Re: Robot Evolution

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- *From*: aatu.koskensilta@xxxxxxxxx
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John Edser wrote:

> Aatu Koskensilta aatu.koskensilta@xxxxxxxxx wrote:−
>
>> A formal theory T is said to be consistent if there is no sentence A such that both A and the negation of A are formally provable in T.
>
> To express what you wrote in just a simple way: contradictions are not allowed within any consistent theory. Is this correct?

It's not a question of allowing or prohibiting. The definition of a consistent theory in mathematical logic is that a consistent theory is such that there is no sentence A such that both A and the negation of A are formally provable in T.

>> Gödel's first incompleteness theorem shows that, for formal theories T meeting certain criteria, it is possible to find a formula G_T with the property that G_T is true just in case T is consistent, i.e. G_T is true if T is consistent, and false if T is inconsistent.
>
> It appears G is deducible from T but not the reverse.

No. If T is consistent, then G_T is unprovable but true, and if T is inconsistent, then G_T is provable (since everything is provable in an inconsistent theory) but false. Here G_T is a sentence in the formal language of T, expressing, by means of certain technical coding tricks, that "G_T is not formally provable in T".

> IOW what Gödel was driving at as far as the epistemology of science was concerned is that mathematics remains entirely deducible from non mathematics and not the reverse.

What does it mean to say that "mathematics remains entirely deducible from non mathematics and not the reverse"? It appears in any case to have absolutely no connection to the mathematical content of the incompletenss theorems. The same goes for your other remarks. Your reflections might be immensely significant, but perhaps it would be better to leave poort old Kurt out of it all?

> I just wished to make the rather trivial observation that the incompleteness theorem establishes an implication, "if T is consistent, then the Gödel sentence of T is true but unprovable in T", ..

> JE:−
> As I understand this: If T contains no contradiction then it remains a valid induction, the truth of which cannot be proven.

It makes no sense to say of a formal theory that "it remains a valid induction". A formal theory T is just a bunch of expressions in a mathematically defined language. Such a theory might, or might not, have some connection to our actual mathematical practice or theories, depending on the theory in question, but that calls for a further argument in each specific case.

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Aatu Koskensilta (aatu.koskensilta@xxxxxxxxx)

"Wovon man nicht sprechen kann, daruber muss man schweigen"
− Ludwig Wittgenstein, Tractatus Logico−Philosophicus

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