How to Respond to Obscure Writing

C. E. Larson
Department of Mathematics & Applied Mathematics
Virginia Commonwealth University

Abstract

We distinguish obscure writing from difficult writing, and argue that refereed journal publications in all disciplines can—and should—be written without undefined terminology, with identifiable claims, and with arguments for those claims. Conventional practices in mathematics, for instance, yield this outcome. There is a place for obscure writing—and potential value in obscure writing. But it would be a service to the Academy if at least refereed publications in all disciplines followed the practice of mathematics.

Academic writing is often *obscure*. Certainly most academic writing will be difficult and seemingly incomprehensible to non-academics and even to most other academics—at least those outside of our own specialties. This is in part because specialists use a specialized vocabulary, or *jargon*, when they talk to each other; and it is in part because academic writing is non-trivial: it is not meant to be easy or to entertain and often involves copious data, complicated relationships, new ideas and surprising claims. Papers in my own mathematical discipline, for instance, may use a familiar vocabulary and make identifiable claims but still involve dense arguments; reading them is typically slow-going. *This journal* of course is known for its commitment to clarity; its short-lived *Philosophy and Literature* Bad Writing Contest from the 1990s is still discussed. This commitment, if multiplied across the Academy, would be a valuable service to time-constrained academics. We give a definition of obscurity that allows that writing may be both important and obscure, but argue that obscure writing can—and should—be banished from refereed publications in every discipline. The conventions of refereeing in Mathematics are a useful example.

Jargon is not an issue. Experts in every discipline need jargon: it is essential to the compact and efficient transmission of ideas. *Jargon* is a specialized vocabulary that is translatable into non-specialized vocabulary; the word "jargon" is used here in contrast with undefined novel terminology and with familiar terms used in idiosyncratic ways. Jargon is assumed to be conventionally fixed—it is common and unproblematic that definitions are revised and improved over time. In mathematics terms like "Hilbert Space" and "Banach Space", for instance, belong to the jargon of the field: all mathematicians know what these terms mean and can define them using more basic terminology. Part of the purpose of introductory textbooks is to teach the jargon of a field.

This process of defining terminology into more basic terminology can be iterated. In mathematics, as elsewhere, definitions must come to an end. Translation must result in a base of undefined terms—the expectation is that the use of these terms is conventional and standardized. These undefined basic terms should ideally belong to our common vocabulary. In mathematics, a continuing project is to show that all the jargon and claims of the mathematics needed for the natural sciences can be translated into the familiar language of *sets* (collections), set membership, together with basic sentential relations (logical language) including negation, conjunction, disjunction and implication. If a claim can only be stated in untranslatable terminology, then the result cannot be of of use to non-specialists and, hence, the research establishing this claim cannot be justified to them. It is possible that such esoteric research exists, but no argument for public support for this research can be made—as no case can be made for it in non-specialist language.

It is rarely a problem that essential definitions are elusive, that necessary and sufficient conditions for a term cannot be provided for a concept. For some purposes, it will suffice to define a "chair" as "furniture that you can sit on"—even though it may be possible to find examples of chairs that don't satisfy this definition. In each case potential revision is possible—the best we can do is commit ourselves to an attempt at conceptual clarity, and a potentially iterative process of definitional improvement.

Writing is *obscure* if the terminology is not defined in the paper or book in which it appears and is not otherwise standard among specialists (jargon), *or* if there are no identifiable claims being defended, *or* if there is a novel claim, but no stated argument for the claim. We do not require arguments to be valid or universally accepted—only that arguments for claims exist. Writing may be more or less obscure. It may range from completely clear and well-argued to completely opaque. Bertrand Russell is an example of a writer with a consistently high level of clarity. His writing was clear enough that he is credited with specific ideas, such as his theory of descriptions, and his theory of types; clear enough that he was jailed more than once for his political views; clear enough that his liberal social views led to the revocation of a lectureship at City College of New York; and clear enough to be awarded the 1950 Nobel Prize for

Literature, presented “in recognition of his varied and significant writings in which he champions humanitarian ideals and freedom of thought.” The Nobel committee presumable could identify the ideals and freedoms he championed.

Some writing may be obscure and also *significant*: in this case, readers will have to provide their own definitions for some terminology, or determine what claims are being made, or fill in arguments for these claims. There are examples of obscure and significant writing, as well as of obscure and insignificant writing. The *central questions* then are: When should you spend time determining whether a case of obscure writing is significant (no one wants to waste time on insignificant writing)? How much time should you spend determining the potential value of obscure writing?

Obscure writing may occur in every academic discipline; mathematical writing can certainly be obscure. In 2012 the Japanese mathematician Shinichi Mochizuki posted four papers to his website that claimed to have resolved a very famous unsolved mathematics problem, the *abc*-conjecture. Mochizuki calls the theory in these papers “inter-universal Teichmüller theory” (IUT theory). Experts agree that the papers and IUT theory might be important—if true they address questions that mathematicians have long investigated. But they are *obscure*. One science journal reported: “Nearly four years after Shinichi Mochizuki unveiled an imposing set of papers that could revolutionize the theory of numbers, other mathematicians have yet to understand his work or agree on its validity—although they have made modest progress.”[1] Another wrote: “Within days it was clear that Mochizuki’s potential proof presented a virtually unprecedented challenge to the mathematical community. Mochizuki had developed IUT theory over a period of nearly 20 years, working in isolation. As a mathematician with a track record of solving hard problems and a reputation for careful attention to detail, he had to be taken seriously. Yet his papers were nearly impossible to read.”[2]

The first step in reading Mochizuki’s papers is to make sure that all new terms are defined and that any seemingly common terminology is used as standardly defined (that it really is mathematicians’ shared jargon). In this case Mochizuki’s papers can be *translated* into a common language of other experts in his field and thus accessible to any professional mathematician (and ultimately translatable into the common language of sets and accessible, in principle, to any reader). The problem then becomes identifying Mochizuki’s claims, the arguments for these claims, and the correctness of these arguments. The fact that mathematicians “have yet to understand his work” means that Mochizuki’s work is hard-to-translate and, hence, obscure. It may also be difficult—it may be difficult to check the validity of his arguments—but this is a separate issue.

Some authors have been noted for their obscurity. The french critical theorist

Jacques Derrida is a prominent example. The philosophers Ruth Barcan Marcus, and Williard van Orman Quine, among others, were signatories of a 1992 letter opposing a Cambridge University honorary degree for Derrida whom, they claimed, was obscure. "Many have been willing to give M. Derrida the benefit of the doubt, insisting that language of such depth and difficulty of interpretation must hide deep and subtle thoughts indeed. When the effort is made to penetrate it, however, it becomes clear, to us at least, that, where coherent assertions are being made at all, these are either false or trivial."[3]

It is worth noting that refereed mathematical publications are rarely—if ever—obscure. This is due to the definitional and refereeing practices of mathematics. A referee first checks that the terminology of a submitted paper is either standard (that is, jargon) or is defined in the paper. References are often given for definitions of terms which are not defined, that exist in the literature, but have not yet been assimilated throughout the community of intended readers (as jargon). If a term is unknown to the referee and not defined in the paper, she will insist that a definition be included among the revisions. Examples are often given for the use of new terms. The referee will then check that the claims are clearly stated, that arguments are supplied for all claims (or can easily be filled in by any other expert), and that the arguments are valid. So she checks that the paper is *not obscure*—and that all claims are true. She will also evaluate the importance of the paper, as well as the relevance for the journal it was submitted to. Mochizuki's papers, for instance, will not be published until they are written non-obscurely.

The refereeing practices of mathematics may be a model for other disciplines. Refereed mathematical publications enforce non-obscurity. There is nothing special about mathematics here—mathematical papers may be hard to read (even if they were fully translated) but mathematical language is part of, and continuous with, ordinary language. The foundational terminology of sets, set membership, and sentential relations is part of our everyday lives. The difficulty is not obscurity—just the complexity of the claims and the complexity and length of the arguments. Referees may do their jobs more or less well—but these practices are the convention of mathematics. It is almost unimaginable that a mathematician would generate the same criticisms as Derrida: bad refereeing may lead to some obscurities slipping into a published paper—but this couldn't happen consistently throughout a mathematician's entire career.

Now, rather than take up Derrida's oeuvre, consider a more concrete and specific example of potentially obscure writing. The following sentence is well-known and has been widely discussed.

> The move from a structuralist account in which capital is understood

> to structure social relations in relatively homologous ways to a view of hegemony in which power relations are subject to repetition, convergence, and rearticulation brought the question of temporality into the thinking of structure, and marked a shift from a form of Althusserian theory that takes structural totalities as theoretical objects to one in which the insights into the contingent possibility of structure inaugurate a renewed conception of hegemony as bound up with the contingent sites and strategies of the rearticulation of power.

Judith Butler is a prominent critical theorist. The sentence appears in the third paragraph of "Further Reflections on Conversations of our Time."[4] The first two paragraphs of Butler's essay do not define any terminology and she does not refer to any standard reference explaining her terminology. Thus the terminology in this paragraph must either be the jargon of specialists—or it is obscure. A non-specialist reader will wonder about many things: what is a "view" of hegemony, what does it mean for "power relations" to be "subject to . . . convergence", etc?

Of course, whether Butler's terminology is in fact jargon is an empirical claim which can be investigated. If it is then any expert can translate her sentences to equivalent jargon-free sentences. Because this sentence was a winner of a 1998 "Bad Writing Contest" award, experts have discussed this sentence widely—and some have argued that it is not in fact obscure.

Butler begins her essay by referring to the works of two Marxist thinkers, Ernesto Laclau and Chantal Mouffe. Jonathan Culler writes, "Her sentence summarizes . . . why she has taken an interest in Laclau and Mouffe's writing. . . . This sentence has been well-prepared, and it is not hard to explain."[5] But he never does explain it: this would mean unpacking the jargon, and translating it into non-specialist language. While Culler says, "My undergraduate students quickly became able to handle it," (p. 47) he doesn't say whether they are able to actually translate it.

Cathy Birkenstein, in an essay meant to defend Butler's non-obscurity, says "I will analyze Butler's award-winning sentence shortly,"[6] and later writes that Butler's sentence has "a very clear goal: to argue that Laclau and Mouffe, whose views about the iterability of power she had been championing throughout her essay, have ushered in an important new way of thinking that sees hegemony in less static ways than had earlier Marxist theorists and that, in emphasizing repetition and temporality, presents hegemony not as fated or inevitable, but as productively open to renegotiation and change" (p. 278). Non-specialists will not know what terms like "iterability of power" mean, or how "hegemony" can be "open to renegotiation" (that "hegemony" can negotiate will certainly surprise non-experts and is worthy of explanation). Rather than analyze Butler's sentence, Birkenstein substitutes her own obscurities. The fact that Butler does not supply definitions for the terminology of this sentence, certainly not part of the vocabulary of readers outside of her field, together with the fact that neither Culler nor Birkenstein attempt to unpack Butler's terminology, suggests that she is not using jargon. This is evidence that Butler's sentence is *genuinely obscure*.

Other experts have also come to this conclusion. Martha Nussbaum, in a review of Butler's work, writes:

> It is difficult to come to grips with Butler's ideas, because it is difficult to figure out what they are . . . Her written style, however, is ponderous and obscure. It is dense with allusions to other theorists, drawn from a wide range of different theoretical traditions.
>
> A further problem lies in Butler's casual mode of allusion. The ideas of these thinkers are never described in enough detail to include the uninitiated . . . or to explain to the initiated how, precisely, the difficult ideas are being understood.[7]

Obscure writing can be significant. We certainly should not demand that all writing match the standards of refereed mathematics articles. Some writers are better at explaining themselves than others. Communication is a skill, and not all humans share the same skills. It is normal that a person be better at somethings than others; and certainly possible for a person to have important ideas and be unable to express them clearly, with reasons for advocating them, etc.

Consider the case of the early 20^{th} century Indian genius Srinivasa Ramanujan. As a young man in India, Ramanujan had little contact with the world of academic mathematics and worked on his own, with little formal training. He sent letters describing some of his results to three professors of mathematics in England. Ramanujan's letters contained nine pages of formulas—and no proofs. That is, he sent *claims* with no *arguments*. This is obscure—and certainly not publishable. The first two mathematicians did not respond.[8] But the third, the great English mathematician G. H. Hardy, did. And, importantly, Hardy largely understood Ramanujan's *claims*—as they shared a common language. Hardy quotes 15 mathematical statements (potential theorems, not reproduced here) Ramanujan makes in his letters, which he numbers (1) to (15).

> I should like you to begin by trying to reconstruct the immediate reactions of an ordinary professional mathematician who receives a letter like this from an unknown Hindu clerk. . . .

> The series formulas (1)-(4) I found much more intriguing, and it soon became obvious that Ramanujan must possess much more general theorems and was keeping a great deal up his sleeve ...
>
> The formulas (10)-(13) are on a different level and obviously both difficult and deep. An expert in elliptic functions can see at once that (13) is derived somehow from the theory of 'complex multiplication', but (10)-(12) defeated me completely; I had never seen anything in the least like them before. A single look at them is enough to show that they could only be written down by a mathematician of the highest class. They must be true because, if they were not true, no one would have had the imagination to invent them.[9]

Hardy says that Ramanujan's claims, while obscure, were significant. Hardy arranged for Ramanujan to come to England, where they worked together daily for several years, and published several joint papers. Ramanujan could easily have disappeared into obscurity; instead he was elected a Fellow of Trinity College (Cambridge) and a Fellow of the Royal Society, and remembered as the great mathematician that he was.

The posthumously published work of the philosopher Ludwig Wittgenstein provides another example of obscure writing that is significant. Wittgenstein's best-known work from his "later" period is the edited, but unrefereed, book *Philosophical Investigations*. This book, while written with little or no jargon, is certainly obscure. It has a number of now memorable examples, including the duck-rabbit. Nevertheless his discussions of "family-resemblance", "private language" and "rule-following", which have made a significant impact, are certainly obscure: he does not make identifiable claims or clear arguments, and does not write in a conventional style. Nevertheless, discussion of his examples and ideas are now prominent in philosophy.

Writing can also be obscure and insignificant. Alan Sokal's famous parody article, "Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity," is a demonstrated published example of an obscure paper consisting mostly of a jumbling together of jargon, undefined terminology, allusions, and quotations by favorite authorities. His paper was published in *Social Text*; it contains a wide variety of absurd, humorous—and unargued—claims. One is his assertion that the number π (the ratio of the circumference of a circle to its diameter) is not a constant: "In this way the infinite-dimensional invariance group erodes the distinction between observer and observed; the π of Euclid and the G of Newton, formerly thought to be constant and universal, are now perceived in their ineluctable historicity; and the putative observer becomes fatally de-centered, disconnected from any epistemic link to a space-time point that can no longer be defined by geometry alone."[10] The number π of course *is* a constant: an equivalent statement was proved in Euclid's *Elements*, for instance, 2300 years ago, and been the subject of continued mathematical investigation ever since. The editors and referees of *Social Text* could not have accepted all of Sokal's terminology as the jargon of their field. In one case Sokal cites a book about "Radon measure" (a number assigned to certain systems of sets), but then suggests that the term is connected with the radioactive chemical element *radon*, rather than the mathematical concept named after Johann Radon (p. 242). Radon measure has nothing to do with the chemical element radon. The referees and editors did not insist on explanation, or clarification—or correction.

It is easy to determine *if* a work is obscure: ask experts to provide a non-specialist translation, identify the claims and identify the arguments. If they cannot translate it into non-specialist vocabulary, then it is obscure. If they cannot identify the claims that it makes, then it is obscure. If they cannot identify the arguments for these claims, then it is obscure.

Returning to the question of differentiating between obscure writing which is significant or not, the answer is much less clear. Certainly reputation might play a role in one's decision: if obscure work by an author that has done other significant work is more likely to be significant than obscure work by an author with no track record. In the case of Mochizuki, he has a track record. He graduated from a premier mathematics department (Princeton), under an advisor among the top experts in the world (Gerd Faltings), and had previously done important refereed and published work. The later Wittgenstein too had a track-record. He had previously published an influential book (*Tractatus Logico-Philosophicus*), he had been a student of Russell, and was highly regarded by many of his Cambridge University colleagues.

Another criterion would be if the addressed problem was considered important. In the case of Mochizuki, his unpublished papers address a famous unsolved problem, the *abc*-conjecture. In the case of Ramanujan, he didn't previously have a track record. Hardy writes that the letter he received was from "an unknown Hindu clerk." But Hardy recognized that some of the formulas were "both difficult and deep . . . They must be true."

In any case the reader must do real work when reading obscure writing. And this takes *time*. Some writing is more obscure than others: some writing contains more terminology requiring definition, more claims that need to be specified, more arguments that need to be filled in. The bottom line is that deciphering obscure writing takes time away from research with a clearer chance of making an impact. There is an *opportunity cost* to spending time on obscure writing. If it is valueless, you've lost time doing work that is potentially more important. While the first two mathematicians that Ramanujan sent his letters to may have understood Ramanujan's claims—and even recognized their importance—the time spent attempting to provide arguments for his claims may have been used more productively with research activities with a greater chance of payoff—the opportunity costs of pursuing Ramanujan's formulas were too high. Despite the obscurity of Mochizuki's papers, the payoff is so large that the world's best mathematicians are committed to spending years clarifying Mochizuki's claims and arguments. In most cases, say in the case of Butler's obscure sentence, the payoff is low, the opportunity cost is high, and the sentence will remain forever obscure.

Being more clear and less obscure lowers the opportunity costs for readers—and makes it more likely that their ideas will be read, discussed and assimilated. Clear writers are more likely to have a greater impact. Russell, a paradigm for clarity, had a large impact—partly of course due to the interest of his ideas, but also because other people could understand what these ideas were. Whether Derrida had any important or interesting ideas seems to have eluded such respected scholars as Marcus and Quine; this may be because Derrida is consistently obscure. If Derrida has important ideas it is necessarily possible to present them in non-specialist language.

Butler's article appeared in *diacritics*, a refereed journal. Her writing—and all obscure writing—puts the onus on the reader. Better, or at least more efficient, for the research community would have been for the referees to cajole clarity from Butler: instead of each reader having to attempt to decipher Butler, it would be better to get her to write clearly in the first place. The conventions for mathematical refereeing may be usefully applied in every discipline. They lower the opportunity costs for engagement and future development.

Being obscure may be unavoidable. Nevertheless, obscurity often *can* be avoided and when it can it *should* be avoided. And clear writers are more likely to have an impact than obscure writers. Writers would be wise to address Orwell's questions from his well-known essay, "Politics and the English Language": "A scrupulous writer, in every sentence that he writes, will ask himself at least four questions, thus: What am I trying to say? What words will express it? What image or idiom will make it clearer? Is this image fresh enough to have an effect? And he will probably ask himself two more: Could I put it more shortly? Have I said anything that is avoidably ugly?"[11] Intellectual honesty and our commitment to our research communities requires us to avoid obscurity to the best of our abilities. Pragmatism and our desire to advance research in our fields requires us to demand as much from our colleagues in articles that we referee.

1. D. Castelvecchi, “Grand Proof Fazes Theorists” *Nature* 536, no. 7614 (2016): 14-15, p. 14.

2. K. Hartnett, “Hope Rekindled for Perplexing Proof”, *Quanta Magazine* (online), December 21, 2015.

3. Letter from Barry Smith and others to *The Times (London)*, Saturday, May 9, 1992.

4. J. Butler, “Further Reflections on Conversations of our Time,” *diacritics* 27, no. 1 (1997): 13-15, p. 13. An explanation of the Bad Writing Contest can be found in: D. Dutton, “Language Crimes: A Lesson in How Not to Write, Courtesy of the Professoriate,” *The Wall Street Journal*, February 5, 1999.

5. J. Culler, “Bad Writing and Good Philosophy,” in *Just being difficult? Academic Writing in the Public Arena* (Stanford: Stanford University Press, 2003), 43-57, p. 45.

6. C. Birkenstein, “We Got the Wrong Gal: Rethinking the ‘Bad’ Academic Writing of Judith Butler”, *College English* 72, no. 3 (20): 269-283, p. 274.

7. M. Nussbaum, “The Professor of Parody,” *The New Republic* 220.8 (1999): 37-45, p. 39.

8. R. Kanigel, *The Man Who Knew Infinity: A Life of the Genius Ramanujan* (New York: Scribners, 1991), pp. 106-7.

9. G. H. Hardy, ed. *Ramanujan: Twelve Lectures on Subjects Suggested by his Life and Work* (Providence: AMS Chelsea, 1959), p. 9.

10. A. Sokal, “Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity,” *Social Text* 46/47 (1996): 217-252, p. 222.

11. G. Orwell, “Politics and the English Language,” in *Collected Essays, v. IV: In Front of Your Nose, 1945-1950*, ed. S. Orwell and I. Angus (London: Seeker & Warburg, 1968), 127-139, p.135.