



Homework

1. Choose a $\lambda \rightarrow$ -term with two β redexes and show its type derivation.
 - What impact on the proof do the two beta reduction have? Does it matter which one is performed first?
 - Show the corresponding natural deduction proof in the box proof-style (or flag style, Fitch style, Jaśkowski style, LICS style). How is the proof normalized by the β -steps?
2. Propose the HOL encodings of the basic logical connectives (truth, false, conjunction, disjunction, negation). Can you propose multiple ways?
3. Using the basic HOL rules derive:
 - the symmetry of equality:

$$A = B \vdash B = A$$

show the intermediate steps.

4. Give a derivation that corresponds to: $((A \rightarrow B) \rightarrow C) \rightarrow B \rightarrow C$