

Re: Godel's comments about the "true reason" for incompleteness

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- *From:* "R. Srinivasan" <sradhkr@xxxxxxxxxxx>
 - *Date:* Wed, 19 Mar 2008 00:09:48 -0700 (PDT)
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On Mar 18, 10:24 pm, MoeBlee <jazzm...@xxxxxxxxxxx> wrote:

On Mar 17, 4:40 pm, "R. Srinivasan" <sradh...@xxxxxxxxxxx> wrote:

On Mar 17, 10:34 pm, MoeBlee <jazzm...@xxxxxxxxxxx> wrote:> On Mar 15, 10:18 am, "R. Srinivasan" <sradh...@xxxxxxxxxxx> wrote:

After all,
there is no way for a powerless individual
like me to change human
nature. But sooner or later, the farcical
nature of this state of
affairs will become clear to everybody and
hopefully some one of a
suitable stature and integrity will break away
from the status quo and
seriously consider my contribution.

Yes, you are a great revolutionary thinker, and not until some
other
great revolutionary thinker who also happens to have a
research grant
comes along will mankind ever be free from the cave of
ignorance.

Why don't you just answer the point I have made?

Because whatever point you think you made there does not interest me,
especially as your argument for it is so confused.

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It does not look confused to me. It is crystal-clear. I am going to snip out most of the NAFL-related points in this post and only address this issue in this thread. We will discuss NAFL later. Unwillingness on the part of your peers to discuss NAFL is obvious, I don't need to prove that. But since you are willing, I take that as a positive sign.

Good. In the meantime, when you go off describing yourself as poor widdle misunderstood leader of mankind from ignorance if only for an official pat on the back from a real live heavyweight mathematician, then I'll feel free to ridicule that.

Again, observe the *behaviour* of your "heavyweight" peers, words are worthless. A new logic like NAFL is self-evidently noteworthy and that explains their silence. An attempt to ridicule NAFL would be like a fool's venture.... and your "heavyweight" peers are not fools. I will grant that much to them.

But this post makes a point that does not invoke NAFL.

It invokes confusion.

Why can't I find a straightforward individual from amongst your peers, someone who will engage me in a honest debate?

Debate what? One cannot debate nonsense.

The point made is very clear. I have attempted to explain it again in this post.

What is the point in denying credit to an individual for legitimate work that he has done,

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Who said you should be denied any credit for any work you're done?

Actions speak louder than words. Ask your peers. I bet they will not reply to you either if you so much as mention NFL.

even if one ignores the unethical and petty nature of such an enterprise?

What unethical and petty enterprise are you referring to?

Self-evident, but let us not waste time on polemics here. See the points made below and try to respond, if possible.

I can understand and rationalize the existence of a few individuals (e.g. closer to home) who are of this nature, but the academic world seems to have mass-produced clones of this breed.

Right. Because people are not impressed with your work, it must be that they are mass-produced clones. God forbid you countenance that each individual is not impressed with your work based on that individual having come to that conclusion himself.

You don't understand my work. I do. How can you be either impressed or not impressed? As for your peers, they have said nothing so far (at least not in public). So how do you draw that conclusion? People apparently were not impressed with non-Euclidean geometry either for decades, until the originators died without getting due credit. Petty behaviour in the extreme, to deny due credit to people now recognized as brilliant.

The "true reason" for incompleteness is that Godel overreached beyond the boundaries of first-order logic.

What are you talking about? Do you contend that the proof is not formalizable in PRA or Robinson arithmetic or PA or even Z set theory – all first order theories.

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The proof is formalizable with "coding". I have clearly said that I am questioning the legitimacy of the coding and you have failed to understand that. You need to remove the blinkers and take another objective look at what I have said. I have said it again below.

You might ask, what is the objection to second-order logic, why not formally admit propositions which quantify over "all" propositions?

Who objected to second order logic?

I did. What I stated was my objection.

Take the assertion that "From a contradiction, an arbitrary proposition follows", or, say,

$P \& \sim P \longrightarrow Q$, (*)

Let us take P to be fixed in (*), and consider this proposition for arbitrary Q. Obviously there is an implied quantification over Q,

If 'Q' is a sentence letter, then it is not quantified over in the language. (Of course, the meta-language may quantify over sentence letters of the object language).

If 'Q' is a meta-variable in the meta-language, then it is not quantified over in the meta-language (if the meta-language is first order).

I object to this assertion that there can be a variable in a language that is not quantified over. All variables range over some domain and that *is* quantification. This is the kind of confused thinking that you are loudly accusing me of. Either Q is a constant (a fixed proposition, which must be specified by construction) or else it is quantified over. If Q is a variable in the metalanguage, it is quantified over in the metalanguage. E..g when you say that $P \& P \longrightarrow Q$ in

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the metalanguage, you are also asserting that this proposition holds for an arbitrary P and arbitrary Q. That is quantification. The point is that the object (first-order) language does not contain any such variables because actually propositions in the first-order language are obtained after substitution of P and Q by specific formulas.

if
we want to convey that "all" propositions follow from a contradiction.
If we admit (*) as a formal proposition in the same language which we are considering the notion of "all" propositions (e.g. PA), then clearly (*) is an impredicative construction,
for the quantification
must include (*) as well in its domain.

IF we admit it thus then it's a problem. But we DON'T. The assertion that all sentences follow from a contradiction is not made in the object language but rather in the meta-language.

Ah, so you do agree that there is quantification in the metalanguage. Fine. Let us take it from there.

This is not permitted in NAFL,
which requires propositions like (*) to be metamathematical constructions, outside the formal language. Then you can see that there is no impredicativity.

(1) You told us before that the syntax of NAFL is that of classical first order logic. (2) There's not even the problem you seem to think in classical first order logic, since we DON'T conflate the meta-language and the object language.

Of course, you say you don't. But with Godel's coding, I am alleging that you are doing that tacitly and objectionably. And I have stated my objection precisely. Here it is again.

Godel translated a proposition of the form $P \& \sim P \rightarrow Q$ into a proposition in the *object* language of arithmetic, say, PA. Call this proposition S. Note that S is a specific proposition involving only numbers.

By your own assertion above you do not admit $P \& \sim P \rightarrow Q$ in the object language of arithmetic. So if you scan all proofs of PA, you will not find a proof of $P \& \sim P \rightarrow Q$ (a proof must end with the proposition proven). You will not find a refutation of $P \& \sim P \rightarrow Q$ either in the

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list of PA-proofs. For if you did, then $P \& \sim P \& \sim Q$ must hold in every model of PA, for some specific (number-theoretic) propositions P and Q and we know that is not possible.

Now Godel translated the meta-theoretical proposition $P \& \sim P \rightarrow Q$ into a specific number-theoretic proposition S in the language of PA. Note that S is not a variable; it is a constant and we have a construction for S. Since we just now argued that $P \& \sim P \rightarrow Q$ is not either provable or refutable in PA, it follows that S must also be undecidable in PA. But this means that there must exist a model of PA in which S is false, and such a model cannot exist, for the same reason argued earlier. This is a contradiction.

In fact my understanding is that PA proves S. If the meta-theoretical sentence $P \& \sim P \rightarrow Q$ does translate to S and if this coding is accepted as legitimate, this is tantamount to the claim that PA proves $P \& \sim P \rightarrow Q$, which contradicts our earlier assertion that this is not possible. So now you must maintain that the metatheoretical proposition $P \& \sim P \rightarrow Q$ becomes a formal sentence of PA via coding and *is* provable in PA, after all. This is precisely what I am objecting to as stepping beyond the boundaries of first-order logic.

If S were undecidable in PA and if you could justify the undecidability of $P \& \sim P \rightarrow Q$ in PA, then I would not have this objection. For one could assert that S has a dual metamathematical interpretation as the sentence $P \& \sim P \rightarrow Q$ which we know is neither provable nor refutable in PA and as confirmed by the supposed undecidability of S. But unfortunately S *cannot* be undecidable in PA (by the argument given earlier) and is in fact not undecidable in PA. This amounts to a serious objection to the kind of translation procedure employed by Godel.

Kindly reply to this post. I am happy that you are attempting to take the bull by the horns and I would welcome your critical scrutiny of NAFL too. I will make a start this week-end (although I must take office work also into my holiday, so my responses will not be immediate).

Regards, RS

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