

Re: Goedel incompl. theorems

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waveletter skrev:

Because of (a) and (d), some mathematicians and philosophers (e.g. Quine) assert that 2nd-order logic is improper for mathematics and science. It's proof theory is too problematic. But, what ordinary mathematicians use is essentially 2nd-order logic without the formalism. The power and commonality of the 2nd-order theory, despite its ugly proof theory, are still attractive. Some people try to find limited versions of 2nd-order logic that have a decent proof theory but retain enough power to derive all of conventional mathematical analysis. Boolos himself was one of these. If you're interested in this pursuit, you might seek out:

What do you mean with "But, what ordinary mathematicians use is essentially 2nd-order logic without the formalism"? Is not most of ordinary mathematics possible to formalize in ZFC, which is a first order theory?

A last question, is not Second Order Arithmetic most often formalized using first order logic?

3. Simpson, "Subsystems of Second Order Arithmetic," Berlin: Springer, 1999.

4. Finally, check out the Wikipedia page:
http://en.wikipedia.org/wiki/Second-order_arithmetic

Hope this helps!
--Ron Allen