Russell vs. Meinong

The Legacy of "On Denoting"

Edited by Nicholas Griffin
and Dale Jacquette

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Dedicated to the memories of
our teachers and mentors,
Roderick M. Chisholm and
Richard (Routley) Sylvan

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Preface

The essays collected in this volume were selected from a total of forty-one contributions written for presentation at an international conference on 'Russell vs. Meinong: 100 Years After "On Denoting"', held 14–18 May 2005, at McMaster University, Hamilton, Ontario, Canada. The meeting was attended by more than one hundred philosophers, logicians, and historians of philosophy from fourteen countries, and featured critical, expository, and original philosophical investigations primarily inspired by the late nineteenth- and early twentieth-century writings of Bertrand Russell and Alexius Meinong.

The idea to organize the convention, in the manner in which such events sometimes replicate, came about when the editors attended a previous conference on 'Mistakes of Reason: A Conference in Honour of John Woods', at the University of Lethbridge, Alberta, Canada, 19–21 April 2002. Woods's work on the logic of fiction, among many other topics, was the occasion for a number of papers on nonexistent objects, and in particular on Alexius Meinong's object theory logic and semantics. During a day-long walk in the Lethbridge environs after the programme had ended but before we returned to our respective universities, Griffin and Jacquette lamented the lack of informed, accurate discussions of Meinong's philosophy.

We bemoaned the fact, as Meinong scholars are often compelled to do, that Russell's criticisms of Meinong after 1905 had soured the analytic philosophical community on the real merits of Meinong's thought, and predisposed many writers thereafter to dismiss Meinong's unique and in many ways commonsensical approach to mind and meaning, in the period when Russell's logical methods set the agenda for the most exciting original developments in philosophical analysis. We commiserated accordingly on the fact that Meinong studies have never received a fair, impartial hearing in mainstream analytic philosophy since Meinong's writings were mostly untranslated, and Russell's objections had led so many critics to discount Meinong's *Gegenstandstheorie*, usually without bothering to read or think about it for themselves. The trouble is only compounded by the further fact that many thinkers sympathetic to Meinong's object theory, usually in some revisionary but still recognizably Meinongian application, regard Russell's

most influential opposition as based on false attributions to Meinong of theses the latter never accepted. Meinong's exact views are subtly different than the rightly objectionable positions Russell sometimes ascribes to him, despite Russell's acute understanding and appreciation for Meinong's empiricist methodology.

Thus, we walked and talked about the sad state of Meinong scholarship among analytic philosophers. Approximately one week later, Jacquette proposed to Griffin that the upcoming date of 2005 might be an appropriate opportunity to organize a symposium on Russell and Meinong, in celebration of the 100th anniversary of the 1905 publication of Russell's landmark essay, 'On Denoting', in which Russell's criticisms of Meinong first became widely known. Griffin, Director of the Bertrand Russell Research Centre at McMaster, generously offered to host the conference, attracting specialists on Russell and Meinong, and, in some instances, on the intersection of philosophical interests of and historical interaction between Russell and Meinong, and such historically and spiritually related figures as Gottlob Frege. The rest, as they say, if not quite history, was generally considered to have been successful in bringing together Russell and Meinong scholars airing many of the issues that continue to divide Russellian extensionalism from Meinongian intensionalism in contemporary philosophical logic and semantics. The papers included in this volume represent some of the most interesting recent work, especially on the historical and philosophical collision between Russell and Meinong that came into sharp focus in Russell's justly celebrated 1905 essay. The point of the collection is not to archive what transpired at the conference, for, on the contrary, the conference itself was a means to an end in bringing the issues discussed in these essays to a wider philosophical audience. We commend these essays to all readers interested in open ongoing consideration of the extraordinary philosophical options represented by these two seminal but frequently misunderstood twentieth-century thinkers. That a healthy dispute about Russell and Meinong will surely continue is indicated by the fact that the editors themselves have by no means resolved their differences, but continue to disagree fundamentally about the correct interpretation of, and logical and philosophical significance of key passages in Russell, Meinong, and, for that matter, Frege.

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Introduction
Russell and Meinong in Retrospect

Dale Jacquette and Nicholas Griffin

La théorie c'est bon, mais ça n'empêche pas d'exister.

—Jean-Martin Charcot

There is widespread agreement among philosophers, logicians and historians of these subjects, who often agree on little else, that Bertrand Russell's remarkable essay, 'On Denoting', published in the journal *Mind* in 1905, is one of the most important philosophical studies of the twentieth century. The theory of definite descriptions that Russell propounded in the paper launched a new phase in the development of analytic philosophy and provided a new pattern for philosophical analysis.

Russell's theory of definite descriptions had a major impact, not only on logic and the philosophy of language, but also on metaphysics, epistemology, and logical and philosophical methodology. It was with good reason, therefore, that Frank P. Ramsey referred to the theory as 'that paradigm of philosophy, Russell's theory of descriptions'. For almost fifty years, the theory looked like as uncontroversial an example of progress in philosophy as anyone was ever likely to find. At the same time, alternative theories seemed to have been definitively consigned to the rubbish-bin of history.

One of the most important, well-developed and suitably ignored alternatives preceding Russell's analysis appeared in Alexius Meinong's object theory (*Gegenstandstheorie*). Russell was well-aware of Meinong's work, against which he raises interesting objections in clearing the way for the presentation of his own ultimately very different approach. As a result of Russell's criticisms, especially in 'On Denoting' and later writings on philosophical logic, Meinong's theory seemed for a long time to be enmeshed in insuperable difficulties. Thus, assuming he was writing a final obituary for Meinong's lifework, Gilbert Ryle, in 'Intentionality-Theory and the Nature of Thinking' (*Jenseits von Sein und Nichtsein*, edited by Rudolf Haller, 1972), wrote: 'Let us frankly concede from the start that *Gegenstandstheorie* itself is dead, buried and not going to be resurrected. Nobody is going to argue again that, for example, "there are objects concerning which it is the case that there are no such objects". Nobody is going to argue again that the possibility of ethical and aesthetic judgments being true requires that values be objects of a special sort.'

Moreover, compared to the subtlety and sophistication of Russell's analysis of definite descriptions, Meinong's object theory can sometimes appear naïve and simple-minded; although many of its adherents would prefer to describe the theory as natural and commonsensical. The unchallenged dominance of Russell's analysis of definite descriptions did not last indefinitely. From 1950 onwards, problems began to be discovered in Russell's proposal; in particular, critics, beginning with P. F. Strawson in his important essay, 'On Referring', expressed deep-seated concerns about whether Russell's analysis treated natural language uses of definite descriptions properly, and whether and how well it could be combined with such newly emerging logical theories as quantified modal logic. Somewhat later, philosophers began to develop theories of objects, loosely based on Meinong's, which avoided the objections that Russell had raised against Meinong's theory. The prospects for a rehabilitation of Meinong's theory in light of its most unsympathetic critics, who for some time paid only scant attention to Meinong's actual position, quickly led to new interest in understanding Meinong's views in accurate detail, to the careful reading and study of Meinong's voluminous writings, and to the re-emergence of Meinong himself as an important philosopher. Moreover, some of the new Meinongian theories of objects were found to be subject to fresh difficulties, not created by Russell, which turned out to be less tractable than was initially hoped. Meanwhile, the availability of Russell's *Nachlaß* in the Bertrand Russell Archives at McMaster University, and in particular the publication of many unpublished logic manuscripts in *The Collected Papers of Bertrand Russell*, cast Russell's theory in a radically new light.

All of these trends converge today, a century after 'On Denoting' was published, to create an exegetical and philosophical situation of some complexity. On the one hand, there is a mass of new historical scholarship, about both Russell and Meinong, which has not circulated very far beyond specialist scholars in the two camps. Russellians have remained ignorant of much of the recent work of Meinong scholars, and vice versa. On the other hand, there are continuing problems and controversies concerning contemporary Russellian and Meinongian theories that new generations of logicians and philosophers need to consider as historical-philosophical background to their own ongoing research into the problems of logic, mathematics and the meaning of thought and language.

To appreciate the philosophical issues arising in Russell's 1905 analysis of definite descriptions, covering a range of topics including but by no means limited to a critique of Meinong's object theory, we must say something about the background and intellectual biographies of Russell and Meinong.

Russell (1872–1970) is by common consent one of the most important philosophers of the twentieth century. Among his many writings on logic, philosophy and social criticism, 'On Denoting' is the compact work by which he is most often introduced to new students of philosophy. The essay

is nevertheless a paradox in itself; some parts are the very model of lucidity, while other parts remain obscure and the subject of interpretative disputes to the present day. The essay was almost rejected by *Mind*, and was not much read or discussed until at least a decade after its publication, when it gained enormous prominence among logically and mathematically minded philosophers.

Russell began his academic career when he entered Trinity College, Cambridge University, in 1890. There, he distinguished himself in advanced studies of philosophy and mathematics and became a Fellow of the college in 1895. Hailing from an aristocratic British family, raised largely by his grandmother, from whom he learned German, Italian and French along with his native English, Bertrand Arthur William Russell frequently found his noble family background in conflict with his acute democratic social consciousness and his desire to devote his life to philosophy and mathematics. Russell's sense of moral and social obligation is dramatized in particular by his opposition to Great Britain's involvement in World War I, as a result of which he was sentenced to prison. It was during this imprisonment, over ten years after the publication of 'On Denoting', that Russell wrote a popular philosophy book, *Introduction to Mathematical Philosophy*, in which many of the themes of 'On Denoting', including even more severe and questionable criticisms of Meinong, are explored.

Russell, writing his dissertation on the philosophy of mathematics, and in particular geometry, entered the ranks of university philosophers as a kind of neo-Hegelian in what was then the prevailing post-Kantian atmosphere of Cambridge, inspired, among others, by F. H. Bradley. Russell visited the Mathematical Congress in Paris in 1900, where he became fascinated with the work of the Italian mathematician Giuseppe Peano. Peano had developed a mathematical notation for logical concepts in order to represent the basic axioms of arithmetic, which Russell studied and later adapted and expanded upon with great enthusiasm. Peano's logic figures prominently in Russell's early logicist efforts to reduce all of mathematics to basic principles of formal symbolic logic, following unwittingly in the footsteps of Gottlob Frege, whose analysis of the concept of number Russell independently discovered.

In 1903, Russell published his first important book, *The Principles of Mathematics*. Later, with his collaborator A. N. Whitehead, he developed and extended the mathematical logic of Peano and Frege, culminating in 1910 to 1913 in the monumental three-volume work, the *Principia Mathematica*. The project of *Principia Mathematica* is more technically elaborated but similar in spirit to that of Frege. Russell was especially influenced by the two volumes of Frege's 1893 and 1903 *Grundgesetze der Arithmetik* (*Basic Laws of Arithmetic*).

In 1910, Russell was appointed lecturer at Trinity College. When World War I broke out, he participated actively in the No Conscription Fellowship and was fined £100 as the author of a leaflet criticizing a two-year

prison sentence that had been imposed on a conscientious objector who had refused military service. In the mood of misguided patriotism that prevailed at the time, Trinity College then further retaliated in 1916 by depriving Russell of his lectureship. Russell was offered a position at Harvard University in the United States, but was unable to obtain a passport to leave England in order to accept the appointment. As previously mentioned, in 1918, Russell was sentenced to six months imprisonment for an article he had written in the London *Tribunal*.

Russell's 1905 essay 'On Denoting' epitomizes the early ambitions of analytic philosophy in the twentieth century. That paradigm of philosophy, as Ramsey described Russell's theory of definite descriptions in the 1930s, continues to inform philosophical analysis in studies far afield of logic and semantics. Russell demonstrates a way of penetrating the surface grammar of a specific set of expressions with important philosophical implications and systematically unpacking their component meanings. Like a beam of white light entering an optical prism and emerging in a spectrum of colours at the other end, Russell breaks definite descriptions down into distinct ontic, uniqueness and predication constituents. To say that 'The present King of France is bald', according to Russell, is to say: (1) (falsely) that there exists an entity that has the property of being a present King of France; (2) that there exists at most one entity that has the property of being a present King of France; and (3) that the existent entity in question has the further property of being bald. Meinong need have no quarrel with conditions (2) and (3) in Russell's analysis of definite descriptions; the disagreement between the two thinkers centres squarely on the existence condition in requirement (1).

Russell's theory of definite descriptions marks an important turning point in his philosophical development, as he breaks from his prior qualified admiration for Meinong's *Gegenstandstheorie*. Russell also departs sharply from Frege in 'On Denoting', rejecting in particular Frege's concept of senses, which he had previously acknowledged in the special case of definite descriptions. To riff on the spirit of Charcot's epigram above, a favourite quotation of Sigmund Freud's—abstract theory is valuable, but that doesn't stop something from existing. Meinong might add that even the most beautiful and powerful analysis of thought or language also does not necessarily exclude the nonexistent.

Alexius Meinong (1853–1920), the polemical foil for Russell's criticisms of object theory in 'On Denoting', was born in the Austro-Hungarian Empire garrison town of Lemberg (Lvov), Poland. Meinong's ancestors were German, but his grandfather had immigrated to Austria. At the time of his birth, Meinong's father was serving the Austrian emperor Franz Josef as a senior military officer stationed in Lemberg. Like Russell, Meinong was a member of the European aristocracy, being related to the royal House of Handschuchsheim, and legally held title as Ritter von (Knight of) Handschuchsheim. Again, however, much like Russell in keeping with his

republican convictions, Meinong never used this patrician form of address. In 1862, he began six years of private tutoring in Vienna, followed by another two years at the Vienna Academic Gymnasium. Meinong enroled in the University of Vienna in 1870, where his first major subjects were German philology and history. Later, suppressing his own interests to study music and temporarily resisting parental pressure to enter the diploma programme in law, Meinong concentrated exclusively on history, completing his dissertation in 1874 on Arnold von Brescia, the medieval religious and social reformer. Meinong reports that during this time his interest in philosophy was overshadowed by historical studies. His philosophical appetite was whetted and reawakened only when, in preparation for the philosophical component of a mandatory examination on topics related to his dissertation research (the *Nebenrigorosum*), he undertook a self-directed study of Kant's *Critique of Pure Reason* and *Critique of Practical Reason*.

To broaden his historical background, and possibly to appease his parents, Meinong entered the University of Vienna law school in the autumn of 1874. There, he devoted his time to Carl Menger's lectures on economics, which influenced his later work on value theory. It was just before the 1874 to 1875 winter term that Meinong decided to turn his attention to philosophy. Franz Brentano, charismatic lecturer in philosophy at the height of his powers at just this time, had recently joined the philosophical faculty of the University of Vienna, and he and Meinong had met in connection with Meinong's *Nebenrigorosum*. Significantly, Meinong denies that Brentano directly influenced his decision to study philosophy, but acknowledges that as a result of their encounter he was persuaded that his progress in philosophy would improve under Brentano's direction. Brentano recommended that Meinong undertake his first systematic investigations in philosophy on David Hume's empiricist metaphysics. Meinong accordingly completed his *Habilitationsschrift* on Hume's nominalism in 1877, resulting in Meinong's first philosophical publication, the *Hume-Studien I*, appearing in 1878 in the *Sitzungsberichte der Wiener Akademie der Wissenschaften*, and followed by a sequel on Hume's theory of relations, the *Hume-Studien II*, in 1882. During this four-year interval, while studying with Brentano and working out his interpretation of Hume, Meinong held the position of *Privatdozent* in philosophy at the University of Vienna. In this capacity, he tutored some of Brentano's most talented students, including Christian von Ehrenfels, the founder of Gestalt psychology, and Alois Höfler, with whom Meinong later collaborated on his first explorations of the logical and conceptual foundations of object theory, the *Logik* of 1890.

In 1882, Meinong was appointed Professor Extraordinarius at the University of Graz, receiving promotion to Ordinarius in 1889, where he remained until his death. At Graz, Meinong established the first laboratory for experimental psychology in Austria, which flourished under his directorship. Throughout his long tenure at Graz, Meinong was engaged in difficult philosophical problems and simultaneously occupied with psychological

investigations, especially those Brentano designated as belonging to empirical descriptive psychology. Here, for the philosophically most active forty-three years of his life, Meinong wrote his major philosophical treatises and edited collections of essays on object theory, philosophical psychology, metaphysics, semantics and philosophy of language, theory of evidence, possibility and probability, value theory and the analysis of emotion, imagination and abstraction. His philosophical studies, as Russell in his 1904 to 1906 *Mind* reviews of Meinong's works remarks, were distinguished by an uncompromising empiricism that Brentano had helped foster. The empirical outlook in philosophical studies stood in stark opposition to the prevalent post-Kantianism that, again in parallel with the academic situation at Russell's Cambridge University, ruled the Austrian philosophical community at the time.

The Graz school of phenomenological psychology and philosophical semantics that centred on Meinong and his students made important advances in all major areas of philosophy and psychological science. The most notable feature of Meinong's work, the underlying foundation even of his work in experimental psychology, was the doctrine of the distinctive intentionality of thought, which he inherited from his teacher, Brentano. Brentano in his 1874 treatise, *Psychologie vom empirischen Standpunkt*, had argued that psychological properties are different from purely physical properties by virtue of the intentionality, 'aboutness', or object-directedness of the psychological, a feature not shared by purely physical phenomena. If every thought is 'about' something or intends an object, then, as Meinong quickly understood, adopting the medieval Scholastic distinction that Brentano had absorbed from his in-depth studies especially of Thomas Aquinas, some thoughts are about existent (physical, spatiotemporal) objects, some thoughts are about subsistent (abstract, platonic) objects and some thoughts, most remarkably, intend or are about objects that are altogether beingless, that neither exist nor subsist. Such objects, from Meinong's perspective, a view that Brentano himself never accepted, are nevertheless essential to understanding the thoughts by which the objects are intended. Whereas Brentano had distinguished three basic categories of thoughts, presentation (*Vorstellung*), judgement (*Urteil*) and emotion (*Gefühl*, *Gemütstätigkeiten*), Meinong in his 1901 (second edition 1910) work, *Über Annahmen*, eponymously introduced a fourth category of assumptions. He argued that the mind has unlimited freedom of assumption to entertain intended objects correlated with any combination of constitutive properties, including objects that do not exist, and even those that metaphysically speaking cannot possibly exist. Thus, the notorious Meinongian objects of the golden mountain and round square enter into intentionalist philosophy of mind and intensionalist logic and semantics. We can make whatever assumptions we like, nothing prevents us from doing so, by combining properties of any sort together experimentally in thought, to consider their consequences, and even if only to conclude that no such objects exist or could possibly exist.

Meinong never says that the most adventurous of these thoughts intend existent objects. Although many of our thoughts are obviously about things that exist, Meinong does not try to say, what would in any case be clearly absurd, that the golden mountain and round square exist or have being, even 'in' our thoughts. Rather, he holds that despite their beinglessness, such intended objects must belong to a semantic order of mind-independent objects, which it is the responsibility of a complete object theory to consider. It is, of course, the nonexistence of certain intended Meinongian objects that seems at first to have intrigued Russell, but which he later decided must be denounced as incoherent and banished from the foundations of logic and the philosophy of mind and language.

The existence conditions for definitely described objects in Russell's three-part analysis of definite descriptions has sparked the greatest controversy in the years since Russell published 'On Denoting'. By denying the possibility of referring to and truly predicating ordinary properties of nonexistent objects, Russell complicates the theory of referential meaning for false statements, works of fiction, mistaken scientific theories and hypotheses, and expressions of the products of fantasy and imagination. Where Meinong unifies the semantics of all such commonplace feats of reference and predication in an ontically neutral fashion, treating them as no different than discourse about intended objects that happen to exist, Russell, from a contrary but also legitimate philosophical perspective, sharply divides the meaning of thought and language according to whether or not their ostensible objects actually exist. Where common sense might ordinarily want to insist that, in thinking, for example, about the conflicts among distinct gods in the opening passages of Homer's *Iliad*, that we can say true things about the gods even though they do not exist, Russell will insist that all such predications are simply false. We may naïvely believe, as Meinong holds, that we are directed in thought towards beingless objects when we say, for example, that 'The god of the sea is different from the goddess of love'. We may suppose that we are thinking about different, distinct, albeit nonexistent objects that nevertheless each have individuating properties (one living in the depths of the ocean, carrying a trident, the other having been born from the foam created when Chronus castrated his father Uranus and cast his testicles into the sea, and so on), but Russell's analysis of definite descriptions effects to point out the impossibility of treating such attributions as literally true. Instead, we must *analyse* these statements, and when we do so, looking past and through their superficial surface grammar, adopting the best theory of the meaning and truth conditions of such sentences when confronted with a variety of logical and semantic puzzles, we will come to see that we cannot in fact say anything true about nonexistent entities. Nor does Russell's position substitute unjustified logical sophistication for the deliverances of philosophically uncorrupted common sense, but rather it highlights another facet of common sense, calling upon intuitions according to which things that do not exist cannot have

properties, and hence cannot be the subjects of true property attributions in thought and linguistic predication.

The dispute between Russell and Meinong, accordingly, is not merely a straightforward conflict of common sense with convoluted logical complexity, but rather a dynamic quarrel of different opposing commonsense insights and intuitions. This fact accounts for the enduring interest in the classic opposition between Russell and Meinong, as played out among other ways in Russell's criticisms of Meinong in 'On Denoting'. What we find is not merely Russell taking issue with a theory that he finds mistaken, but a more perennial dispute between referential extensionalism and referential intentionalism and intensionalism, between the 'robust sense of reality' in a phrase Russell famously if controversially coined and the free flights of imagination and fantasy that characterize much of our thinking and demand just as sound an understanding and logical analysis.

Russell's prestige deservedly exerted a powerful influence on generations of philosophers. Their apprenticeship typically featured a close study of 'On Denoting' to embrace the rallying cry of Russell's robust sense of realism by limiting reference to existent objects only. It became a part of this tradition also to ridicule Meinongianism, often without bothering to read Meinong's writings, as Russell had with at least an initial dose of sympathy. The intentionalist tradition that continued the line of thought begun by Brentano through Meinong and others was nevertheless not extinguished with the publication of Russell's invaluable essay or subsequent criticisms in such works as *Introduction to Mathematical Philosophy*. Many scholars since 1905 have doubted whether Russell properly understood the logic and semantics of definite description, despite his name's being so closely associated with the topic. More particularly, it has come increasingly to be questioned whether Russell accurately evaluates the prospects of Meinong's admission of beingless intended objects to a semantic domain alongside existent physical spatiotemporal and abstract entities. Russell rejects Meinong's semantic doctrine as logically incoherent in those applications in which we try to speak of an existent round square as being existent, round and square. By overlooking certain of Meinong's key distinctions, Russell disputes Meinong's central contribution to an intentionalist theory of mind and meaning, by which it is otherwise possible to refer and truly predicate constitutive properties of nonexistent as well as existent objects.

These are among the principal topics explored by the papers collected in this volume. The authors not only focus on the logic of Russell's theory of definite descriptions and its conflict with a Meinongian theory of nonexistent objects, but shed light also on many aspects of Russell's analysis that do not directly concern his battle against nonexistent objects. A fruitful and ongoing conversation about these vital topics of philosophical psychology, logical theory and semantics, in their complex historical-philosophical context, is vigorously advanced by the contributions presented here. The

papers take up themes that Russell first sounded in his groundbreaking, endlessly rewarding essay, marking essential differences of perspective that fundamentally determine logical, semantic, and metaphysical theory-building in many parts of philosophy.

The present collection of papers tackles the Russell vs. Meinong debate in both historical and philosophical categories. It provides an overview of the latest exegetical scholarship on the two philosophers as well as detailed accounts of some of the problems facing the current incarnations of their theories. Several of the essays naturally reflect special interests in Russell's complex adversarial relation to Meinong's object theory. Papers by Alasdair Urquhart, Graham Stevens, Kevin Klement, Gideon Makin, Omar W. Nasim, and David Bostock deal primarily with historical issues. They portray a very different account of Russell's theory and its context than has prevailed over most of the intervening century since 'On Denoting' was published. Francis Jeffry Pelletier and Bernard Linsky, on the other hand, consider the only other theory of descriptions, apart from Meinong's at which Russell also took aim in 'On Denoting', namely, Frege's. Johann Christian Marek and Dale Jacquette address the actual Russell vs. Meinong debate. Finally, papers by Nicholas Griffin, Peter Loptson, Gabriele Contessa, Gregory C. Landini, Michael Nelson, and Nathan Salmon deal with current problems in the two theories. The editors send forth this parcel of new research on Russell's analysis of definite descriptions and the theory of meaning in 'On Denoting', the recurrent tension between extension and intension, existence and the projections of imagination, and thus of Russell vs. Meinong, with the hope and expectation, not that the essays collected here will finally resolve these disputes, but that they reflect some of the best current thinking on these longstanding problems, and that they will provoke further discussion and cultivate renewed interest in the underlying philosophical issues that originally motivated as they importantly divided the groundbreaking philosophical work of Russell and Meinong.

1 Logic and Denotation

Alasdair Urquhart

THE SIGNIFICANCE OF RUSSELL'S THEORY

Why is Bertrand Russell's theory of descriptions important? Russell's short and hastily written (Urquhart 1995) paper of 1905 (Russell 1905a; 1994: Paper 16), has elicited an enormous quantity of commentary. However, there is no universal agreement as to why this particular paper is so important, or what its exact significance is, either logically or philosophically.

The theory was originally conceived as a contribution to logic, but today, professional logicians who do not work in areas closely related to philosophy have at best a nodding acquaintance with the theory, and in general, Russell's theory is considered a marginal topic. Discussion of the theory of descriptions is almost entirely confined to professional philosophers, and even in this community of researchers, there does not seem to be complete agreement as to why the theory matters.

A common view of the theory is that it is a basic contribution to the analysis of the meaning of propositions in ordinary language. This view is already clear in Ramsey's paper of 1929, entitled 'Philosophy'. Ramsey says, 'Sometimes philosophy should clarify and distinguish notions previously vague and confused, and clearly this is meant to fix our future meaning only', adding to this remark the striking footnote: 'But in so far as our past meaning was not utterly confused, philosophy will naturally give that, too. E.g. that paradigm of philosophy, Russell's theory of descriptions' (Ramsey 1931: 263). This view of the significance of the theory is, I believe, the dominant one today, and the problem of the meaning of descriptions in ordinary language dominates current discussions of Russell's theory.

Another popular view is that it is a great contributor to ontological economy. This is the most important feature of the theory for Quine. In his famous essay 'On What There is' (1963: 5) he writes: 'Russell, in his theory of so-called singular descriptions, showed clearly how we might meaningfully use seeming names without supposing that there be the entities allegedly named', and sees the theory as the first step in trimming the ontological luxuriance of Plato's tangled beard.

Neither of these views of Russell's theory is inaccurate, in that Russell himself often emphasized both aspects in promoting it. However, I wish to discuss the theory from a viewpoint that is a little different from either of those given above. I would like to look at it as a contribution to the foundations of logic. When he conceived the basic ideas, Russell was engaged in a large-scale project in the foundations of mathematics and logic, and the theory originally appeared to him as a solution to various problems that had plagued him for some time. To understand what those problems were, however, we need to understand the logical background from which the theory emerged.

Russell himself gives the theory a central place in the evolution of his logical work. Writing to Philip Jourdain on 15 March 1906, he presents the theory as a crucial breakthrough:

> In April 1904 I began working at the Contradiction again, and continued at it, with few intermissions, till January 1905. I was throughout much occupied by the question of Denoting, which I thought was probably relevant, as it proved to be. . . . I tried to do without *ι* as an indefinable, but failed; my success later, in the article 'On Denoting', was the source of all my subsequent progress. (Grattan-Guinness 1977: 79)

As his letter makes clear, Russell's central concern was the solution of the paradoxes and the construction of satisfactory foundations for logic. The analysis of meaning, and ontological/metaphysical questions, though prominent in some of his later writings, take second place at this time to the central problem of the paradoxes.

Russell even seemed to have thought occasionally that a solution to the problems of denoting would in itself lead to a solution to the paradoxes. On 14 April 1904, writing to Alys from Cambridge, where he had gone to work with Whitehead, Russell said: 'Alfred and I had a happy hour yesterday, when we thought the present King of France had solved the Contradiction; but it turned out finally that the royal intellect was not quite up to that standard' (Russell 1994: xxxiii).

Late in life, Russell still presented the theory as a contribution to logic, rather than philosophy, as this quote from *My Philosophical Development* makes plain:

> The theory of descriptions, mentioned above, was first set forth in my article 'On Denoting' in *Mind*, 1905. This doctrine struck the editor as so preposterous that he begged me to reconsider it and not to demand its publication as it stood. I, however, was persuaded of its soundness and refused to give way. It was afterwards generally accepted, and came to be thought my most important contribution to logic. (Russell 1985: 63)

RUSSELL'S LOGICAL UNIVERSE OF 1903

Russell's first extended manuscripts on the theory of denoting, subsequent to the frequently quoted passages written in 1902 and published in *The Principles of Mathematics*, were written in 1903. These papers contain frequent references to Russell's contemporary logical research and clearly form part of the same project. The transition from philosophical discussions of denoting concepts to the analysis of axioms for logic is seamless. Consequently, to understand the problems that Russell was trying to solve, we have to attempt a rough sketch of the logical universe as he conceived it around 1903 to 1905.[1]

The logical manuscripts of this period (most of which remained unpublished until 1994) exhibit one of Russell's intellectual traits that his commentators find most disconcerting, the Protean and chameleon-like character of his thinking. Ideas are proposed and then discarded within the space of only a few pages, and it is difficult to single out consistent threads in his thought. What is worse, most of the logical theories of this period turned out to be inconsistent, posing almost insurmountable problems of interpretation. The best we can do is to single out certain themes that remain constant throughout these years, while many other ideas went through bewildering changes.

The manuscripts of this period show the overwhelming influence of Gottlob Frege. Even though he had revealed the worm of inconsistency gnawing at the roots of Frege's system, Russell remained convinced that Frege's basic strategy for tackling the problem of the paradoxes was sound. Frege reacted to Russell's revelation of the paradox by adding a hastily written appendix to the second volume of his *Grundgesetze der Arithmetik*. The ad hoc patch recommended in this appendix shows that Frege believed that his fundamental strategy for deriving mathematics from logic was correct, but that it required some minor and local modifications to avoid contradictions. In other words, the contradictions could be avoided by some fairly simple and perhaps obvious adjustments to the unrestricted comprehension axiom.

In a note added in proof to Appendix A of *The Principles of Mathematics*, Russell wrote of Frege's own hasty patch to the system of his *Grundgesetze*: 'As it seems very likely that this is the true solution, the reader is strongly recommended to examine Frege's argument on this point' (Russell 1937: 522). Indeed, all of Russell's attempts to solve the Contradiction from 1903 to 1905 can be seen as variants on Frege's own abortive attempt. That is to say, the aim is to avoid the paradoxes by placing direct restrictions on the comprehension principle, within the overall framework of an untyped theory of functions.

Why are descriptions important as part of this project? The reason is not far to seek. A large number of important mathematical concepts, and particularly notions involving mathematical functions, can be formulated as descriptions. This fact is clearly visible in the surviving fragments of the logical diary that Russell kept in 1904, given the title 'Fundamental Notions' in volume 4 of the *Collected Papers* (Russell 1994: 111–259). Page

after page of this paper are concerned with denoting functions and denoting complexes. For example, we find on one page a 'List of Principal Denoting Functions' (Russell 1994: 201), and on a slightly later page a list of 'Denoting Functions' (Russell 1994: 206). This logical diary, taken together with the papers more specifically devoted to the theory of denoting, show that it is completely artificial to separate the logical from the philosophical aspects of the theory of denoting at this time in Russell's career.

The search for an adequate set of primitive propositions for logic and the foundations of mathematics, and the search for an adequate theory of denoting, are inextricably linked. Russell's idea was that the solution to the paradoxes should not be an ad hoc patch, but rather should result from a clear view of the logical universe, as it emerged from philosophical reflection on basic concepts. This idea stands out clearly in a letter Whitehead wrote to Russell on 30 April 1904. In response to some remarks of his collaborator in a letter that is now lost, Whitehead says:

> I am in complete agreement with you as to the necessity of your immediate line of work. I have been bombarding you with formal developments from Pps [primitive propositions] embodying a certain stage for the following reasons. For the *technical* development we want reasonably general Pps which give us all we want and exclude the contradiction. I agree that such Pps (except by a miracle) will only turn up in a philosophical analysis of the subject—and that the better the analysis, the better the Pps. (Russell 1994: xxxix)

Complexes

Throughout the period from 1903 to 1905, the notion of 'complex' is central in Russell's thinking. The opening paragraph of the 1904 paper 'On Functions' (Russell 1994: 96–110) gives a clear statement of the idea:

> A *complex* is a unity formed by certain constituents combined in a certain manner. The notion of a *constituent* of a complex is indefinable. A proposition is a complex; so is everything else which is in any way capable of being analyzed.

The complexity that Russell is describing here is logical complexity, so we need to know the primitive elements from which his logical universe was built at this time. The manuscripts of 1903 provide a sketch of a remarkably parsimonious set of primitives. In the brief set of working notes 'Dependent Variables and Denotation', Russell lists his 'Indefinable complexes' as: (1) Implication: $p \supset q$, (2) Substitution: p^{y}_{x}, (3) Universal quantification: $(y)\cdot p^{y}_{x}$, (4) Functional application: $\varphi!x$, (5) Functional abstraction: $\dot{x}\,(p)$, together with an 'indefinable function', the description operator, $\imath$ (Russell 1994: 298).

In addition to purely logical postulates governing implication, substitution and universal quantification, Russell requires postulates governing functional application and abstraction. In an early set of notes on functions from 1903 (Russell 1994: 53) he states two primitive propositions:

$$\vdash \dot{x}(\varphi|x) = \varphi \quad \text{and} \quad \vdash \{\dot{x}(X)\}|y = Y.$$

The context makes it plain that the expression Y is a shorthand notation for the complex X^{y}_{x}.

The resulting logical system bears a strong resemblance to modern theories of the lambda calculus (Barendregt 1984), perhaps not a surprising fact given that Russell's system and the lambda calculus have a common ancestor in the work of Frege. There is a further similarity between this system and theories of lambda calculus with unrestricted functional abstraction and classical logic; Russell's theory is inconsistent, since we can deduce a form of Russell's paradox in it. Setting $R = \dot{x}{\sim}(x|x)$, we have $R|R = \{\dot{x}{\sim}(x|x)\}|R = {\sim}(R|R)$, so that $R|R$ is a proposition equal to its own negation, and this leads immediately to a contradiction, if we use the axioms of classical propositional logic.

Russell, of course, must have realized the contradictory nature of his primitive propositions very quickly. Some other rough notes from a little later in 1903 give a list of fourteen 'inadmissible functions' (Russell 1994: 72); in addition to the function R above, these include the identity function $\dot{x}(x)$ and the negation function $\dot{x}(\text{-}x)$. Russell's strategy for avoiding the paradoxes from about 1903 to 1905 was to attempt a kind of balancing act. On the one hand, he wanted to avoid contradictions by ruling out 'inadmissable functions', while on the other hand, he needed enough logical strength to allow the deduction of standard mathematical axioms, and in particular the axioms of arithmetic and the theory of real numbers. Of course, this strategy in the end proved a failure, but at least initially, Russell did not have a clear conception of the far-reaching nature of the logical paradoxes.

In the early manuscripts of 1903, on postulates for functions, the aim is to single out 'functional complexes', that is to say, those complexes X that define functions $\dot{x}(X)$ by using the functional abstraction operator. A typical example of a primitive proposition based on this idea is

$$\text{Fo}|X \,.\, \text{Focp}|X \,.\supset.\, \{\dot{x}(X)\}|y = X^{y}_{x},$$

an attempt from another of the rough notes on functions (Russell 1994: 70). In words, the primitive proposition says: 'If X is a functional complex, then it satisfies the principle (of λ-conversion) stated without restriction above.'

Since our main concern in this chapter is with the theory of denoting and not with Russell's abortive foundational efforts, we shall not describe further the twists and turns of his heroic labours aimed at separating out the logical sheep from the logical goats. Rather, we now concentrate on the finer details of the ontology that he presupposes at this time.

Russellian Propositions

During the period from 1903 to 1905, Russell adhered consistently to the view that individuals are themselves constituents of true propositions about them. There are many passages from this period in which Russell explicitly espouses this view. A particularly clear example is to be found in the 1903 paper 'On Meaning and Denotation':

> When we make a statement about Arthur Balfour, he himself forms part of the object before our minds, *i.e.* of the proposition stated. If we say, for instance, 'Arthur Balfour advocates retaliation', that expresses a thought which has for its object a complex containing as a constituent the man himself; no one who does not know what is the designation of the name 'Arthur Balfour' can understand what we *mean*: the object of our thought cannot, by our statement, be communicated to him. (Russell 1994: 315–16)

This passage also contains Russell's standard epistemological argument for the view. However, we are not concerned here with Russell's theory of knowledge, so in what follows we shall simply accept Russell's view as given, without examining the doctrine of acquaintance on which it ultimately rests.

Although there is general agreement among commentators on Russell that he held the view quoted at the time of *The Principles of Mathematics*, and the passage above shows unequivocally that he held the view in 1903, there is some disagreement as to whether he held the view in 1905, when he wrote 'On Denoting'. In a paper (1994) coauthored with Judy Pelham we maintain that Russell stuck to this view of propositions throughout 1905, and also in later years. The main reason for thinking this is that it seems otherwise impossible to make sense of the manuscripts on the substitutional theory from the same year. All of these unpublished writings of Russell are based on a primitive notion of substitution that is not the modern notion, in which one syntactical entity is substituted for another, but rather a notion of *entity substitution*, in which one individual is substituted for another.

To understand what is at issue here, it is helpful to consider a set-theoretical analogy. If S is a set (let us say, of natural numbers), we can define the set $S\frac{x}{y}$ to be $(S\backslash\{y\}) \cup \{x\}$, provided $y \in S$, otherwise $S\frac{x}{y} = S$. In other words, $S\frac{x}{y}$ is the result of replacing one member of S by another. For example, if S is the set $\{2, 3, 7\}$, then $S\frac{5}{3} = \{2, 5, 7\}$. The substitution in question acts on complex abstract objects and produces another complex abstract object by replacing one constituent by another. This is exactly the kind of process that Russell had in mind in his substitutional theory of propositions; it is also the notion of substitution given above in 'Complexes' in the list of primitive logical notions .

Although Russell ultimately abandoned his earlier view of propositions as entities, his commitment to the view that objects form part of the complexes

expressing the meanings of statements about them remained in a modified form. Thus in his later multiple-relation theory of judgement, individuals are constituents of judgement-complexes, just as they are constituents of propositions in the earlier theory. Hence, it appears that the principle that individuals occur in the semantic values of statements about them is more fundamental for Russell than his commitment to propositions as such.

Gappy Objects and Variables

It is a well-known fact that Frege held to a view that included 'gappy' objects among the entities over which his quantifiers range. More specifically, Frege held that just as a free variable can be considered as a 'gap' in a formula to be filled by the name of an entity, so there are 'gappy' or 'unsaturated' entities corresponding to formulas with free variables. He writes in his 1904 paper 'What is a Function?':

> The peculiarity of functional signs, which we here called 'unsaturatedness', naturally has something answering to it in the functions themselves. They too may be called 'unsaturated', and in this way we mark them out as fundamentally different from numbers. (Frege 1984: 292)

The functions themselves are 'gappy', and are to be sharply distinguished from the 'courses of values' corresponding to the functions. (Frege uses the term '*Werthverlauf*', rendered by Russell as 'range', Russell 1937, Appendix A: 511.)

It doesn't seem to be generally recognized that gappy objects fit naturally into Russell's logical universe at this time. In my paper (1994) with Judy Pelham, we included such entities, which we called 'propositional forms', though we did not provide detailed historical arguments for their inclusion. I would now like to argue that the appearance of such strange-seeming entities in Russell's logical ontology appears very plausible, given his other assumptions.

Let us ask the question: What are the immediate constituents of a universally quantified proposition such as $(x)\varphi(x)$? There appear to be three reasonable answers to this. The first is that the immediate constituents are all the Russellian propositions of the form $\varphi(a)$, where a is an individual. Although this view has a lot to recommend it, it does not seem to fit with Russell's general views of complexes. If we take this view, then we are treating a universally quantified proposition essentially as an infinite conjunction, and so it would (assuming the axiom of infinity, which Russell at this period held to be a logical truth) be a complex with infinitely many constituents. However, though Russell admitted the bare logical possibility of such complexes, he insisted that the complexes arising in practice were all finite (Russell 1937: 145–46). It was Russell's view that we grasp the meaning of propositions by grasping the meaning of their constituents (that is to

say, Russellian propositions correspond quite closely in their epistemological function to Fregean senses). This is necessarily a finite process—that is to say, we can grasp the meaning of a universal proposition without explicitly grasping the meaning of all of its instances (since we might not be acquainted with all of the individuals in the universe). Hence, this view of the constituents of universal propositions cannot possibly be maintained as a plausible interpretation of Russell's views.

The second view is that the universal proposition has the propositional function φ as an immediate constituent. This is an attractive viewpoint, and probably represents the way that Russell thought about propositions early in his career. However, Russell lost his logical innocence with the discovery of the Contradiction, and this view seems to be made untenable by the paradoxes. The difficulty is this: there are complexes such as $x \notin x$ for which no corresponding function exists. We seem to be stuck with thinking of them just as complexes, without being allowed to think of the function itself as a legitimate constituent. Such complexes seem to form part of Russell's universe at this time. For example, consider the primitive proposition stated at the end of 'Complexes.' What are the entities over which the variable 'X' ranges? It appears reasonable to guess that these are unsaturated entities in the style of Frege.

Hence, we are led to adopt the third view that the 'gappy' or 'unsaturated' object corresponding to the expression $\varphi(x)$ must be part of Russell's logical universe. If we push the analysis a little farther, we can ask: What are the constituents of $\varphi(x)$? It seems as if the variable x must be a constituent of the gappy object $\varphi(x)$, just as Arthur Balfour is a constituent of the proposition expressed by the sentence 'Arthur Balfour advocates retaliation.' Furthermore, it would appear that his universe must include infinitely many distinct variables $x, y, z, \ldots$, since we have to distinguish the propositional form $\psi(x, y)$ from $\psi(x, x)$. We must be able to identify and distinguish the gaps themselves.

I have just argued that, given certain general principles accepted by Russell from 1903 to 1905, he ought to have been committed to gappy or unsaturated objects, just like Frege. Moreover, we can also find direct textual evidence that Russell saw the necessity of these odd-seeming entities himself. In the set of rough manuscript notes from 1903 entitled 'Points about Denoting', he writes:

> Consider e.g. $p \supset q$. This contains two variables. The attitude is, at present, that there is such an object as '$p \supset q$', distinct from all the values obtained by giving definite values to p and q. Similarly, and more fundamentally, there is such an object as p, distinct from all the values of p. (Russell 1994: 311)

This passage shows Russell committing himself to the existence of propositional forms, and to variables as entities.

It is significant that G. E. Moore saw some of the difficulties involving unsaturated objects and variables as entities. In a letter of 23 October 1905, Moore wrote to Russell:

> I was very interested in your article in *Mind*, and ended by accepting your main conclusions (if I understand them) though at first I was strongly opposed to one of them. What I should chiefly like explained is this. You say '*all* the constituents of propositions we apprehend are entities with which we have immediate acquaintance'? Have we, then, immediate acquaintance with the variable? and what sort of entity is it? (Russell 1994: 311)

These remarkably penetrating remarks show that Moore too saw the difficulties in Russell's view of quantified propositions and their constituents.

Yet the sentence immediately following the passage quoted above shows uneasiness connected with the necessary commitment to infinitely many variable entities: 'But the difficulty lies in this: p is not a definite object, for if it were, it would be the same as q; p is any term, and q is any term, and each is merely and solely any term, and yet they are not identical' (311).

In fact, although it seems that Russell should have accepted propositional forms and variables as entities, he always showed considerable uneasiness about these equivocal inhabitants of the logical universe. This uneasiness already showed itself in Appendix A of *Principles of Mathematics*. Here Russell makes a somewhat comical objection to Frege's notion of function as an unsaturated entity:

> Frege's general definition of a function, which is intended to cover also functions which are not propositional, may be shown to be inadequate by considering what may be called the identical function, *i.e.* x as a function of x. If we follow Frege's advice, and remove x in hopes of having the function left, we find that nothing is left at all; yet nothing is not the meaning of the identical function. (Russell 1937, Appendix A: 509)

Although I have argued that the most coherent interpretation of Russell's ontology at this time is given by a universe containing gappy objects, it is a moot point whether Russell himself showed real commitment to these entities, and evidence can be provided on both sides of the ledger. This question, however, is not central to the basic points that I am trying to make here.

What I am trying to emphasize in this sketch of the ontology of the period is that Russell was struggling with problems that concern very abstract and complex entities of an unfamiliar kind. In particular, the difficulty of dealing with denoting phrases containing free variables, such as those defining functions, is central for his research at this time. This point is driven home by Russell's own remarks in the paper 'On Meaning and Denotation':

> We have next to consider a far more difficult class of problems, the problems, namely, which result from variable denotation. In all the cases of denoting complexes hitherto discussed, there was a perfectly definite entity denoted in an unambiguous manner, and the only difficulty involved was that of disentangling and characterizing the fact of denoting. But now we have also to consider the special and formidable problems involved in the nature of the variable. (Russell 1994: 328)

It was the intimate connection between variable denotation and the problem of the paradoxes that led Russell to conjecture that the solution of the latter would be found in understanding the true nature of meaning and denotation.

MEANING AND DENOTATION

If we are to understand the importance of the emergence of the theory of denoting in 1905, we need to have some grasp of the theory of meaning and denotation that immediately preceded it. In the critical parts of 'On Denoting', Russell discusses the theory of meaning and denotation as 'Frege's theory' (Russell 1905a: 483; 1994: 418). Peter Geach (1958–59) seems to have been the first to suggest that these notoriously difficult passages are better interpreted as referring to Russell's own earlier theory of meaning and denotation. Chrystine Cassin (1970) also followed this suggestion in her detailed analysis of the notorious 'Gray's Elegy' passage of 'On Denoting'. This suggestion is definitely correct, in the sense that these parts of 'On Denoting' are derived from similar passages in the manuscripts of 1903 to 1904. However, it should be added that Russell himself failed to distinguish between his theory and Frege's. In a letter to Alexius Meinong of 15 December 1904 (Russell 1994: xxxiv), Russell explicitly embraces Frege's theory of sense and reference, while in a review of articles by members of Meinong's school (Russell 1905b: 533; 1994: 599), published in the same number of *Mind* as (Russell 1905a), Russell identifies the 'theory of denoting' with Frege's theory of *Sinn* and *Bedeutung*.

So, let us proceed to examine the main ideas of Russell's theory of 1903 to 1904, while bearing in mind that it is similar to, but not identical with, the theory of Frege. Before plunging into deep philosophical waters, it might be a good idea to see what Russell's formal practice was at this time, with respect to descriptions. Let us recall that Frege employs a primitive description operator in his *Grundgesetze der Arithmetik* (Frege 1893: §11). This operator takes objects as inputs, and has objects as outputs. The rule for the operator is that if the input is a course-of-values that has exactly one element, then the output is that element. If the input does not satisfy this condition, then the output is the empty course-of-values.

Russell's logical practices of 1903 to 1904 are similar, in that he has a primitive description operator $\imath$, mentioned above in connection with one of the 1903 manuscripts. The meaning of the $\imath$ operator, derived from a corresponding operator of Peano, is that it is the inverse of the unit class operator ι. That is to say, it satisfies the condition $\imath(\iota x) = x$ (Russell 1994: 61). Later, in 1904, Russell introduced a notation similar to that of the 1905 theory, namely, a variable-binding description operator $(\imath\hat{x})\varphi\hat{x}$ (Russell 1994: 127); this new notation is an important step towards the 1905 theory of descriptions.

This seemingly minor notational shift has a real importance for Russell. As long as he was using a description operator in the style of Frege and Peano, the theory of descriptions was dependent on the theory of set abstraction. Both Frege and Peano use such set abstractions freely, but with the emergence of the paradoxes, this was no longer an option for Russell. Hence, the change in notation is a step towards freeing the theory of descriptions from its dependence on the theory of set abstraction. After these notational preliminaries, let us set down an outline of the 1903 theory of meaning and denotation.

Names and Descriptions

Here is a rough sketch of the 1903 theory, as presented in the manuscript notes of 1903 'On the Meaning and Denotation of Phrases' (Russell 1994: 283–96). Proper names are devoid of meaning, but denote an individual—this is of course already an important divergence from the theory of Frege. Verbs and adjectives have meaning but no denotation. Adjectival nouns, on the other hand, have denotation.

> 'The table is black', for example, contains the words *is* and *black*, which, as they occur in this sentence, mean, but do not denote, the objects to which they refer. The word *blackness*, on the contrary, denotes, but does not mean, the very same object as that which the word *black* means without denoting. (Russell 1994: 284)

It appears from this passage that the difference between meaning and denotation is a difference in the relationship between parts of speech and the objects corresponding to them. However, later in the same paper, Russell indicates that there may be a difference in the objects themselves. He writes:

> Words and phrases are of three kinds: (1) those that denote without meaning; (2) those that mean without denoting; (3) those that both mean and denote. *Socrates* belongs to (1), *is* to (2), *the death of Socrates* to (3). Objects also are of three kinds: (1) those that can only

> be denoted; (2) those that can only be meant; (3) those that can be either meant or denoted. The second kind is doubtful, and raises grave logical problems. The first kind of objects I propose to call *individuals*; the third shall be called *functions*; the second and third together shall be called *concepts*, and the second alone shall be called *non-functional concepts*. (Russell 1994: 287)

This passage is quite puzzling, but I believe that it can be interpreted by thinking over some of the things we said earlier about gappy objects and functions. The difficult category here is the second one. What did Russell have in mind here? The example that he gives is the meaning of *is*. Assuming that this is the 'is' of predication, Russell is referring to the membership relation $\in$. Now at this time in Russell's logical research, $x \in y$ is a typical example of a nonfunctional complex, since there can be no function $\dot{x}\,\dot{y}(x \in y)$, on pain of contradiction. Hence, it seems that the objects in the second category are nonfunctional complexes, which would explain why Russell says that they 'raise grave logical problems'.

Russell's basic idea that individuals are constituents of true propositions about them obviously causes him big headaches when it comes to fictional names. The view he takes is that imaginary proper names are really substitutes for descriptions (Russell 1994: 285). This leads him on to consider sentences containing descriptions that do not denote. He eventually concludes that they lack truth values, and that phrases such as 'the present King of France is bald' are neither true nor false (Russell 1994: 286). (Russell never seems to have thought Frege's trick of assigning such descriptions a conventional denotation, such as the empty set, to be plausible.)

The theory of meaning and denotation makes contact with Russell's project of logical foundations through the mechanism of functional abstraction. The operation that transforms the complex X into the function, $\dot{x}(X)$ is seen by Russell as a move akin to that of forming an adjectival noun from an adjective:

> The method of obtaining the function $\dot{x}(X)$ is this: If x is not already the subject of X, substitute for X (if possible) a formally equivalent complex in which x is subject, and does not occur except as subject. Then what is said about x is the function $\dot{x}(X)$, *i.e.* what is *meant* by the rest of X is what is *denoted* by $\dot{x}(X)$. (Russell 1994: 291–92)

The parallel here is with the formation of the adjectival noun *blackness* from the adjective *black* described in the earlier quotation. The operation of functional abstraction takes us from an expression that *means* a certain entity to another expression that *denotes* the same entity. This description of what is happening is, of course, problematic in the case of nonfunctional complexes.

THE EMERGENCE OF THE THEORY OF DESCRIPTIONS

The birth of Russell's new theory of denoting is chronicled in full detail in the 1904 manuscript entitled 'On Fundamentals' (Russell 1994: Paper 15). This set of working notes begins with a theory of meaning and denotation similar to the theory of 1903 described above. Russell distinguishes between *entity-occurrences* and *meaning-occurrences* in complexes. The bulk of the paper consists of a series of numbered paragraphs in which the new theory gradually takes shape. In paragraphs 21 to 23 (Russell 1994: 373–76), certain problems lead Russell to an even more complex set of distinctions about occurrences; the distinction between primary and secondary occurrences emerges for the first time in paragraph 23. In paragraphs 40 to 42 (Russell 1994: 383–85), the basic ideas of the new theory of denoting finally emerge.

I shall not go into detail here about the subtle and complicated reasoning about occurrences and complexes that leads Russell to his final theory. Rather, I would like to emphasize again the connection in Russell's mind between the theory and his principal foundational problems. The first application that Russell finds for his new notions is in the theory of classes. Paragraph 41 introduces the contextual definition for descriptive phrases, and in paragraph 42, Russell immediately applies the idea to give a contextual elimination of class abstracts. This treatment, of course, in a more complex and sophisticated version, is a fundamental idea in *Principia Mathematica* (Whitehead and Russell 1910: *20). For Russell, as for Quine, the important feature of his new theory was the reduction in the number of primitive concepts of logic.

Why Ontological Reduction?

Ontological reduction is sometimes considered as an end in itself, rather as if we are looking for the basic logical particles making up the mathematical universe, like physicists searching for the basic constituents of matter. For Russell, in the period we are discussing, there was a more pragmatic aspect to the quest for ontological simplicity. The hope that he nursed was that by simplification, the basic structure of the paradoxes would be revealed, and the true solution made manifest.

We can see this idea of simplification as a road to the solution of the paradoxes in a letter that Whitehead wrote to Russell on 28 September 1905. Russell had found a very general form of the paradoxes that encompassed most of the known forms, and had described his discovery in a letter to Couturat of 24 September 1905 (Russell 1994: xxxvi–xxxvii). The argument for this generalized form of the Contradiction was later published in Russell's paper surveying possible solutions to the paradoxes of logic and set theory (Russell 1906). Whitehead was pleased by Russell's discovery, and wrote to Russell on 28 September 1905: 'I think your simplification of

the Contradiction most important. All your enemies have now one neck. But in a way this makes them harder to subdue; for your solution ought to have one neck also' (Russell 1994: xxxvii).

In October 1905, Russell had reached the conclusion that the radical ontological reduction promised by his theory of descriptions was also the key to the solution of the paradoxes. His first published remark on this new idea was a footnote that he added to Couturat's French translation of his polemical reply to Pierre Boutroux (Russell 1905c; 1994: Paper 23). The footnote refers to a passage describing the notion of propositional functions, and reads, in part:

> I believe that this notion may even be replaced by the more primitive notion of the *substitution* of a variable for a constant, and that by this means we can avoid the contradictions arising from certain paradoxical classes, for example the contradiction discovered by Burali-Forti. (Russell 1994: 524)

In the letter providing the corrections and additions to Couturat's translation, dated 23 October 1905, Russell gives more details of the idea:

> I find that to avoid contradiction, and make the elements of mathematics rigorous, it is absolutely necessary not to employ a single letter, such as φ or *f*, for a variable which cannot become an arbitrary entity, but which is really a *dependent* variable. . . . Instead of $\varphi!x$, we can put $p\frac{x}{a}$, which is to mean 'the result of substituting x for a in p' . . . Thus we shall have only one type of independent variable . . . I think once more that the solution of the contradictions is to be found in maintaining that there are no classes or relations. (Russell 1994: xxxvii–xxxviii)

Thus by the end of 1905, Russell, starting from his theory of descriptions, had arrived at a radical ontological simplification of logic. First, classes were to be eliminated in favour of propositional functions, using the ideas of 'On Fundamentals'. Secondly, propositional functions themselves were to be eliminated by reducing them to the more primitive notions of propositions and substitution. The resulting substitutional theory, based on just these two primitive notions, together with the basic notions of predicate logic, is a remarkably elegant and economical theory, which Russell hoped would provide the final solution to the tormenting problem of the paradoxes he had first encountered in 1901.

Did it Work?

We may well ask whether the optimistic attitude Russell showed in October 1905 was in fact justified. Did the radical ontological reduction of the

substitutional theory lead to the solution of the paradoxes, as he hoped it would in his letter to Couturat?

Unfortunately, the answer is 'no'. The paradoxes re-emerged in the form of a substitutional paradox (Landini 1989, 1998; Pelham and Urquhart 1994; Linsky 2003) that Russell battled by producing more and more complicated forms of the substitutional theory, but ultimately in vain, as the paradox kept popping up again in more and more complex forms. Even though Russell had jettisoned classes, relations and finally even propositional functions, the paradox kept returning like an unkillable monster in a horror movie.

In the end, the solution was found by returning to the old idea of types, a solution that Russell had advocated, and then abandoned, in Appendix B of the *Principles of Mathematics*. Although the apparatus of ontological reduction, in the form of the theory of descriptions, the doctrine of incomplete symbols, and the reduction of classes to propositional functions, is retained in *Principia Mathematica*, ultimately it is the theory of types that must take the credit for holding the paradoxes at bay.

In Church's famous 'Bibliography of Symbolic Logic' (1936), 'On Denoting' is accorded one of Church's rare asterisks, as a publication 'of especial interest or importance from the point of view of symbolic logic'; however, 'Mathematical logic as based on the theory of types' (Russell 1908) rates one of Church's even rarer double asterisks, as one of a small number of publications 'which mark the first appearance of a new idea of fundamental importance' (Church 1936: 122). Church's entire bibliography, starting from Leibniz and containing 547 items, contains only eleven double asterisks; Boole, Brouwer, De Morgan, Gödel, Hilbert and Russell each earn a single double asterisk, Zermelo scores two, while Frege is the clear winner with three double asterisks.

As I indicated in the opening section of this paper, Church's judgement on the relative importance of the theory of descriptions and the theory of types accords closely with the general point of view current among professional logicians. The theory of descriptions is an interesting and historically important proposal for formalizing logical notions, but not truly fundamental in the same sense as the theory of types, which remains one of the few really essential ideas of modern logic.

What is more, Russell's original idea, that the theory would lead to the final solution of the conundrum posed by the paradoxes, eventually led to a blind alley. Although Russell hoped again and again that the present King of France would solve the Contradiction, it eventually became clear that the royal intellect was in fact not up to that standard.

NOTES

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