

# Re: incompleteness of first-order logic

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- *From:* "Li Yi" <[liyi.cn@xxxxxxxxxx](mailto:liyi.cn@xxxxxxxxxx)>
  - *Date:* 30 Jan 2006 05:54:04 -0800
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Yes,  $p$  is a sentence.

How to prove it in propositional logic?

Could you please show a concrete example to

$\text{Th } M \models \text{forall } y R(c,y)$

$\text{Th } M \models \text{exists } y \text{ not } R(c,y)$ .

The book written by my teacher says it is true in first-order logic.

Thank you.

Jan Burse wrote:

> Jan Burse wrote:

>>>  $M$  is a model. Let  $\text{Th } M = \{p : M \models p\}$ .

>>> Show that  $\text{Th } M$  is a complete theory, that is to say,  $\text{Th } M \models p \Rightarrow \text{Th } M$

>>>  $\models \text{not } p$ .

> Sorry, do you mean by  $p$  an arbitrary sentence.

> Then it is true in the propositional case.

> But false in the predicate logic case.

>

> The reason is that in your univers  $U$  of  $M$

> you might have elements which might not

> have terms in your language.

>

> Thus for example it could be that  $\text{Th } M \models$

>  $\text{forall } y R(c,y)$ , and  $\text{Th } M \models \text{exists } y$

>  $\text{not } R(c,y)$ .

>

> Must think about such an  $M$ , let me see in a

> next E-mail.

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- *References:*

- ◆ *incompleteness of first-order logic*

- ◆ *From:* Li Yi

- ◆ *Re: incompleteness of first-order logic*

Re: incompleteness of first-order logic

◇ *From: Jan Burse*

◆ ***Re: incompleteness of first-order logic***

◇ *From: Jan Burse*

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