

Re: interpolation theorem of propositional logic

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Hi

David C. Ullrich wrote:

On 11 Apr 2006 03:36:16 -0700, "Li Yi" <liyi.cn@xxxxxxxxxx> wrote:

If $\alpha \models \beta$, then there is some γ all of whose sentence symbols occur in both α and β and such that $\alpha \models \gamma \models \beta$.

This is obviously false.

Hint: The weaker statement "If $\alpha \models \beta$, then there is some γ all of whose sentence symbols occur in both α and β " is obviously false.

Depends on what one understands by sentence symbols.

If for example sentence symbols means variables, function symbols and predicate symbols, then both of them are true.

Let $S(\cdot)$ denote these symbols from ..

The if $\alpha \models \beta$, then there should be a γ with $S(\gamma) \subseteq S(\alpha) \cap S(\beta)$. Namely take the $\gamma = \text{false}$ for example. Here $S(\gamma) = \{ \}$.

If additionally it should hold $\alpha \models \gamma$ and $\gamma \models \beta$, you end up with Craig's interpolation theorem.

<http://www.cl.cam.ac.uk/~tjr22/doc/argTalk20051109.pdf>

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