambridge had hoped to show that mathematical propositions could be derived from the propositions of formal logic."[15]

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[*] Universals are "the properties or qualities that many particular things can have in common, such as redness, roundness, being human" (Grayling 2019 143).

[†] According to Russell's philosophy, at this point, "logic and metaphysics are scarcely distinguishable….For Russell, a vitally important aspect of Moore's theory – in which, however, Moore himself took little interest – was that it had the consequence that relations, *contra* Bradley (and Russell himself twelve months previously), were real" (Monk 1996 117-8).

[‡] With characteristic irony, Russell explains the utility of symbolic logic: "It is not easy for the lay mind to realize the importance of symbolism in discussing the foundations of mathematics, and the explanation may perhaps seem strangely paradoxical. The fact is that symbolism is useful because it makes things difficult….Obviousness is always the enemy to correctness. Hence we invent some new and difficult symbolism, in which nothing seems obvious. Then we set up certain rules for operating on the symbols, and the whole thing becomes mechanical. In this way we find out what must be taken as premises and what can be demonstrated or defined" (Russell 1901 77).

During the first decade and half of the 20th century, Russell believed that mathematics, far from being a mere "tool for understanding and manipulating the sensible world," was instead an "abstract edifice subsisting in a Platonic heaven and only reaching the world of sense in an impure and degraded form."[16] Russell disparaged attempts by others to depict the laws of logic as mere laws of thought. For to do so, he suggested, was to compromise reason's dignity and perpetrate a gross negligence of how "mathematics takes us…further from what is human, into the region of absolute necessity, to which not only the actual world, but every possible world, must conform; and here it…finds a habitation eternally standing….[M]athematics [is] independent of us…."[17]

Leibniz's conceptualism

Russell appreciated Leibniz's views on the primacy, utility, and methodology of symbolic logic. However, he did not accept Leibniz's conceptualist metaphysic but believed in this more Platonic, transcendentally beautiful and "luxuriant" universe instead. This difference between Leibniz's conceptualism and Russell's realism is noteworthy, and it is worthwhile contrasting it with Leibniz's very different view of mathematical and logical laws.

Although Leibniz discourages mathematicians from preoccupying themselves "in any rigorous sense" with the ontological status of points, indivisibles, infinitesimals, and infinites,[18] the topic interested Leibniz. Granted, in his "Dissertation on the Art of Combinations," the understanding of number as a sort of *incorporeal* figure and as a proper subject for the metaphysician is certainly in a Platonic vein.[19] Also, in a preliminary draft he made for his universal encyclopedia, he went to the extreme of saying "there is nothing which is not subordinate to number. Number is thus a basic metaphysical figure…."[20]

More typical of Leibniz's views, though, are that "in mathematical extension…there is no actual division nor any parts except those we make through thought…."[21] Mathematical entities are not "really found in nature as such" but are only "means of making accurate calculations of an abstract mental kind."[22] This suggests that, as useful as mathematics is, and as subordinate as everything is to its rules,[*] the geometric figures,[23] as well as

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[*] According to Leibniz, "nothing ever happens which violates…the…most exact rules of mathematics….[T]hings can be rendered intelligible only by these rules….[W]hen a miscalculation appears after an exact chain of inference, it is because we cannot adequately examine the facts and because there is an imperfection in our assumption" ("Reply to the Thoughts on the System" 950-1).

"time, extension, motion, and the continuum in general" are merely *ideal*.[24][*]As such, they indicate *possibilities* in the same way as *numbers*.[25] A "mathematical body," he would have us understand, is "not real but something mental and designates nothing but the possibility of parts, not something actual….And, as in counting, the number is not a substance without the things counted, so neither is a mathematical body or extension without active and passive entities or motion."[26] [†]

According to the "Preface to an Edition of Nizolius[27],"

> concretes are really things; abstractions are not things but modes of things. But modes are usually nothing but the relations of a thing to the understanding, or phenomenal capacities. Indeed, modes can be repeated to infinity, so that there are qualities of qualities and numbers of numbers. If all these were things, not only infinity but contradiction would result ("Preface to an Edition of Nizolius" 195, emphasis added).[‡] [E]ven if the exact infinitesimals which end the decreasing series of assigned sizes were like imaginary roots, this would not at all injure the infinitesimal calculus, or the calculus of differences and sums, which I have proposed and which excellent mathematicians have cultivated so fruitfully ("Reply to the Thoughts on the System" 950-1; see also "Letter to Varignon" 882-3).[§]

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[*] In his chapter "The Labyrinth of the Continuum," Russell has a discussion of how "The distinction between the composition of what is actual, and the resolution of what is ideal, is…of great importance" (Russell 1900 114).

[†] In his "Letter to Samuel Masson," Leibniz complains of an anonymous critic's criticisms of his own essays: "He claims that mathematicians take abstract beings for real beings, or relative beings for absolute beings. *I* do not do this….[N]otwithstanding my *infinitesimal calculus*, I do not admit any real infinite number, even though I confess that the multitude of things surpasses any finite number, or rather any number….I consider infinitesimal quantities to be useful fictions" (pp. 229-30 of Ariew/Garber edition).

[‡] Loemker discusses how "Leibniz does not hold that there are real infinites and infinitesimals in existence, as [Bertrand] Russell interprets him; they are in existence only as possibilities of analysis and synthesis. Real infinity is only in the realm of possibility and in God, whose thought supports the possibility of endless processes of analysis by which finite minds would have to attain him" (Loemker 1956 54).

[§] In the "Correspondence with John Bernoulli," Leibniz speaks of how "As concerns infinitesimal terms, it seems to me not only that we cannot penetrate to them but that there are none in nature, that is, that they are not possible. Otherwise,…I admit that, if I could concede their possibility, I should concede their being" (830).

Loemker explains "Leibniz obviously anticipates some of Berkeley's later empirical objections to the foundations of the calculus. Though he suggests a number of interpretations in the letter to Varignon (No. 56), his reply to Berkeley could be inferred from his reply to Locke. Ideas are for him not merely objects of the mind,

Leibniz scholar Leroy Loemker would have us understand that Leibniz's mathematical concepts assist with the resolution of such ancient riddles as how the individual relates to the universal and how change relates to permanence.[28] Leibniz explains "in forming *universals* the soul only abstracts certain circumstances by concealing innumerable others….[I]t is only in an individual that there is a complete notion."[29] Space, motion, time, and extension, in turn, are merely *modes of our consideration*.[30] Russell discusses how "as regards space and time, Leibniz always endeavoured to reduce them to attributes of the substances in them."[31]

   This *abstraction* of universals, when combined with the idea that *abstractions* are not things but modes of things, can give the impression that *universals* were, for Leibniz, also just modes of things, and have no existence in their own right. Additionally, in a discussion of William of Ockham, Leibniz approvingly quotes the rule that *entities must not be multiplied beyond necessity* and reduces it to the notion that "*the simpler a hypothesis is, the better it is*.[32] *

Defects of restricting propositions
to the subject/predicate form

The propositions using mathematical ideas are examples of propositions not reducible to the subject/predicate form.[33] Indeed, a point Russell makes concerning Leibniz is that "a proposition without a subject…is just such a proposition which, in the case of numbers, or of relations between monads, God is supposed to see and believe."[34] "Thus," he continues, "the attempt to reduce relations to predicates of the percipient suffers from one or other

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but operators, and the concept of infinitesimal is of this kind" (Loemker 1956 1192 n. 204).

* Leibniz is complicated here, however, because he is also critical of the belief that universals are "nothing but collections of individuals" ("Preface to an Edition of Nizolius" 199-202). In spite of his express praise for the nominalists, Leibniz decries the extremes to which moderns like Thomas Hobbes take nominalism ("Preface to an Edition of Nizolius" 198-9).

The nature of universals then as that of entities existing over and above particulars but discernible for us solely by an abstraction from the concrete particulars, although logically possible, was obscure as of this writing. Indeed, Loemker says "Leibniz is…a conceptualist" only to describe "Leibniz's opinion" a sentence later as being that "human thought implies the objective subsistence of logical relations" (Loemker 1956 90).

How all these various views can be squared was not grasped as of this writing.

of two defects. Either the percipient is deceived into seeing truth in a meaningless form of words, or there is no reason to suppose the truth dependent upon his perception of it."[35]

For Leibniz, since a relation is "neither a substance, nor an accident, it must be a mere ideal thing, the consideration of which is nevertheless useful."[36] But, as Russell would have it, "The only ground for denying the independent reality of relations is that propositions must have a subject and a predicate."[37] So, too, "In the belief that propositions must, in the last analysis, have a subject and a predicate, Leibniz does not differ either from his predecessors or from his successors. Any philosophy which uses either substance or the Absolute will be found, on inspection, to depend upon this belief."[38]

Russell famously argued

> among philosophers, we may say, broadly, that only those universals which are named by adjectives or substantives have been much or often recognized, while those named by verbs and prepositions have been usually overlooked. This omission has had a very great effect upon philosophy; it is hardly too much to say that most metaphysics, since Spinoza, has been largely determined by it…. [I]t was supposed that, ultimately, there can be no such entities as relations between things. Hence either there can be only one thing in the universe, or, if there are many things, they cannot possibly interact in any way, since any interaction would be a relation, and relations are impossible.
>
> The first of these views, advocated by Spinoza and held in our own day by Bradley and many other philosophers, is called *monism*; the second, advocated Leibniz but not very common nowadays, is called *monadism*, because each of the isolated things is called a *monad*. Both these opposing philosophies, interesting as they are, result, in my opinion, from an undue attention to one sort of universals, namely the sort represented by adjectives and substantives rather than by verbs and prepositions (1912c 94-95).

That the laws of logic and mathematics can improve our critical thinking but are, nevertheless, *invented* instead of *discovered* is a position to which Russell had been exposed in the writings of Leibniz and Jules Henri Poincaré (1854-1912), among others. However, at this stage of the development of his thinking, Russell was more interested in criticizing Leibniz's belief that all propositions must assume the subject/predicate form[39] than he was in appreciating the merits of Leibniz's conceptualist view of mathematics and logic.

The advent of Ockham's razor in Russell's philosophy

Shortly before the First World War, Russell's Platonic tendencies were challenged by an Ockhamist influence, which evidently had its source in Alfred North Whitehead.* "[T]he generous Platonism of *The Principles of Mathematics*, in which reality was conceded to every object of thought," A.J. Ayer explained, "is pared away to the point where even such comparatively respectable abstract entities as classes and propositions appear as logical fictions, and we are left only with universals and perhaps also with facts…."[40] In *My Philosophical Development*, Russell explains: "As time went on, my universe became less luxuriant. In my first rebellion against Hegel, I believed that a thing must exist if Hegel's proof that it cannot is invalid. Gradually, Occam's razor gave me a more clean-shaven picture of reality….I still think it impossible to disprove the existence of integers or points or instants or the Gods of Olympus. For aught I know these may all be real, but there is not the faintest reason to think so."[41] †

          This interest in metaphysical economy gained such ground in Russell's thinking that the "supreme maxim in scientific philosophizing" for him became "*Whenever possible, logical constructions are to be substituted for inferred entities*."[42] That propositions forfeited their objective reality and were relegated to the level of merely cognitive constructs was a casualty of this substitution of logical constructions for inferred entities.[43]

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* Alan Wood mentions that "Russell's use of Occam's Razor was derived from his work on mathematical philosophy, and the Theory of Descriptions" (Wood 1957 91). According to Russell himself, "As regards points, instants, and particles, I was awakened from my 'dogmatic slumbers' by [Alfred North] Whitehead. Whitehead invented a method of constructing points, instants, and particles as sets of events, each of finite extent. This made it possible to use Occam's razor in physics in the same sort of way in which we had used it in arithmetic" (Russell 1959b 77; see also 1917 151) It was Russell's application of this method of substituting logical constructions for inferred entities to the realm of physics, even with due acknowledgement to Whitehead for suggesting it, that "vexed" Whitehead. "In fact, it put an end to our collaboration" (Russell 1968 100-1; see Monk 1996 487).

† In his autobiography, Russell was to reflect: "As regards metaphysics, when, under the influence of Moore, I first threw off the belief in German idealism, I experienced the delight of believing that the sensible world is real. Bit by bit, chiefly under the influence of physics, this delight has faded, and I have been driven to a position not unlike that of Berkeley, without his God and his Anglican complacency" (Russell 1968 233).

As Russell changed his views, the laws of logic no longer involved an investigation of the "laws of things," or eternal Platonic forms.[*] Instead, logic was engaged in a mere analysis of language.[44] Ray Monk explains, "a logical principle asserts 'only that this symbol and that have the same meaning'."[45] This substitution of logical constructions for inferred entities depopulated Russell's universe to the extent of eliminating "the useless menagerie of metaphysical monsters with which it used to be infested,"[46] such as "entities corresponding to numbers, objects described, and…classes."[47]

Ultimately, it was almost exclusively the *utility* of logic and mathematics in which Russell thought their value consists. In spite of his earlier interest in positing something's existence merely because Hegel failed to *disprove* its existence, metaphysical economy was eventually to triumph over and eliminate Pythagoreanism from mathematical logic,

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[*] Charles A. Fritz Jr. expressly attributes to work as late as Russell's 1918 theory of Logical Atomism a "conception of logic which finds a close similarity between the structure of language and the structure of the world" (Fritz 1952 118). So even though this "supreme maxim in scientific philosophizing" depopulates Russell's universe considerably, as late as Russell's 1918 theory of Logical Atomism, "Russell [still] takes the view that logic is the study of the most general features, *not of language, but of the* world" (Monk 1996 517-8 emphasis added). "In *Introduction to Mathematical Philosophy* and the Lectures on Logical Atomism he still conceived logic to be the study of platonic forms, even though he emphasizes the near-impossibility of focusing one's mind upon these forms" (Monk 1996 594).

In *Introduction to Mathematical Philosophy*, Russell credits Ludwig Wittgenstein with having impressed upon him the tautological nature of mathematical propositions (Russell 1919 205n.). The evidence can certainly suggest that Russell must have been referring to a time as early as 1914, as that was the last year that Wittgenstein was Russell's student. However, Russell's 1919 words here arguably fall short of proving Russell's belief in the tautological nature of logical propositions at the time Wittgenstein initially prevailed upon him to adopt this perspective. Rather, Russell's consent to belief in the tautological nature of logical propositions apparently had to wait until the summer of 1919 when Russell rented a farmhouse in Lulworth with the mathematician J.E. Littlewood and studied Wittgenstein's *Tractatus* manuscript (Clark 1975 364-5).

In the *Tractatus* manuscript, Russell read Wittgenstein's discussion of how "All mathematical proof consists merely in saying in other words part or the whole of what is said in the premises" ("Is Mathematics Purely Linguistic?" in *Essays in Analysis* 304-5, Quoted in Clark 370; see also Russell—Professor C.W.K. Mundle , December 20, 1968 *Russell Archives*, [Quoted in Clark 370], Russell 1958b 58, and Russell 1959b 88 & 157.) Russell spoke of how "I no longer think that the laws of logic are laws of things; on the contrary, I now regard them as purely linguistic" (Russell 1959b 77).

thereby causing mathematical logic to lose much of its luster. When Russell later reflected on early 20th century philosophic activity, he acknowledged "From preoccupation with the logical analysis of propositions, the new philosophy had at first a strong tincture of Platonic and mediaeval realism; it regarded abstracts as having the same kind of existence that concretes have. From this view, as its logic perfected itself, it became gradually more free. What remains is not such as to shock common sense."[48] Although, the pedagogical value of mathematical logic was to remain alive and well, the Platonism that lent so much sublime eternity to Russell's earlier work on mathematical logic had, by this time, altogether evaporated.

Conclusion

Russell was eventually to describe his philosophical development during the First World War, as a "retreat from Pythagoras." During this development and evolution, Russell conceded "Mathematics has ceased to seem to me non-human in its subject-matter. I have come to believe, though very reluctantly, that it consists of tautologies. I fear that, to a mind of sufficient intellectual power, the whole of mathematics would appear trivial, as trivial as the statement that a four-footed animal is an animal."[49] Logic in general, far from enjoying its heyday as the "essence of philosophy,"[50] was relegated to not even being part of philosophy.[51]

If Russell had been converted by Leibniz to conceptualism, he may have "retreated from Pythagoras" two decades earlier. Leibniz's disbelief in the reality of relations was what originally hindered Russell's appreciation of Leibniz's conceptualism. One can only wonder what consequences this had for the field of mathematical logic, for good or ill.

For fear that we hold *Principia* in higher esteem than Russell would advise, we ought perhaps to bear in mind that, by discerning that the laws of logic underlying mathematics are merely laws of thought, the true dignity of *Principia Mathematica* is very greatly altered.

Notes

[1] Clark 1981 22
[2] Clark 1975 44
[3] Copleston 1950 139
[4] Russell 1959b 42
[5] Russell 1900 12
[6] Leibniz, "Letters to Nicolas Remond" 1063; see also 1065.
[7] Leibniz, *Dialogue* 1677 282