A choice set of letters

by Nicholas Griffin

I. Grattan-Guinness. *Dear Russell—Dear Jourdain: A Commentary on Russell's Logic based on his Correspondence with Philip Jourdain.* London: Duckworth, 1977; New York: Columbia University Press, 1978. 234 pp. £ 14.00 $20.00

In the winter of 1901–02 Philip Jourdain, as a mathematics student at Cambridge, attended Russell's lectures on mathematical logic. This introduction to Russell's work significantly influenced Jourdain's own research which turned towards set theory and foundations of mathematics, as well as the history of mathematics and the principles of mechanics. The Russell–Jourdain correspondence on which Grattan-Guinness bases his "commentary" began shortly after this first meeting and covered all these areas; it continued, sometimes intensely, until Jourdain's early death in 1919. The correspondence is almost entirely technical, concerning issues in mathematical logic or Jourdain's extensive researches into the history of mathematics on which he frequently sought first-hand information from Russell. Russell rarely failed to reply in detail to inquiries about the development of his own ideas, and the Jourdain correspondence contains essential information on the history of Russell's thought. In this respect the Russell–Jourdain correspondence is almost unique—only the recently discovered Russell–Couturat correspondence is of comparable interest.

Grattan-Guinness's book is arranged in three main parts. The first, a short Prologue, gives details of the surviving correspondence, a description of the commentary provided, and biographical information on Russell and Jourdain. The correspondence itself occupies the second part, which is divided chronologically into twenty sections. Although the sections are divided according to date, each is equipped with a heading giving some idea of the main topics under discussion in the letters of the period covered by the section. Nonetheless, more topics are usually discussed in each section than are listed in the section heading. Within each section the arrangement of material is thematic rather than chronological, excerpts from two letters a few months apart being often juxtaposed. The final part is a four-section Epilogue containing Grattan-Guinness's concluding reflections on the relationship between Russell and Jourdain, a translation of Russell's 1911 paper "Sur les axiomes de l'infini et du transfini", a selection of four squibs relating to Russell which Jourdain published in *The Granta*, and finally a

selection of marginalia from Jourdain's copy of *Principia Mathematica*. The book concludes with a massive bibliography, a calendar of documents used, a glossary of notations and two useful indexes. The index of subjects is particularly valuable since certain topics recur throughout long stretches of correspondence.

The correspondence which survives is by no means complete. The Russell–Jourdain holograph material in the Russell Archives is rather slight and dates mainly from after 1916, and much of the material reproduced in this book owes its continued existence to the wealthy mathematician G. Mittag-Leffler, who, seeking copies of Jourdain's correspondence with Cantor, obtained from Jourdain's estate two large notebooks containing Jourdain's drafts of his letters to a number of mathematicians (including Russell) as well as their replies. The notebooks, now in the Institut Mittag-Leffler in Stockholm, were thus preserved from Jourdain's rather lackadaisical executors, who, having undertaken to publish his unfinished book on the history of mathematics, not only failed to do so but managed to lose the manuscript. Their dereliction is at least partially responsible for Jourdain's neglect and for the paucity of secondary literature about him. Altogether the extant correspondence amounts to fifty-nine letters or carbons from Russell, and fifty-seven letters or drafts (sometimes only summary drafts) from Jourdain. Fortunately, the correspondence for the period covered by Jourdain's notebooks (1901–11) is very nearly complete. Of the entire extant correspondence only thirteen letters from Jourdain and two from Russell date from the period after 1911.

From the point of view of the development of logic, however, it is the period covered by the notebooks which is of most importance. It almost exactly coincides with Russell's most intense period of work on mathematical logic: bounded by the discovery of the Russell paradox (1901) and the publication of the first volume of *Principia* (1910). After that, the correspondence becomes more diffuse in content, covering philosophy of science; Russell's contributions to *The Monist* (of which Jourdain became English editor in 1913); the war (which both men opposed); and Jourdain's philosophical jokes (collected in *The Philosophy of Mr. B*rtr*nd R*ss*ll* (1918), perhaps his most famous work). Nonetheless, references to mathematical logic still occur in the later letters, in the end embittering their relationship as Jourdain tried increasingly desperately to convince Russell of the validity of his successive "proofs" of the well-ordering principle without the axiom of choice. On the other hand, the later period is also the one in which Jourdain's historical research dealt with Russell's work, as well as the one in which Jourdain was very frequently reviewing Russell's work, and we cannot be sure important letters from Russell on his own intellectual development have not been lost. It seems impossible to share Grattan-Guinness's optimism that the loss of this part of the correspondence "probably does not seriously affect the history of mathematical logic" (p. 7)—at least in so far as the latter concerns Russell. In particular we might have learnt more of Russell's 1913 *Theory of Knowledge* manuscript, part of which Jourdain published in *The Monist*.

Dear Russell—Dear Jourdain is, as Grattan-Guinness describes it, a commentary based on the correspondence rather than an edition of the correspondence in the usual sense. In most editions of correspondence the letters follow each other in chronological order, with appropriate editorial headnoting and/or annotation; where both sides of the correspondence are included it is possible to observe the dialogue between the two writers. In terms of readability this approach has certain disadvantages: the reader is confronted with a series of short texts sometimes with very little connection between them. Connections can be made by editorial intervention, but they may fail to follow the narrow line between inadequacy and intrusiveness—in some editions they manage to be both. On the other hand, the great advantage of the standard format is its comprehensiveness; if the editor has done his work well (many don't) the reader is assured that he has a complete record of the extant correspondence and the original documents are made redundant except for the most *recherché* scholarship. Moreover, the completeness and chronological arrangement, together with a good index, enhance the value of such editions as reference works.

Grattan-Guinness's book is quite different in arrangement: it reads continuously, long extracts from the letters being incorporated into the commentary. It is a book *by* Grattan-Guinness *about* Russell and Jourdain, not a book of letters by Russell and Jourdain. On the other hand, it is not a complete study of Russell and Jourdain. Grattan-Guinness restricts himself almost entirely to the letters (although he does include extracts from notes Jourdain made after a meeting with Russell in 1909, as well as other material), and he relies on the letters to provide the overall structure of the book. The twenty central sections which contain the letter-extracts are not arranged topically, and thus issues recur from section to section in the order they occur in the letters. However, within each section letters are not printed intact but are broken up according to topic, e.g., Jourdain's questions are followed immediately by Russell's answers, and objections follow the point to which they are objections. One consequence of this is that the reader gets very little idea of the nature of the correspondence itself, but rather the impression of a series of points and replies interspersed with Grattan-Guinness's comments. Another result is the frequent change of topic, which tends to diminish the advantages of this style of approach as far as readability is concerned. The subject index, which Grattan-Guinness recommends for busy reviewers (p. 9), is excellent and is likely to be much

used by all readers trying to keep track of Russell and Jourdain's changing opinions on a given topic. More cross references in the text would also have been useful for this purpose as well; as would more detailed section headings.

Grattan-Guinness's combination of overall chronological order with topical arrangement within sections gives him, in some ways, the worst of both worlds. On the one hand, the sense of personal interaction which is given by reading a chronologically ordered series of outgoing letters and replies is lost, while the greater readability which a connected narrative gives is forfeited by the recurrence of a single topic across many sections. One wonders whether the book might not have benefitted by being arranged in a purely topical manner with no regard for the order in which the letters were written. The argument against this, I suppose, is that during the period covered by the correspondence Russell's views (which form the major background to the letters) on the topics discussed were in such a state of flux that it would have been misleading to juxtapose his views on a given topic from different periods, and that to sketch out his background positions in the commentary would have led to intolerable repetition.

On the other hand, I do think that Grattan-Guinness has good reasons for not presenting the Russell–Jourdain correspondence in the usual manner of chronologically printing all the letters. For one thing, the technical nature of the correspondence, with its frequent references to papers and ideas (published and unpublished), cries out for a fairly extensive commentary. Moreover, for the correspondence to be really useful requires that this commentary go far beyond that normally provided in definitive editions (identifying references and allusions, etc.)—with documents of this kind a good editor ought to provide some evaluation of the material presented. But the state of the manuscript material itself constitutes the strongest justification for the way in which Grattan-Guinness has edited the correspondence. The holograph material in the Russell Archives is fairly straightforward: originals of Jourdain's letters and carbons of Russell's. The Institut Mittag-Leffler material is quite different. Russell's originals are there in Jourdain's notebooks, but Jourdain's letters exist for the most part only in drafts. Of the fifty-seven letters from Jourdain thirty-eight are preserved in draft only. These drafts abound in alterations, abbreviations, inserts and deletions and are made worse by the steady deterioration of Jourdain's handwriting as a result of the creeping paralysis which eventually killed him.[1] The results are never far from illegible and it is remarkable how much

[1] Little reference is made to Jourdain's illness in the letters. Just a few months before his death he makes a movingly oblique reference (p. 149) to it in connection with his "proof" of the well-ordering principle, about which he said he felt as Browning's grammarian did about the enclitic δε, the doctrine of which he gave though he was "dead from the waist down" (Robert Browning, "A Grammarian's Funeral"). Russell had said the same of his theory of descriptions in his *Introduction to Mathematical Philosophy*, p. 167. But Jourdain's illness is painfully apparent in his heroic attempts to get his thoughts down on paper. And yet we are told (p. 139 n.) that he was able to produce enough to keep two typists busy all day! It is surprising that Grattan-Guinness, who provides photographs of Russell, Jourdain, Frege and Cantor, did not include one of some of the holograph material on which the book is based. The reader would have gained a new respect for his assiduity as an editor.

of this material Grattan-Guinness has been able to decipher. To make matters worse, drafts of letters to Russell are often intermingled with rough notes and drafts of other material in such a way that letters frequently have to be reconstructed rather than merely transcribed. Occasionally there are fair copies made from Jourdain's drafts by an amanuensis (usually a member of Jourdain's family); where these exist in addition to the original draft they are very helpful, but without the original they are virtually useless since no effort was made to transcribe formal notation and gaps were left for Jourdain to insert the appropriate symbols himself.

In the case of many (but by no means all) of Jourdain's letters, therefore, it is in fact impossible to provide a full transcription in the standard manner. Nonetheless, some of the Grattan-Guinness's editorial decisions strike me as perverse. For example, Jourdain's detailed record of a conversation with Russell in 1909 is quoted at length (pp. 112–15) but not in full. The original, however, is clearly legible, uniformly interesting, and easier to follow than Grattan-Guinness's version. A collation of Grattan-Guinness's book against the microfilm (and subsequent photocopy) from the Institut Mittag-Leffler in the Russell Archives reveals that, on occasion, where a fair copy exists it has been ignored by Grattan-Guinness in favour of a draft by Jourdain which is substantially the same. The fair copy, however, often embodies stylistic improvements and is surely more likely to embody Jourdain's final intentions, apart from saving the editor from the thankless task of battling with Jourdain's handwriting. My own preference would have been for a commentary, arranged chronologically, which printed all Russell's extant letters in full, and applied the same treatment wherever possible to Jourdain's letters, resorting to extracts only when the fragmentary nature of Jourdain's surviving manuscripts made it necessary. This would at least avoid such errors as that which occurs on page 56, where no mention is made of a question by Jourdain to which Russell's reply is mysteriously quoted.

Another drawback to Grattan-Guinness's treatment is that the reader has no way of knowing whether the book makes the original manuscripts redundant for most purposes or not, for he has no way of knowing what Grattan-Guinness has omitted despite the excellent calender of documents listing the pages on which the extracts appear. In fact, a detailed study of the original documents reveals that Grattan-Guinness has left out much less

than might be suspected, although material on the axiom of infinity has not been included from Jourdain's letter of 13 November 1905. Most letters are quoted at length, some in their entirety but in Grattan-Guinness's rearrangement. In all of them the usual niceties of letter-writing are omitted, as are many passages which are not of philosophical or mathematical interest. Not all such material is excluded, however: Grattan-Guinness has a good eye for relevant or interesting detail, and occasional asides on Jourdain's scholarships and Russell's bicycle tours are included. Still, someone doing research on the topics covered by Grattan-Guinness's volume may well feel obliged to consult the original documents to an extent which wouldn't have been necessary had the editorial policy been more orthodox.

Whatever doubts one may have about Grattan-Guinness's editorial method, his application of it is for the most part excellent. The main task of his extensive commentary is to place the letters in their intellectual context. This is done most thoroughly in the case of those ideas which appear in the letters and also in published work by Jourdain and Russell. For example, Russell's reply to a method suggested by Jourdain for introducing real numbers into a sequence of ordinals is presented as an example of Russell's treatment of set-theoretic procedures in terms of ordered classes; and this in turn is related back to Russell's long-standing interest in relations (though Grattan-Guinness misses the connection here with Russell's rejection of Bradley's relationless monism) and forward to the relation arithmetic of *Principia Mathematica,* Part IV. In the space of little more than a page (pp. 20–1) Grattan-Guinness traces the idea through two books and four papers of Jourdain's, as well as relating it to Cantor's work and noting Peano's rudimentary theory of relations. This example, where the connection was not obvious, serves to illustrate the knowledge and acuity that Grattan-Guinness brings to this edition—as well as the extreme compression of some of his commentary. This style of exposition is continued throughout the book and represents a labour well beyond the normal duties of editorship, though its brevity sometimes requires of the reader a labour well beyond the normal duties of readership. Such errors as I found in the commentary all concern the more philosophical parts of the correspondence. It is surprising, for example, to find Grattan-Guinness saying that "it is not obvious why vicious circularity" is involved in attempting to define "definition" (p. 66). If "definition" is definable then the function "$\hat{x}$ is definable" is definable, which is a classic case of function taking itself as argument. Grattan-Guinness is clearly correct in emphasizing the influence of Russell's work on geometry in the development of his theory of relations (pp. 20, 134), but he downplays the key role that relations played in Moore's and Russell's analysis of propositions (and the appalling difficulties they created there), as well as the fact that Bradley's critique of relations had placed them at the

centre of philosophical discussion around the turn of the century. It is doubtful that the theory of reference which Jourdain toyed with was really like Meinong's, as Grattan-Guinness claims (p. 70 n).

Grattan-Guinness also uses the commentary to provide criticism of the letters, occasionally adjudicating between Russell and Jourdain. He does not, however, use the commentary as fully as he might in this connection, since he eschews "discussing topics from the viewpoint of some modern or recent treatment of them", a practice which he regards as "not only dangerous but also *basically undesirable*" since "use of a later technique automatically excludes the writing of the history of its discovery"; and makes it "impossible to construct the 'ignorance situation' of the historical figures" (p. 11). It is indeed true that historical writing of this kind runs the danger of distorting past work by considering it as if it were by a contemporary (a practice from which Russell has suffered as much as any), but there seems no reason why it is *impossible* to combine careful historical reconstruction with contemporary commentary: the best works in the history of philosophy are of this nature. In fact, Grattan-Guinness's prohibition is nowhere near as total as his statement suggests. He is conscientious in supplying references to later work by other authors in which ideas suggested in the letters are developed (e.g., his references to work on inaccessible numbers, p. 98 n). And, more rarely, later work is cited for criticism of Russell or Jourdain's position (e.g., the reference to Kleene on p. 26). This is as much as can be expected given the generally concise nature of Grattan-Guinness's commentary, and it does enable the reader who is prepared to track down the references to gauge the full import of the letters.

In the transcription Grattan-Guinness has made few changes to the originals. Russell and Jourdain's double quotation marks are replaced by single ones; square brackets are replaced by round; formulae are usually displayed in print irrespective of manuscript practice; abbreviations and dates are silently expanded; references usually given in abbreviated form in the manuscripts are replaced by "author (date)" style citations keyed to Grattan-Guinness's extensive bibliography. The treatment of formulae is somewhat inconsistent: on the one hand, the editor, quite properly, makes no attempt to modernize formulae; on the other, he does remove some of the idiosyncracies of the letters (e.g. on p. 86 Jourdain's use following Cantor of bars in connection with ordinals is silently dropped; on p. 25 "$\aleph_0(0)$" becomes the more conventional "$\aleph_0{}^1$" and "$\aleph_0 \cdot \aleph_0$" becomes "$\aleph_0 \times \aleph_0$"; and punctuational uses of dots are regularly corrected). Editorial interventions in the text, apart from those mentioned above, are enclosed in square brackets. Although no attempt is made to indicate foliation in the case of the letters, in reprintng a previously published paper in the Epilogue Grattan-Guinness does indicate the page breaks of the earlier printings. The trans-

cription is for the most part accurate, especially when the nature of the original material is taken into account. Conjectural readings are sometimes supplied, and there are a few places where Jourdain's handwriting has defeated even Grattan-Guinness's scrutiny: in these cases my own efforts can offer no improvement on his. All in all he has clearly treated the very difficult texts with a good deal of care and insight.

In summary, Grattan-Guinness's editorial approach is highly idiosyncratic. In matters of copy-editing he neither completely regularizes the text nor yet produces a diplomatic edition; and the book as a whole is neither an edition of the correspondence nor a study based upon it. It would seem hard to justify his policy as a general editorial procedure, but in this case it is for the most part justified by results. This is in large measure due to the extraordinary insight the editor brought to bear upon his texts, and his immense knowledge of the topics they deal with.

A very large number of topics are dealt with in the correspondence, and only a few of them can be considered here. The earliest letters deal with the definition of irrationals and existence theorems for cardinal and ordinal numbers. A number of topics occur once or twice but don't form a long-lasting basis for discussion. For example, Russell gives an excellent synopsis of the treatment of functional continuity in *Principia Mathematica* (*234) (*Dear Russell—Dear Jourdain*, pp. 119–24) and of the theory of descriptions (p. 70). This last occurs in a letter of 13 January 1906 and constitutes, Russell says, "the sum and substance" of "On Denoting"—the importance of "On Denoting" might have been more easily recognized if Russell had included something along these lines in the paper itself: as it was, "On Denoting" had to wait until the publication of *Principia* for clarification. There is also material on the axiom of infinity (pp. 103 ff.), Russell's theory of propositions (pp. 92–3) and this theory of relations (pp. 94–6). And, later on, there are more political letters on the First World War, which both Russell and Jourdain opposed.

Unsurprisingly, the problem which takes most of the limelight is that of what to do about the paradoxes, which were bedevilling all attempts to do work in logic, set theory and the foundations of mathematics. In fact, the Russell–Jourdain correspondence now forms the most comprehensive published account of Russell's efforts, between *The Principles of Mathematics* and "Mathematical Logic as based on the Theory of Types" (1908), to deal with the paradoxes—although there still remains much to be said. There are lengthy passages (pp. 74–80, 84–5, 89) on Russell's substitutional theory, now becoming better known with the publication of "On the Substitutional Theory of Classes and Relations".[2] In addition there is a brief

[2] In B. Russell, *Essays in Analysis*, ed. by D. Lackey (London: Allen and Unwin, 1973), Ch. 8.

account of an unpublished attempt by Whitehead to avoid Cantor's paradox by denying that the sum of two numbers is always a number (pp. 29, 37), and a much longer discussion of Jourdain's attempts to deal with Cantor's and Burali-Forti's paradoxes by means of a distinction between consistent and inconsistent classes (pp. 27–9, 31–6, 51–4, 66–7). This theory partially anticipates Hausdorff's theory of regular and singular ordinals, and, although Jourdain's various accounts of it suffer from a number of defects, it is perhaps worth reinvestigation in the light of the recently developed paraconsistent logics of paradox. There is also an isolated reference (p. 114) to an attempt by Wittgenstein to solve Russell's paradox in 1909, which would be highly interesting (since it pre-dates by two years Wittgenstein's earliest previously known contribution to philosophy) if anyone knew anything about it. In his commentary on the paradoxes Grattan-Guinness tends to assume that Russell's refusal to distinguish the "logical" from the "semantic" paradoxes was an error (pp. 44, 90). It seems to me far from clear that it was; even the criteria for making this distinction are not clear cut except on an artificially narrowed conception of logic. The great merit of Grattan-Guinness's commentary (and of Russell's letters themselves) is that they tend to relate three of Russell's enterprises of this period: the theory of types, the theory of descriptions, and the theory of propositions (in particular, the theory of truth). Previous accounts have given the impression that these three theories may as well have been developed by three different philosophers working independently of each other. In fact, Russell's logical work at this time was highly and complexly interrelated—something which has been obscured by the fact that many of the missing links have remained unpublished. Grattan-Guinness is to be congratulated on helping to make this fact clear.

In addition to the paradoxes, another topic, then a major cause for concern among logicians though now generally regarded as uncontroversial, recurs throughout the correspondence right to the bitter end: a nest of problems centring around Cantor's well-ordering principle, Zermelo's axiom of choice, and Russell's multiplicative axiom. Cantor's (1883) conjecture that every set can be well-ordered, the proof of which was listed by Hilbert in 1900 as one of the great outstanding problems of mathematics, was shown by Zermelo (1904) to follow from the axiom of choice. Zermelo's paper immediately focussed attention on the axiom of choice and many attempts were made to prove the well-ordering principle without its use.[3] Such attempts inevitably made covert use of the axiom or some equivalent, for the equivalence of the axiom of choice and the well-ordering principle

[3] In fact, the evidence of the Jourdain correspondence suggests that Russell was aware of the difficulties of proving the multiplicative axiom (his version of the axiom of choice) at about the same time as Zermelo (*cf.* p. 80).

was not then known and it was not until 1922 that Fraenkel proved the independence of the axiom of choice. Jourdain's first such attempt to prove the well-ordering principle without the axiom of choice came in 1904 and subsequent revisions and fresh attempts recurred throughout the correspondence (pp. 26–7, 46–7, 52–3, 57–65, 146–53). In fact, it was this issue (together with payment—or rather the lack of it—for Russell's articles in *The Monist*) on which Jourdain's friendship with Russell foundered. Jourdain, in his final months, became convinced that Russell and Whitehead were deliberately ignoring his "proof" of the well-ordering principle. Two days before his death, in a letter to Dorothy Wrinch urging her to get Russell to come and hear the new proof, Jourdain confessed that he was "somewhere near the end of my tether" (p. 152), and it seems likely that Jourdain's illness had undermined his judgement, both as regards his "proof" and his friend's motives. The new "proof" was, of course, as fallacious as the old (as Littlewood tried to avoid having to tell Jourdain on his death-bed), but Jourdain died before Russell could get to hear it. It is sad to see this marvellous correspondence, conducted over many years at the highest levels of intellectual exchange and enlivened with so much shared humour and sympathy, end with vicious and unfounded recriminations from one who had borne himself with such dignity through the ravages of a terminal illness which lasted most of his adult life.

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APPENDIX: CORRIGENDA

The following list of corrections is divided into two parts: the first gives errors in the printing of the letter extracts themselves; the second gives errors in the commentary. Unfortunately, lack of time made it impossible to collate all of Grattan-Guinness's printed text with the documents in the Russell Archives. However, a partial collation was undertaken and the discrepancies are listed below. In this connection the following points should be noted: (1) The list does not include tokens of the type of editorial emendations mentioned in the text of the review. (2) For the bulk of the correspondence the collation was performed against Xerox copies taken from a microfilm of handwritten documents, a notorious source of difficulty, especially as concerns punctuation. These problems are multiplied by the difficulty of Jourdain's handwriting. Thus it is possible in some cases, though not, I believe, in all, that a study of the original documents would reveal good reasons for preferring Grattan-Guinness's reading over that preferred below. (3) In the case of a number of Jourdain's letters there are various drafts included among his notebooks. In each case I have

attempted to identify the version which Grattan-Guinness took as copy-text, but it is possible that in some cases Grattan-Guinness adopted an eclectic copy-text. (His principles for choice of copy-text are not explained.) In connection with the second list, no attempt was made to check all of Grattan-Guinness's references and assertions: the list merely includes those errors which a more or less random check revealed. In both lists, the two-part number against the left-hand margin gives the page: line number in *Dear Russell—Dear Jourdain.*

(a) *Transcription Errors*

17: 6-7	"written on the paradox" should read "written the paradox on"
22: 2	"your" should read "yours"
25: 26	"$v_1 \ldots v_n$" should read "$v_1 \ldots v_m$"
25: 36	"$\alpha_n = 0$ or 1" should read "$\alpha_n = 0$ *or* 1"
57: 8	"there *are*" should read "there is *one*"
57: 9	"$m_2 \sim \varepsilon M_1$" should read "$m_2 \sim \varepsilon M_2$"
57: 10	"are fixed" should read "are fixed on"
58: 13	"$\aleph_\gamma < \aleph_\alpha . \supset .$" should read "$\aleph_\gamma < \aleph_\alpha . \supset_\gamma .$"
60: 10	"u_α" *should read* "u_α's"
60: 14-15	"seem to be so" should read "seem so"
67: 19	"NoεCls inconsist," should read "NoεCls inconsist;"
69: 34	"(I think" should read "(I *think*"
70: 27	"p. 491" should read "especially p. 491"
76: 14	"$(\exists p', a')$" should read "$(\exists p', a')$. "
79: 27	"must not be" should read "must be not"
81: 25	"all u's" should read "*all* u's"
81: 26	"*well-order by*" should read "*well-order w by*"
81: fn3	"necessarily" should read "*necessarily*"
82: 11	"51" should read "51 line 21"
95: 6	"there," should read "that"
104: 4	"$u \sim = . u$," should read "$u \sim = u$,"
104: 7	footnote 3 should follow "none" rather than the end of the formula
105: 32	"Infin ax . = . " should read "Infin ax . = : "
106: 3	"*Infin ax*; i.e. $\omega, \eta, \aleph_0$" should read "*Infin ax*, i.e. $\omega, \eta, \theta, \aleph_0$"
112: 21	"without using it." should read "without using *it*."
120: 31	"$(\overrightarrow{\restriction R})_\star$'$R$" should read "$(\overrightarrow{\restriction R})_\star$'$R$"
121: 21	"$(\exists ! R \bar{Q}_{cn} \alpha)$" should read "$(\exists ! R \breve{Q}_{cn} \alpha)$"
122: 29	"$(P, Q_\star \restriction Q_{po}$'$a)$" should read "$(P, Q_\star \restriction \overrightarrow{Q}_{po}$'$a)$"
123: 18	"$R(P, Q)$'a" should read "$R(P, \breve{Q})$'a"
124: 4	"$y' \varepsilon \sqsupset' R$." should read "$y' \varepsilon \sqsupset$'$R$."
124: 12	"models" should read "*models*"

126: 15 "you speak of." should read "you speak of:"
143: 32 "on Hannequin" should read "of Hannequin"
151: 6 "the thing" should read "a thing"

(b) *Errata*

1: 16 "*1956a*, 53" should read "*1956b*, 52"
15: 22 "def. 15" should read "def. 19"
24: 25 "15 March" should read "21 January"
31: fn2 "*1903a*, 383" should read "*1902a*, 383"
42: fn4 "these exist" should read "there exist"
45: fn2 "*1903a*" should read "*1900a*"
107: 19 "*1967a*, 167" should read "*1967a*, 164"
119: 24 "25 January" should read "2 January"
152: 3 "here" should read "hear"

Finally, surely Grattan-Guinness's use of "[sic]" on pp. 19 and 61 is unnecessary.