

Week 10

Exercises on natural deduction for first order logic

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1. Prove the following formulas:

a) $\vdash_{FOL} \forall x[P(x) \rightarrow P(x)];$

b) $\vdash_{FOL} \forall x[P(x)] \rightarrow (\forall x[P(x)] \vee \forall x[Q(x)])$

2. Is it possible to derive $\exists x[P(x)] \vdash_{FOL} \forall x[P(x)]$? Or in trying to derive it you have to apply a rule in some incorrect way?