

Re: Some Simple Questions

Source: <http://sci.tech-archive.net/Archive/sci.math/2005-03/8272.html>

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In sci.math Charlie-Boo <chvol@aol.com> wrote:

: step...@nomail.com wrote:

:> If you download nqthm you can find the entire input to
:> the theorem prover for the proof of the unsolvability of
:> the halting problem in in examples/basic/unsolv.events
:>
:> You can build the theorem prover, and then run it
:> and see the output it produces that shows how it
:> proves the unsolveability of the halting problem.
:> It produces many pages of output. The justifications
:> for each step are often quite wordy. An example is:
:> Linear arithmetic and the lemmas CDR-LESSP, CAR-LESSP, and
: UNPACK-LESSP
:> can be used to show that the measure (COUNT X) decreases according
: to the
:> well-founded relation LESSP in each recursive call. Hence, SEXP is

:> accepted under the principle of definition. Note that:
:> (OR (FALSEP (SEXP X))
:> (TRUEP (SEXP X)))
:> is a theorem.
:>
:> Of course if anyone was really interested in this they
:> could download, build and run the program themselves.
:>
:> Stephen

: 1. What is the logical convincing argument that HP is unsolvable that
: is formalized in that paper?

The paper demonstrates how their theorem prover proved the unsolvability of the halting problem. The paper describes in great detail how they phrased the question so that it could be handled by their theorem prover. If you want to see the proof generated by the prover, download the program and run it. It is sitting there

publically available for anyone to test.

The goal of their paper was to demonstrate that a program could produce a proof of the unsolvability of the halting problem. Do you consider a program produced proof formal or not?

: 2. What is its (1) formal representation?

: 3. How was that formal representation (2) created?

: 4. What is the general means of mapping such a formal representation
: into a logical convincing argument?

: 5. How is that general means (4) applied to this formal representation
: (2) to produce the logical convincing argument (1)?

: C-B

The paper you are talking about is an example of what their theorem prover is capable of. It does not describe the theorem prover in great detail because that was done in earlier papers. You can find a more detailed description at

<http://www.cs.utexas.edu/users/moore/best-ideas/nqthm/>

You can find the answer to your questions there and in their other work. You can also download and run their theorem prover and see how it works. That is what the goal of their work was: to build a system that actually generates proofs. You claim their system is a fraud, despite the fact that you have apparently never bothered to actually look at it, and despite the fact that other people have actually used it.

Stephen