

## Exercise 7 (deadline: November 26th, 4pm)

Built from Exercises 11.2 and 11.3

Draw the parse tree for the following formula:

$$\forall p(p \rightarrow \exists q(q \rightarrow \forall r(p \vee q \vee r))).$$

Underline all free occurrences of variables in this formula.

Part of Exercise 11.6

Transform the following formula into prenex form:

$$\forall p \neg p \vee \forall p p \rightarrow \neg p.$$

Part of Exercise 11.9

Evaluate the following formula using the Splitting Algorithm:

$$\exists r \forall q \exists p (p \leftrightarrow ((p \rightarrow r) \leftrightarrow q)).$$