Re: Godel cant tell us what makes a mathematical statement true

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- *From*: MoeBlee <jazzmobe@xxxxxxxxxxxx>
- *Date*: Thu, 14 Aug 2008 11:23:07 −0700 (PDT)

On Aug 12, 3:28 pm, Nam Nguyen <namducngu...@xxxxxxx> wrote:

> herbzet wrote:
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> > Nam Nguyen wrote:
> >
> > > With the revised above, I hope you'd be convinced to change
> > > your mind.
> >
> > It's pretty standard as amended, other than the fact that you
> > are identifying truth with provability.
>
> Arguably, there are "forces" within the community who'd tend to
> oppose such a truth definition I've given. I think in their opinion
> that would reduce their sacred arithmetical truths to just syntactical
> provabilities within Q; and as such, Godel's results would be groundless.

Suppose we define 'true' as 'provable' as you suggest. Then we can
define 'troo' as we had previously defined 'true'. Now we're right
back to the usual results in mathematical logic (including variations
on the incompleteness theorem that mention 'true') except 'troo'
occurs where 'true' used to appear.

> > Still, we have the situation that if T |/− F and T |/− ~F then
> > F and ~F are both false.
>
> I assume the "situation" you alluded to below.
>
> > This doesn't distinguish refuted
> > formulae (the negations of proven formulae) from undecidable

formulae.

But it does. According to the definition, if F is a refuted formula then ~F is provable (criteria 1). On the other hand, if F is undecidable then both F *and* ~F aren't provable (i.e. false)! There's nothing to be confused about and nothing technically wrong here. In other words such a definition is *just an alias* for the syntactical definitions of provability, reputability, (un)decidability, (in)consistency!

But why would we WANT an alias? We have clear definitions of those those things. Why can't we have a different definition of 'true', I mean 'troo'?

And doesn't "Both F and ~F are both false" seem at least a bit odd to you as far as an ordinary non−technical meaning of 'false'?

And I think what herbzet meant is that, with your approach, both a refuted formula and an undecidable formula both come out as false, which does seem at least counterintuitive.

Also, I think you have to think about the difference between the concept of a formula F being true in a theory T (being true in every model of T) and the the anterior notion of a formula F being true in a given model (structure).

Nothing would seem "wrong" at all!

b) The standard definition of truth is *not perfect either*: there are some T in which if T is consistent, there would be some formula F which you can't tell whether or not F is true in any model of T!

> > In the standard definition of truth, a formula F that is undecidable
> > in a theory T is true in some model of T. If F is false in every
> > model of T, then F is decidable in T: it is the negation of a
> > formula provable in T (F is refuted in T). I don't see that
> > as an imperfection.
>
> The imperfection lies in that for complex truth systems, such as arithmetic
> truth, the canonical definition (which is intuitive) would be treated
> as *another entirely independent regime of reason*, independent from
> syntactical provability through inference rules. And that's not only
> "dangerous" to reasoning it's also wrong as a framework that we could
> *rely* on − to obtain *new knowledge*.

But we can formalize the mathematical defintion of 'truth' so that we can formally prove that certain sentences are true or false in certain models. Of course, we don't have an algorithm to determine such questions; but we don't have an algorithm to determine questions of plain first order provability either.

MoeBlee

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