

Rhetorical hermeneutics through thick and through thin

Thank you very much for inviting me to come and talk with you today, and, having extended that invitation, actually coming out to listen to me for awhile.

A Meek Introduction

I'd like to do four things today, all largely self-serving.

First, I want to give a brief history of rhetoric, partially to contextualize my general arguments, but largely to develop the sense that the sort of work I do—rhetorical investigations of scientific discourse—is the ineluctable pinnacle of two and a half millennia of research.

Second I would like to outline a recent attack on this work, under the charge that rhetoric is too scrawny as a critical discourse to accommodate science; indeed, to accommodate criticism at all.

Third, I want to discuss the limitations of that critique, mostly by way of some examples of the sorts of perspectives that a rhetoric of science can bring to the table, and the sorts of questions it can fruitfully ask.

And fourth, I'd like to apologise for how self-involved all this is. David suggested that I could rattle on about anything at all as long as I said “rhetoric” every now and then; I had no idea the word was so provocative on this floor of Hagey Hall, but I'll run it up the flagpole every time I see some eyelids starting to droop, if only to test David's theory. Still, I have a hard time believing in my bones that his claim true; hence, the apology. I have a book called the *Bluffer's Guide to Philosophy*, which I consulted before coming up here, and it says, “Never apologise. It makes them smell fear.” But I decided to throw myself on your mercy.

That, of course, is a rhetorical device. It's one that informal logic has long treated as a weakness, a flaw in the philosophical ointment, *Argumentum ad Misericordiam*. So, maybe the *Bluffer's Guide* is right. But, then, not apologising is a rhetorical

device as well. So is talking about not apologising, then apologising. So is calling something “a rhetorical device”, and appealing to informal logic, and trotting out Latin terminology, ...

One: Nanohistory of Rhetoric

Which brings us to the first principle of rhetoric: it’s unavoidable. Like fashion. There’s nothing you can wear, or not wear, without participating at some level in sartorial semiotics. Why? Because human beings are symbol mongers. Will you or nil you, you’re going to be interpreted.

Rhetoricians, starting formally with the sophists—people like Empedokles, Protagoras, Gorgias, and Isocrates—but in a less codified way at least back to the Homeric poets, rhetoricians have acknowledged that where ever there are humans, there are symbols, and where ever there are symbols there are suasions: that rhetoric (the study of suasion) is unavoidable.

That insight, however, was largely submerged in the Aristotelian intellectual picture that has shaped the history of rhetoric.

Rhetoric as a scholarly pursuit was born out of speculations into (and, necessarily, out of) language: language as a filter, and as a tool, and as a medium: first of knowing, and then of distributing what is made known. The sophists used language as their experimental laboratory for understanding the buzz and flux of experience. Drawing on the resources of poetry for shaping perception and attitude and response; probing the semantics of everyday terms like *river* and *god* and *stuff*; investigating the ranges of authority and power among dialects and languages, diachronic and liturgical codes; manipulating the variables of argumentation that induce belief and certainty and action; they saw suasion as the heart of language and language as the heart of civilisation.

What Plato saw was a bunch of snivelling cheats. And he attacked them brilliantly. He was persuasive enough that he almost single handedly turned the word *sophist* into a synonym for *charlatan*.

What Aristotle saw were the scattered principles and taxonomies of suasion merchants. He collected these principles and taxonomies brilliantly into what has come down to us as the *Ars Rhetorica*. In it, he recognises, briefly, that suasion is elemental in all communication, and that it manifests systematically in the same general ways, but rhetoric, as a pursuit, he localises to the law courts, the political arenas, and to public ceremonies.

The *Ars Rhetorica* is a fabulous compendium of ancient wisdom on suasion. For instance, Aristotle says that reasons are always supported by three foundations. They rest on ethos—that is, you believe something because it comes from a credible source. They rest on pathos—you believe in something because of the way you feel about it. And they rest on logos—you believe something because of the form and structure of the symbols that encode it.

These three foundations correlate with the three critical elements of any rhetorical situation. There must be a speaker, an audience, and a speech. An appeal based primarily on the speaker is an appeal to ethos. An appeal based primarily on audience response is an appeal to pathos. An appeal based on the speech itself is an appeal to logos (which is not, by the way, simply ‘logic’; rhythm, figuration, narrative drive, and so on, all constitute logos).

In the standard histories, rhetoric is usually traced through Cicero and Quintilian into the works of Augustine and on into the Mediaeval and Early Modern periods, as a growing preoccupation with figures and tropes, linguistic manipulations that play entirely on the surfaces of discourse, divorced from all matters of ‘content’ and ‘substance’. It became an exclusively aesthetic pursuit.

With the rise of scientific rationalism and rabid empiricism in the early modern period, aesthetic elements of discourse became worse than pretty, they became misleading, corrosive to truth and knowledge.

Rhetoric entered a long stretch of ignominy and marginalism, and the word gained the connotations it has in ordinary language today, evoking the specious, the florid, and the vacant.

Rhetorical theory in the twentieth century, starting in the thirties has been rehabilitated, at least for some scholars.

This rehabilitation has been marked by two significant moves: first, a return to Aristotle; second, an expansion of the Aristotelian synthesis back into the more embracing sophistic view of rhetoric as elemental to all symbolic exchanges.

The shape of this rehabilitation can be characterised by a shift away from the traditional monologic, strategic-rhetor-addressing-pliant-sheep model of the classical handbooks toward a mutual, give-and-take, negotiative model. The key word for ancient theory is *persuasion*; the key word for modern theories is *identification*. The shift is from a body of principles for working your will upon others toward a collection of strategies for building collective arguments, for making ideas and institutions that we can share and which help define us into groups of Philosophers and Kantians and NeoPragmatists, into groups of Canadians and Ontarians and Reformers and Liberals and Anti-Racists and Professors, into whatever various shared identities we have.

We exchange reasons for positions and actions. I accept some of your reasons, you accept some of mine, we both accept some of various third parties; in swapping our reasons, some get discarded, others get forged in the crucible of exchange,—perhaps you develop a new way to counter some reason I give you, some appeal I make, or perhaps you see a way to augment it. Other reasons to believe simply come into or fall out of fashion.

This framework, where suasion is subsumed under the larger notion of identification, is most closely associated with I.A. Richards, Chaim Perelman, and Kenneth Burke. It has defined rhetoric for most of this century.

As a scholarly pursuit, it has retained much of the Aristotelian methodological kit bag, but rhetoricians are far less concerned with using those tools to prepare effective public speakers than the ancients were. The focus has become critical, concerned now with understanding how it is humans come to positions—and, increasingly over the last few decades, with how it is we come to knowledge.

The natural place for rhetoricians to look, you might think, would be science, the most successful knowledge-making enterprise (or collection of overlapping enterprises) that humans have come up with. But this naturalness was missed by rhetoricians until quite recently, for three reasons.

First, Aristotle had raised two major obstacles. He told us that rhetoric could not truck with (1) certainty, or (2) expert discourse. And science is the province of those propositions held with most certainty by our culture; it is also the domain of the most arcane and expert discourses we have.

In fact, it took historians and philosophers and sociologists to denude science of its certainty and to reveal its discourses as qualitatively no different from other things humans do with language. I'm thinking of course of people like Kuhn and Feyerabend and Hanson and Polanyi—who, although they use terms like *indwelling* and *invisible college* and *paradigms* and *propaganda* are clearly talking about notions of identification and persuasion.

Second, science grew up in a time of profound disdain for rhetoric generally, figuration specifically. The works of Boyle and Spratt and Newton, not to say Bacon and Hobbes and Locke and Hume are full of Platonic screeds against the contaminating influence of fancy language, the lasciviousness of metaphor, the wheedling dishonesty of rhetoric.

And while rhetoricians should have been able to see through these diatribes as the rejection of one rhetorical tone for another—in Ciceronian terms, the rejection of the Grand Style in favour of the Plain Style—three centuries of them were effectively taken in. Again it was the historians and philosophers and the sociologists—Steven Shapin, Bruno Latour, Steve Woolgar, Karin Knorr-Cetina—who first peeled the pronouncements away from the practices to lay bear the heavily patterned, appeal-driven nature of the language in which science is conducted.

Third, rhetoricians are naturally timid little bottom feeders scattered hither and yon and operating in the murkiest depths of far-flung English departments.

Two: The Thinness of Rhetoric

Once, however, rhetoricians began exploring the natural consequences of the sophistic position for scientific discourse, some quite fine work got done. Greg Myers, for instance, looked at the social construction of biology articles: how the author/editor/peer-reviewer exchanges shape what is allowed to be said, in what context, to what ends. John Angus Campbell followed the course of Darwin's thinking and arguing through his notebooks into the *Origin* and flow of the public debates in the wake of its publication. Charles Bazerman charted the growth of Newton's argumentation between his early paper on light and his *Opticks*, traced the rhetorical purposes of experimentation, and investigated the appeals in Watson and Crick's double-helix paper.

No one much outside of English departments, of course, has taken much notice of this work. There has certainly been responses of various kinds to the move Richard Rorty labelled “the rhetorical turn” in science studies, but this has been almost entirely directed toward the Strong Programme Sociologists and to any commentary on science that might be even vaguely labelled ‘post-modern’.

Strangely, though, there is something of a rear-guard action by some rhetoricians.

Rhetoric, they say, is just not up to the task of investigating science. Indeed, it is not up to any truly strenuous investigative work at all. They take the critical investigation of scientific suasions as the ultimate example of rhetoric run amok, and it seems to be the straw that snapped their high-strung patience, but the general argument is that rhetoric is unsuited to criticism of any sort. It is too thin a metadiscourse, they argue, to speak revealingly about any object discourses at all.

The backbone of the argument is that rhetoric is a productive enterprise, like architecture or sculpture, or engineering. It is a body of principles for making things, and very specific things—i.e., orations—and is therefore methodologically ill equipped for the investigation of things, especially things which are not orations.

Here is Dilip Gaonkar, leading the charge and sounding a bit like *Saturday Night Live*'s Church Lady, wagging his finger at rhetoricians who have gone where they ought not to have gone:

[The productionist vocabulary] as a language of criticism is so thin and abstract that it is virtually invulnerable to falsification, and for that very reason, it commands little sustained attention.
(32)

The concern—what he means by “thin”—is that neoAristotelian notions like ethos, pathos, and logos are so capacious that critics can detect their “presence in virtually any discourse practice” (“Idea” 32). Therefore, pointing to scientific discourse and saying “Lo, ethos” is meaningless.

The argument is a ramified chain, with many other links, some faulty, some solid, and it is the globalised hermeneutical project of contemporary rhetoric that is the ultimate target—rhetoric of science is just a particularly galling case in point for Gaonkar—but it really does all come down to this charge of lexical thinness.

I would guess many of you can see weaknesses in this charge, perhaps you can see some I've missed (if so, I'd be more than interested in hearing them), but lest you think

I'm just here to shoot fish in a barrel here, let me assure you that this critique is taken very seriously in many quarters.

It doesn't belong just to Gaonkar,¹ but he has become the poster-child for this position. In 1990, he advanced his complaints at a conference, and they were received with much fear and loathing. In 1993, a special number of a rhetorical journal was devoted to his case. In 1997, a book came out.

But the position is very, very weak.

In the first place, it rests on a very superficial history, which not only ignores the sophistic origins of rhetorical theory—in which the rhetorical vocabulary was not just one of production—but also a wide number of elements of the productionist tradition. For instance, imitation of great orations was a mainstay of rhetorical production from Isocrates on, and imitation is predicated on critical examination.

Moreover, the mediaeval and renaissance rhetorical treatises—the period in which rhetoric became preoccupied with aesthetic matters—were far from simple productionist handbooks. They were equally about the critical appreciation of discourse. And with the 18th and 19th century, in something called the belletristic movement, rhetoric moves further into aesthetic appreciation.

In fact, the history of literary criticism is inextricably bound to the history of rhetoric, at least from Aristotle's *Poetics* on.

More tellingly, all productionist vocabularies necessarily contain the seeds of criticism.

When one analyses a building, one uses the language of architecture. When one seeks to understand a bridge, one uses the language of engineering.

¹ See, e.g., Bokeno, Fuller, and Vickers.

In the second place, even within that superficial history, Gaonkar wilfully bypasses major landmarks of the tradition. Figuration, for instance, gets no mention at all, and even Aristotle acknowledges the reason-shaping nature of figures like metaphor.

Genres, too, are ignored. Forensic rhetoric, in particular, is a rhetoric of debate and exchange, of advocacy and judgement, and is exactly suited to the scientific marketplace of ideas.

In the third place, the most stinging rebuke that Gaonkar advances assumes that falsification is a touchstone of critical adequacy. “Non-falsification” is virtually a synonym for “thinness”. But, of course, falsification does not even hold of scientific theories, the language games it was drafted to explain, let alone any of the more ambitious things that people do with language. Certainly nobody who practices criticism of any form, in any domain, would pledge allegiance to falsification.

In the fourth place, rhetoric as practised by rhetoricians of science, and rhetorical critics generally, is not an isolated Aristotelian playground. Nor should it be. Our vocabulary has been augmented not only by scholars like Richards and Burke and Perelman, but also Neitzche, and Vico, and Suassure, and Bakhtin, and Gadamer. Just because we are historically linked to certain traditional vocabularies does not mean that our ears are closed to other scholars of figuration and influence and language.

Even if Gaonkar could successfully prosecute the narrow, historically and theoretically impoverished rhetorical vocabulary that he indicts—and I think even here he fails—the strongest conclusion he is warranted to draw is that the vocabulary needs to be enriched.

And finally—well, fifthly, at any rate; there are other problems with Gaonkar’s argument, but this is the last one I will take up here—the lynch pin of his whole case is the ubiquity of Aristotle’s principles. Since one cannot find discourses devoid of

ethos, pathos, or logos, Gaonkar somehow presumes that those notions become vacuous. This is position that I find extremely puzzling, but one that other rhetoricians apparently regard as extremely damning. It is the *si omnia, nulla* argument; if everything, then nothing. It gets aired regularly at conferences and in classrooms and journal articles whenever rhetoric is directed more widely than at orations; whenever, that is, rhetoric is treated as elemental to symbolic exchanges rather than as the local practice of public speakers.

It seems to have some cachet of profundity about it, and Gaonkar plays it as his trump card, but *si omnia, nulla* is just flat-out silly. Nobody, inside or outside of physics, questions the utility of notions like weight and mass because they definitional of matter. Nobody, inside or outside of biology, questions the utility of deoxyribonucleic acid because it is ubiquitous in organisms. Nobody, inside or outside of chemistry, ridicules atoms because they are everywhere. *Si omnia, nulla* is an absurd critique.

Three: The Thickness of Rhetoric

So, why are Gaonkar and the other nattering nabobs of negativism taken so seriously by other rhetoricians.

There are a variety of not-very-interesting sociological reasons—not very interesting to me, in any case—that account for some of the response. I was not merely playing an ethical game of self deprecation when I said earlier that rhetoricians are timid little bottom feeders. There really is a widespread disciplinary anxiety, largely Platonic in origin, that gives many rhetoricians unease when grand themes like knowledge and truth and meaning come up, and Gaonkar reinforces that anxiety by confirming the fear: nope, we really aren't allowed to talk about those topics, or the sacred texts that traffic in them.

Too, Gaonkar is one of our own², and there is always additional fear and trembling when attacks come from within the family.

But, again, these are not very interesting reasons. And I think there are interesting reasons for the success of Gaonkar's arguments. One of the most influential rhetoricians of science, for instance, Alan Gross, has become very contrite about his earlier strong epistemological claims in the wake of Gaonkar's critique.

These interesting reasons are (I'm sure you won't be surprised) rhetorical. Gaonkar's argument is a dense assault on rhetoric of science that is organised around examples. Once he has made his highly suspect attack on the very idea of rhetoric of science, he proceeds to take up, one after another, the exemplars of the field and exposes their inadequacies, first their internal inadequacies, and then their failure to measure up to the work of other analysts of scientific discourse, especially from sociologists of scientific knowledge.

Lawrence Prelli wrote one of the first books in the field, *A rhetoric of science*. It's a plodding exercise which examines several scientific discourses in the terminology of rhetorical topoi. It's earnest and deeply rhetorical and utterly unrevealing. Gaonkar shows it to be earnest and deeply rhetorical and utterly unrevealing. In the most damning sections, Gaonkar compares Prelli's translation into rhetorical terminology of some Strong Programme work on memory transfer in worms and finds that all Prelli has added to the original analysis is a good deal of tedium.

Alan Gross wrote an early book in the field as well, *The rhetoric of science*; in some ways it is much superior to Prelli's book, in some ways it is inferior. The superior ways aren't very important here, since Gaonkar ignores them; he systematically exposes the ways in which it falls very short of its attempt to forge a coherent

² As is Bokeno, and a few other critics; Vickers and Fuller are neighboring scholars, but both well versed in rhetorical theory.

programme. Gross's book reveals much of the disciplinary anxiety I've noted a few times (Prelli's does not), principally by its deep insecurity about the neoAristotelian kit bag.

Gross takes up Newton, Watson and Crick, the Cambridge rDNA debates of the mid-seventies, Darwin, Kepler, Copernicus, and Descartes. In every case, he says something revealing about their suasive workings, and in every case he links the analysis to a big notion impinging on rhetoric of science, and throughout the book he returns to the provocative claim that if you could extract rhetoric from science there would be nothing left. "Science," runs his slogan, "is rhetoric without remainder". But, in every case, he employs a new and almost entirely distinct vocabulary: J.L. Austin here, Habermas there, Vladimir Propp's folktale morphology for awhile, then on to Victor Turner's social drama theory.

Quoth Gaonkar?

Each case study draws on a different set of conceptual material and Gross makes no attempt to incorporate that material within the neo-Aristotelian approach he recommends. It would not be an exaggeration to say that not even a single essay in Gross's book can be regarded as a critical illustration of a neo-Aristotelian approach. (64)

Guilty as charged. And Gross has subsequently become very embarrassed by the failures Gaonkar exposes in his book.

John Angus Campbell wrote one of the earliest clear rhetoric-of-science papers, and still one of the best, "Darwin and *The origin of species*", following it up with well over a dozen further studies in Darwinian rhetoric over the last thirty years. Not all the papers are equally good, but many are superlative, and the extended study is quite compelling. There are no real weaknesses in the work.

So Gaonkar attacks the very idea of the work. Campbell's rhetorical criticism is heavily and truly Aristotelian, an ancient and unregenerately agent-centred approach. He talks of Darwin's rhetorical strategies, of his contrived appeals, of his conscious

deployment of Lyell and Huxley, of his disingenuous embracing of Asa Gray's Natural Theological endorsement of *Origin*, of his clear appeals to ethos (humble scientist brow-beaten into a position by the facts), to pathos (recurrent invocations of British patriotism), and to logos (capitalising Natural Selection, constructing his argument via Baconian induction, analogies to animal husbandry).

As Gaonkar puts it, Campbell's "Darwin stands over the *Origin* like a colossus" (52).

And this is bad. Gaonkar repudiates agent-centred criticism as tired and misguided. People don't write texts, texts write texts. Ideologies write texts. Cultures write texts. And there is just no evidence that Darwin wrote strategically (here Gaonkar just misrepresents the situation very seriously, ignoring that Darwin, for instance, called *Origin* "one long argument, beginning to end").

(One might note here the irony that Gaonkar is effectively arguing against rhetorical criticism as a practice, an argument he bases on the deft rhetorical criticism of three bodies of discourse.)

But the charge appears to have stuck, misrepresentations and all. Campbell felt compelled to defend himself, and in fact backed away substantially from an agent-centred "intentionalist" model, advocating a more "constitutive" framework.

For my money, we can ignore the ontology of an agent-centred model altogether. Maybe texts do write texts, maybe authors and speakers are just the dupes of their ideologies—though I can assure you I felt pretty agentive as I banged away at my keyboard last night in an attempt to be coherent in this paper today—but so what? Campbell has insightfully, often brilliantly, investigated the arguments in and around one of the most significant scientific discourses ever written. And even Gaonkar is willing to admit that Campbell is full of insights. If his model is boneheaded, call it a convenient fiction—lump it in the same bag with the Aristotelian mechanics if you like—what counts is the results.

Campbell's work on Darwin, in fact, is as straightforward a demonstration as one could ask for that rhetorical criticism is in fact a very "thick" discourse to bring to science.³ Pointing at a scientific discourse and saying "Lo, ethos", when the internal propaganda of science, the very syntax of its prototypical prose (agentless passives, nominalizations, data in subject positions), denies ethos, abhors ethos, is revealing indeed.

Still, many people find Campbell's work on Darwin to be less compelling than I've represented it. There is tendency to say, "Oh sure, maybe Darwin, and maybe guys like Boyle and Harvey and Lavoisier were rhetorical, maybe a few others, but not real scientists, not hard-asses like Newton, and certainly not modern scientists, not Twentieth Century Science".

Fortunately, there is thick criticism here, as well. Charles Bazerman has done very good work on Newton, and on the rhetorical development of the experimental report. Greg Myers has followed (Twentieth Century Science) biology articles and grant proposals through all the stages of editorial and peer review, and charted the rhetorical construction of their knowledge claims. Theirs is very, very fine work. Neither is it agent-centred, though that is not a significant recommendation for me. And it is work, incidentally, about which Gaonkar is conspicuously silent, as he is about other recalcitrantly thick rhetorical analyses of science, by Carolyn Miller, Michael Halloran, Craig Waddell, John Lyne, and several others.

What is almost as bad is that Gaonkar reveals a complete lack of imagination about what a valuable rhetoric of science *might* be. It's true that he has no interest in finding value in the enterprise, but if he had put some of the thought—some of the

³ To the extent that Gaonkar uses "thick" as an antonym to "thin" in his critique, it appears to mean "falsifiable", a hopelessly naïve objective, but one he seems to feel sociologists of scientific knowledge achieve (though they would be amused, I would guess, to be so characterised). I just mean it here as an antonym to "thin"; hence, something like "revealing".

strategic planning—that he devotes to undermining the field into understanding its potential, he might have performed a very valuable service.

Many rhetoricians were so enamoured of the idea of rhetoric moving into the epistemological high-rent districts of science that no one was saying (at least publicly) that Pioneer Prelli was dull and mechanical translation, that Emperor Gross had no rhetorical clothes⁴, even, perhaps, that Grandfather Campbell was a bit out of rhetorical fashion. Gaonkar said it, and I'm happy enough to have it out in the open.

But the linkage of those points to Gaonkar's overall argument is more tenuous even than the linkages between Gross's case studies and his alleged neo-Aristotelian framework.

Gaonkar might, more profitably, have asked "if this is how rhetoric of science fails, how might it succeed?". Besides coming to a more generous reading of Campbell, and perhaps a willingness to acknowledge the successes of work by Bazerman, Myers, and others, Gaonkar might have looked to the resources of rhetoric, or to some of the recurrent themes in the humanist commentaries on science, and wondered if rhetoric had something to add.

Take figuration. Metaphor has been quite thoroughly explored as a necessary component of scientific reasoning—the need to picture X as Y. The exploration has not been conducted by rhetoricians, and has by no means been exhaustive. But what's important here is that metaphor is only one figure. Antithesis seems to play at least as significant a role in scientific reasoning, the need to balance charges, and forces, and equations. Synecdoche is important, the need for sampling and reduction. Metonymy is central, the need for substitution and representation. (See Fahnestock.)

⁴ Though see my review of Gross.

Take topoi. Prelli, one might be tempted to think, has done them to death. In fact, he missed the boat almost entirely by merely seeking their presence, not asking their function. The work of Gerald Holton, which maps out the operation of notions he calls *themata* in the psychology and texts of scientists. Themata—the pull of symmetry for Copernicans, for instance, the allure of determinism to classical physicists, of division and chance to quantum physicists—are topoi.

Take demarcation. To anyone with some knowledge of rhetoric, it is patently clear that demarcation is of interest to scientists only as a rhetorical manoeuvre, a topos. They use it as a way to circumscribe their own work as authentic, and the work of others as inauthentic. Think of the creation science debates. “Real scientists” kept saying ‘that’s not the way science is done; their work can’t be falsified, for instance’. The creationists replied that Natural Selection couldn’t be falsified either. Think of the cold fusion debates. They were all about issues of replicability as definitional of science. Think of the super-string debates. They are about whether true science is defined more by mathematical elegance or empirical amenability. Think of the disappearance-of-the-dinosaur debates a few years back. They were all about standards of evidence for making claims in one science (palaeontology) versus another (physics). Whenever demarcation issues are invoked in science, they are invoked as rhetorical tools of identification and division. (See Taylor.)

Take, what is the current bug up my bum, incommensurability. It has been defined as a formal notion in philosophy of science. Philosophy treats incommensurability as a problem of theories or paradigms; that is, of science in the abstract. The claim is that Theory X is incommensurable with Theory Y when the latter cannot articulate claims or theorems of the former, just as Language X might contain expressions or modalities which cannot be translated into Language Y. The very word *incommensurability*, coming from geometry, suggests a precision not generally achievable in natural language. More importantly, coming from geometry, *incommensurability* also suggests objects or shapes—things—rather

than people, and the single most defining feature of language is that it is a human product.⁵ And it is here that rhetoric comes in, theories being made of language: the defining approach of rhetoric is to look behind things to their makers and users. The natural tack for rhetoric of science on the sorts of disputes that philosophy regards as manifesting incommensurability, then, is to look at the *theorists*, not at the *theories*.

A Meek Conclusion

In conclusion—and here’s some rhetorical advice for you, *gratis*: the most effective way to gratify an audience is to say “in conclusion”—in conclusion, I’ll remind you of my three primary aims today, which I hope I’ve satisfied in some measure.

I wanted to provide a brief historical survey of rhetorical theory. I did that, at great distortion, but I hope the distortions were neither overly misleading, nor uncomfortably simplified.

I wanted to contextualize and sketch out some of the contours of the (sub-)field, rhetoric of science. I did that as well, also under the risk of considerable distortion; again, though, I hope it was both informative and somewhat engaging.

I set out to declaw and spay a critique of that subfield by Gaonkar. In doing so, I hope I didn’t bore you too much with the disciplinary frettings of rhetoricians. Because, although the argument does need to be addressed, I’m very conscious that this is not the audience that needs to hear it. In working out some of my responses to the thinness critique, therefore, I tried keep the informative and engaging rhetoric-of-science elements in the fore. I hope I at least partially satisfied that goal.

⁵ There are, of course, people who regard language as an abstract Platonic object (Katz), and people who regard geometry as a human product (Einstein, 31), but neither of these two positions should obscure the vast distance in complexity and stability between a geometry and a language, the only point of issue here.

Thanks again, very much, for the chance to speak to you.

Works cited

- Bazerman, C. 1987. *Shaping written knowledge*. Madison: U of Wisconsin P.
- Bokeno, R. M. 1987. The rhetorical understanding of science. *Southern speech communication journal* 52: 285-311.
- Campbell, J.A. 1970. Darwin and *The origin of species*. *Speech monographs* 37: 1-14.
- Campbell, J.A. 1975. The polemical Mr. Darwin. *Quarterly journal of speech* 61: 375-90.
- Einstein, A. 1983. *Sidelights on Relativity*. Trans. by G.B. Jeffrey and W. Perret. New York: Dover publications.
- Fahnestock, J. 1999. *Rhetorical figures in science*. NY: Oxford UP.
- Fuller, S. 1996. Rhetoric of science. *Rhetorical hermeneutics*. Ed. By A. Gross and W Keith. Albany: SUNY P, 279-98.
- Gaonkar, D. 1996. The idea of rhetoric. *Rhetorical hermeneutics*. Ed. By A. Gross and W Keith. Albany: SUNY P, 25-88.
- Gross, A.G. 1990. *The rhetoric of science*. Cambridge: Harvard U P. (Second edition, 1997.)
- Harris, R.A. 1992. Review of Alan Gross' *The rhetoric of science*. *Rhetoric society quarterly* 22:32-35.
- Holton, G. 1988. *Thematic origins of scientific thought*, rev. ed. Cambridge: Harvard U P.
- Katz, J.J. 1981. *Language and Other Abstract Objects*. Totowa, NJ: Rowman and Littlefield.
- Myers, G. 1990. *Writing biology*. Madison: U of Wisconsin P.

Prelli, L.J. 1989. *A rhetoric of science*. Columbia: U of South Carolina P.

Taylor, C.A. 1997. *Defining science*. Madison: U of Wisconsin P.

Vickers, B. 1988. *In defence of rhetoric*. Oxford: Clarendon.