Faulk, for example, valuably points out the dangers inherent in Eliot's concept of fine art as a "refinement" of the popular. But to interpret Eliot's phrase as a call for the modernist poet to "improve popular culture" (as Faulk recasts it) is to miss half the point. As I tried to show, Eliot emphasizes the need for a thorough rethinking of our concept of the "artist." Taken together, his essays propose a new model of the artist's relation to society, not merely a world in which poets would be authorized to improve public taste. In a sense, the ideal artist in Eliot's paradigm is not Marianne Moore but Marie Lloyd—someone who produces, as I put it, "a particularly artful rendering ('refinement') of popular forms" (238). Eliot does not hesitate to call Lloyd an artist, and I take seriously his statement that the poet "would like to be something of a popular entertainer." Ultimately, I think, Eliot would prefer to eradicate the distinction between poet and entertainer altogether; that is why he returns so persistently to the drama.

Here of course I am speaking of Eliot in his most progressive critical modes; at other times he falls back defensively into a traditional aesthetic posture. My goal was to emphasize this conflict—to complicate Eliot, not to vindicate him. Faulk rightly points out that "[m]any of Eliot's most famous critical statements assume a tacit agreement with high aesthetic discourse." But the fame or influence of these statements does not make them definitive. There are historical reasons why the "high aesthetic" Eliot is remembered while the populist Eliot needs to be unearthed. The recovery of the adversarial Eliot is important to any balanced understanding of Eliot and modernism generally.

Eliot does of course believe in "standards" by which some art can be judged better than other art, and it is worth asking, with Faulk, what his standards are and what purposes they serve. Faulk is also certainly right that for Eliot part of the critic's function is to make taste. However, I do not think that the desire for power or the need to preserve prestige entirely accounts for Eliot's theoretical relations with popular culture, much less his artistic engagement with the popular or his attendance of the music hall. My essay shows how the complex attitude sketched in Eliot's essays is borne out in his artistic practice and private activities. I am therefore wary of Faulk's conclusion that Eliot "largely used the popular as a test of his own power to legitimate"; Eliot seems to me to have valued the popular for many other reasons.

I thank Marc Redfield for his scrupulous attention to my scansion. Triple meter is often hard to pin down because initial and final unstressed syllables are freely added and dropped. In the passage in question only one line (the last) is absolutely regular, and if we accept its authority, Redfield is right that the lines are best deemed anapestic. That the lines traipse I hope there is no doubt.

DAVID CHINITZ
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Gödel's Theorem

To the Editor:

It was good to see the essay by David Wayne Thomas on so important a topic as Gödel's theorem(s) ("Gödel's Theorem and Postmodern Theory," 110 [1995]: 248–61) and even better to find the essay not written in ignorance or disregard of elementary facts about logic or mathematics. For theorists—postmodern and otherwise—in the humanities who may be interested in such things, however, I want to make one correction and to offer one qualification regarding Thomas's good article.

The correction concerns the "capsule statement" of what Gödel demonstrated that Thomas quotes from George Steiner: "no axiomatic system can ever be proved to be fully coherent and consistent from within its own rules and postulates" (249). This generalization is not entirely correct. An axiomatic logical system can be proved complete (and I take it that *complete* is what Thomas understands by Steiner's characteristically vague use of "coherent") so long as it contains no expressions bearing conceptual content. Once introduce content-bearing expressions, though—even those bearing the minimal content sufficient to express truths of arithmetic—and incompleteness supervenes. Possibly this correction is pedantic, since Thomas presumably quotes Steiner only by way of offering a first approximation to a complicated set of ideas; but the facts about logic are so definite, on the one hand, and so unfamiliar to most theorists in the humanities, on the other, that some finickiness may be in order.

The qualification that I want to propose may cut deeper into the substance of Thomas's essay. In the later pages (e.g., from 256 on), I find that the essay comes close to suggesting that Gödel's proof concerning the incompleteness of (logically axiomatized) arithmetic is bound up with his philosophy of mathematics, specifically with his Platonism. In the philosophy of mathematics, Platonism consists in the view that what makes arithmetical statements true is their amounting to descriptions of a realm of abstract entities (such as numbers), taken to exist independently of human thought. The position opposed to this is constructivism (of which intuitionism, cited by Thomas, is the best-developed subtype), which holds instead that mathematical truths are products of human thought. What I find misleading in the essay's concluding arguments is their implication that Gödel's undoubted mathematical Platonism somehow motivates or underwrites his theorems about the (un)decidability of logical systems. But it does not: even the wildest-eyed constructivist has to accept the validity of Gödel's incompleteness proof for arithmetic; that, after all, is why we call it a proof. This dispute between Platonists and constructivists pertains, not to the structures of inference out of which mathematics is built, but to the interpretation of those structures—to the characterization of what mathematics is about, if it is not just a "meaningless game of marks on paper" (257), as both lines of philosophical interpretation deny that it is.

In any case, I note this without at all wanting to deny the soundness of Thomas's warning that "Gödel is a very uncertain ally for anyone wishing to leave behind what critics sometimes disdain as 'metaphysical consolations'" (249). I only want to redirect the route he followed to this conclusion.

DAVID GORMAN
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To the Editor:

As a former teacher of mathematical logic and for the past two decades a lecturer in English literature, I am highly concerned about uses and abuses of interdisciplinarity. I deeply honor intellectual bridge building but fear the misunderstandings wrought by misappropriation and pastiche.

David Wayne Thomas's "Gödel's Theorem and Postmodern Theory" alludes to a long-standing discussion about what, if anything, is the epistemological import of Gödel's theorem (or its extension by Church). Thomas correctly concludes that this theorem "does not simply invite us to a formal spectacle of evacuating meaning" (258). But he crucially misses the fact that no mathematician, whether Platonist, Buddhist, or Marxist, would agree that Gödel's great achievement or (at least therefore) its necessary outgrowth from the colossal framework of *Principia Mathematica* is in any sense a failure. Rather, Thomas states that the project of *Principia Mathematica*, "a logocentric enterprise par excellence," "failed," and "it remained to Gödel to show why" (250).

To explain why we are confused by this historical myth about Gödel's achievement, I will first discuss an important general aspect of mathematics and then illustrate with reference to Thomas's essay how far the seemingly subtle convolutions of conscious "positionality" are from grasping such matters (252).

In mathematics a negative conclusion has always been as richly interesting as a positive one; indeed, the polarization of negative and positive conclusions hardly has meaning in a discipline where "indirect proof" by reductio has long held a prominent place. When Euclid demonstrated (by means of reductio) that one cannot find a largest prime number, the conclusion was of the highest interest. Undoubtedly the most important discovery in mathematics of the classical world was the theorem showing that one cannot find a ratio of two whole numbers equal to the ratio of the length of the diagonal of a square to the length of its sides. Likewise, in the nineteenth century, Galois's great achievements in group theory showed the impossibility of trisecting arbitrary angles by means of geometrical constructions created with a straightedge and compass, as well as the impossibility of solving arbitrary polynomial equations of degree five or higher by the use of formulas involving radicals. Often proofs of impossibility have put to rest quests of centuries or millennia, opening the way to deeper understanding and advanced methods. Some have produced problems that are still unsolved by mathematicians.

Gödel's theorem is a proof of impossibility. The liar paradox mentioned by Thomas is not at all at issue in it; a more sophisticated version of this paradox, Russell's paradox, temporarily frustrated the development of the theory of sets used in *Principia*, but Russell and Whitehead found a (cumbersome, latterly much simplified) way around it. Gödel's theorem, far from undermining the project of *Principia*, provided its culminating achievement and glory, by showing that the mechanical decidability, the mere grinding out, of significant mathematical proofs is impossible. Unaided computers, for instance, will never be able to prove (or disprove) weighty mathematical theorems, no more than ruler and compass will be able to trisect angles.

Gödel's brilliant arithmetization of logical syntax is perhaps too complex for a treatment other than the illusively explanatory one Thomas gives it (250–51). As he says, mathematical simplifications can be misleading (249). But so are unwarranted complications of the mathematically simple. An example of this is a reference to "paradoxes" exemplified by the fact that "there are as many even numbers as there are odd and even numbers altogether" (257). Modern mathematics is entirely dedicated to unambiguous definitions: the statement that an infinite set has "as many" members as another is mathematically understood as asserting equal cardinality of the sets. The existence of an invertible one-to-one mapping between two sets suffices to show their equal cardinality. A one-to-one mapping of all the whole numbers to the even numbers is available in the mapping called doubling, and this mapping has an obvious inverse.

The theorem thus proved is extremely trivial, but it may introduce the only superficially negative theorem that there are no such mappings possible between the set of whole numbers and the set of so-called real numbers, the numbers that measure the lengths of arbitrarily long straight lines. Investigation of such matters extends over millennia, from Greek and Hindu treatments of geometric diagonals to the theories of number and infinity of our near contemporaries Dedekind and Cantor. I mention this to indicate the great length, depth, and (as many perceive) beauty of an existing mathematical conversation. The conversation may in itself easily give someone the desire to participate in it—the desire, puzzling to Thomas (256), to create further mathematical proofs. Such a conversation, involving millennia of transnational and transcultural efforts, which trendy thinking cannot ignore, dismiss, or deride, should be of great interest to cultural historians. As Thomas perhaps finally implies, making analogies between Gödel's mathematical insight and certain current attitudes and constructs that "theoretically" exclude some of the creative capabilities of humanity will not advance such a project.

B. J. SOKOL
University of London

Reply:

David Gorman's comments are lucid, informed, and usefully provocative. His "correction" is not pedantic, and in fact it recovers what I thought while writing the passage. I chose to use Steiner's formulation advisedly, recognizing its lack of rigor but also valuing its accessibility at that point in the essay. In addition, for those in a position to perceive its imprecision, the quotation demonstrates the loose currency of Gödel's theorem.

Gorman's further "qualification" reawakens for me the questions I had hoped to open in the essay, theoretical and practical questions about insight in postmodern critical work. I am not as confident as Gorman seems to be that the distinction between mathematical Platonism and constructivism can be granted complete integrity in all contexts. When one leaves matters of definition and enters matters of practice, the distinction becomes difficult to keep in sight, just as the notion of an axiomatic system's being complete "so long as it contains no expressions bearing conceptual content" seems to me to identify a useful fiction, or, perhaps better, a tactical containment. Gorman's point is perfectly well expressed and demonstrably correct, but one can ask further questions. In what sense is such a complete system available, and from what vantage points? What processes of decision are brought to bear on it, through what theoretical leverage and to what end or ends? My sense is that some species of transcendentalizing presumption informs these negotiations. Perhaps further work might proceed by distinguishing more fully than I do between constructivism-intuitionism and the "mythological Platonism"—a sort of "mathematics of as-if"—mentioned by Charles Chihara, to whom I refer in my essay (257–58). Discussion could also be structured around Kant, to whom the constructivists are indebted: is Kant a German idealist or, as he said, a negotiator between rationalism and empiricism? If one can credit each of these images of Kant with some truthfulness, I feel that the same doubling might apply to mathematical practices as well.

I am sorry to find little good will in the letter from B. J. Sokol, for whom, evidently, my essay's comparison is odious. If he aims to encourage caution against cavalier sloppiness, however, it would serve the spirit of his point to read the essay carefully and sympathetically. Instead, his comments misconstruct my intentions in several respects and exhibit some indifference to the essay's details. It seems to me that a superabundant disdain for all things postmodern has led him to obscure what most concerns him, whether it be some aspect of my argument or some more-generalized forebodings about postmodern procedure or perhaps both. I regret that we seem unable to understand each other.

I do not say that Gödel or *Principia Mathematica* "failed" in any general sense. Rather, I observe that Gödel's work demonstrated the futility of *Principia*'s mission as I define it at the start of the paragraph from which Sokol quotes—namely, the mission of formulating a mathematical-logical system that permits demonstration of its own completeness and consistency. That Gödel's treatise put some closure on that facet of *Principia* is a fact that Sokol seems to acknowledge in his following paragraphs, where he correctly lauds Gödel's effort as a generative "proof of impossibility." Curiously, Sokol then develops his criticism of my supposed blindness into one of the points I myself raise more than once: that Gödel's work implies essential differences between mechanical calculation and human thought (e.g., 251, 254, 259n9).

At times, Sokol's comments seem more testy than constructive. Following Gödel himself (van Heijenoort 598), generations of Gödel explicators have used versions of the liar paradox as an entryway to the theorem, and Sokol's decision to condemn that expediency in my essay—without noting that I twice in one page point out that the theorem is "substantially more complicated" than the liar paradox (250)—suggests a zeal to find something wrong. And when Sokol speaks finally of "the desire, puzzling to Thomas, to create further mathematical proofs," I am puzzled, indeed, but not in the way he implies. His page reference seems to indicate my discussion of logicians and their characteristic indifference to questions such as "Why is proof desirable?" I stand by my comments there. Logical investigations rarely make an issue of psychological motivations, whereas literary-critical theorists are often preoccupied by them. I do not mean thereby to discount the intellectual worthiness of logic or logicians, just as I do not condemn a construction-site engineer for failing to reflect on Robert Frost's poem "Mending Fences." Some matters are simply remote enough from each other that there is no irresponsibility in broaching only one and not the other.

Sokol claims to "honor intellectual bridge building," but his letter betrays no eagerness to see this particular bridge built. It is little trouble to identify shortcuts and simplifications in any short explanation of Gödel's work—indeed, I announce their presence myself (249)—but if Sokol wishes to discredit my "illusively explanatory" treatment of Gödel's thinking, it would seem incumbent on him, as I felt it incumbent on me as a writer, to attend to where and how those simplifications might matter. His letter does not do that. Any bridge between Gödel's theorems and postmodern literary-critical work must necessarily throw weight on either side of the gulf it hopes to span, so discussion cannot proceed when the weight of sympathies is grossly unequal. Simply extolling Gödel's "brilliant" work and then dismissing (without argument) the "seemingly subtle convolutions" of postmodern theorists does little service to this project.

I thank Sokol nonetheless for correcting, in his penultimate paragraph, my misguided formulation about sets of odd and even numbers. I now recall revising that passage for economy and style, and I failed to realize my introduction of the imprecision.

DAVID WAYNE THOMAS
University of California, Davis

Remembering K–12

To the Editor:

I have long admired Wayne Booth's down-to-earth, jargon-lite writings on teaching, literature, and teaching literature, and it was therefore with great pleasure that I sat down to read his reflections on his career ("Where Have I Been, and Where Are 'We' Now, in This Profession?" 109 [1994]: 941–50). I was pleased in particular by his sensitivity to the contrast between the privileged conditions that existed when he was coming up through the ranks and the rather different and strained conditions that graduate students and young teachers and scholars face today.

However, I was at the same time disappointed that nowhere does Booth connect "we" in "this profession," so-called higher education, and the catastrophic state of secondary education. Germaine Brée mentions high school briefly in her reflections ("The Making of a University Professor, USA—1936–84," 109 [1994]: 935–40), when she says that she left a high school position to teach at a university (936). Booth's avoidance of secondary education and Brée's abandonment of it, however justified in her case, seem to me symptomatic of an increasingly common attitude: whatever you do, stay away from the high schools and junior high schools.

I take Booth seriously when he says, "We need to ensure that there will be future generations who deal with literature and ideas because they love what they are doing, not because they have learned that pursuing this or that intellectual style, radical or reactionary, pays off. . . . [I]f *we* don't teach people how to engage with the subtleties and intricacies of novels, plays, and poems (along with the challenges of talking about them), who will?" Even with all the love and best intentions in the world, how will novels, plays, and poems be taught if the teachers in this profession are more and more "people who have first encountered the joys of reading" at age eighteen or twenty-two? (948). How much longer can *we* afford to ignore K–12? When will *we* acknowledge that *saving the text* and *the fate of reading* and *the rhetoric of fiction* concern all of us? Until we are willing to treat our colleagues in primary and secondary education with the respect they deserve, all that *we* do will be just so much whistling in the dark.

C. JON DELOGU
Université de Toulouse, Le Mirail

Reply:

I want to thank C. Jon Delogu for pointing out my curious oversight; I'm as shocked by it as he is. In the past I've made something like his case again and again, yet here for once I allowed myself to imply a "we" in "this profession" that excludes the very teachers I value most. Was I disoriented because the invitation came from the Modern Language Association and not from the Na-