

Re: Meyer's Argument against Gödel's Theorem

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- *From:* herbzet <herbzet@xxxxxxxx>
 - *Date:* Tue, 19 Aug 2008 03:13:16 -0400
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jeffreykegler@xxxxxxxx wrote:

I'm pleased that my novel about Gödel's ontological proof got mentioned on this list. I was not very surprised that LauLuna had reservations about my approach to Gödel. *_God Proof_* is a venture into hard SF at the boundary of math, religion & philosophy.

Combining math & philosophy is dicey. Throw in religion and things get really treacherous. Add to that a writer who has decided to deal with the whole business in the form of a novel, and even a generous person might wonder if he's not dealing with a crank or madman.

I took it from LauLuna's remarks that he'd not actually read *_The God Proof_*, but that he had done me the favor of looking it over to see if, despite everything, there might be something there. I hope I don't presume on sci.logic's patience if I explain a bit why I dealt with this material in the way I did.

Let me say that my research into modal logic and Gödel was quite serious. I became proficient enough in the math to assist two of the professionals then studying Gödel's ontological proof. Melvin Fitting (http://comet.lehman.cuny.edu/fitting/errata/book_errors/godelbookerrors/godelerrata.pdf) and Jordan Howard Sobel (by letter) were kind enough to acknowledge my minor assistance. Assistance to another researcher at the boundaries of philosophy and mathematics landed me a mention in *_Mind_* (V115, N459, p. 692). An acknowledgment does not compare with a publication, but just the same seeing my name in the same pages which have carried articles by Turing, Freud and James gives me a shiver. On my own, I'm a published mathematician of minor note. (*Communications of the ACM*, V29 #6, June 1986, pp. 556-558).

Far more serious qualifications than mine would be no guarantee against error. LauLuna presents some paraphrases as evidence that

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I've got Gödel wrong on the Incompleteness Theorems. For example, LauLuna says,

[a proof that the world cannot be proved consistent], Kegler writes, is not that bad, for if the world cannot be proven consistent, well, that's a proof that it is indeed consistent.

While my original language was carefully chosen and I prefer it, the paraphrase above is close enough for this purpose. LauLuna seems to be saying that statements like this clearly demonstrate that I've gone off the rails. I can't for the life of me see where.

Let's leaving aside my use of the philosophically-loaded term "world" for the moment, the math is not only correct, but downright boringly orthodox testbook stuff. Not very formally, the argument goes like this:

1. An inconsistent system is, by definition, one with a logical contradiction.
2. From a logical contradiction, you can deduce any statement whatsoever. (This is the principle of explosion, very well-established in classical logic.)
3. Conversely, if there is any statement at all which cannot be deduced in a system, the system must be consistent.
4. Gödel noticed that arithmetic cannot prove its own consistency. This (the fact that there is something arithmetic cannot prove) is a meta-proof that arithmetic is consistent. That's because an inconsistent system proves everything, including both its own consistency and its inconsistency.

If arithmetic is consistent, then it cannot prove its own consistency, as you say. This is what Godel proved.

The premise here, that arithmetic is consistent, Godel did not prove, meta or otherwise.

This supposed meta-proof is flawed in that it has not been shown that there is something arithmetic cannot prove. It has only been shown that arithmetic cannot prove its consistency if it is consistent.

Your assertion "Godel noticed that arithmetic cannot prove its own consistency" is wrong. What is correct is "Godel noticed that arithmetic, if consistent, cannot prove its own consistency."

It is not unusual for people to leave out the conditional clause.

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I expect the above will be very familiar to a lot of you on sci.logic. Now, OK, what's the point of my talking about the consistency of worlds instead of logical systems?

If a novel is centered on math, it needs to be made real. Usually, in math courses all the philosophical baggage is stripped off and ignored. How good an idea this is I won't address, but it does free up the syllabus for a march through the formal systems and their consequences.

But Gödel felt, as I do, and as a novelist of math must, that math is about real things of real concern to real people. That means my narrator (Josh Bryant) is fated to tackle those philosophical issues head-on.

Josh is taking the position that logic underlies the world of the senses. This is not beyond debate, but it is very mainstream. You're very hard put to justify why it's even worth an attempt to do science unless the world of appearances is logically coherent. And how do you do this without treating the basic laws and results of logic as facts basic to the world?

I don't say that there aren't other approaches. But Josh's position is very mainstream. Josh just states it a lot more clearly than is usual. He's a character in a novel. You'd expect that.

In academia, math and philosophy are separated. Gödel's Incompleteness Theorem is discussed as an exercise with formalisms in the math literature. The relationship of logic to ontology is dealt with in the philosophical literature. But if either mean anything in reality (and in a novel, things must be meaningful to the characters) the twain must meet.

Even in SF, writers are often just plain indifferent to accuracy. I took great trouble to make *_God Proof_* not just a book that stirs the imagination, but one that is as accurate as a book which avoids equations and technical language can be. It's easy to check out how well I've succeeded: *_The God Proof_* is available as a free download (<http://www.lulu.com/content/933192>). Those who want a print edition can order one from either Lulu or Amazon.

I don't claim *_The God Proof_* is inerrant. (In another of his interpretations of Gödel's work, Josh claims that the Second Incompleteness Theorem in fact shows that inerrancy is possible only if inerrancy is not claimed.) Readers might find statements which are not just informal, but plain ol' incorrect. I'm grateful to have those pointed out.

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thanks,

Jeffrey Kegler