

## Problem assignment 6

*Due: October 16, 2019*

### First-order Logic

#### Problem 1

Do exercise 8.9. from page 316 of the RN textbook.

#### Problem 2

Do exercise 8.10 from page 317 of the RN textbook.

#### Problem 3. Translation and Inference

Consider the following paragraph:

Tony, Mike and John belong to the Alpine Club. Every member of the Alpine Club is either a skier or a mountain climber or both. No mountain climber likes rain, and all skiers like snow. Mike dislikes whatever Tony likes and likes whatever Tony dislikes. Tony likes rain and snow.

**Part a.** Represent the above information in FOL.

**Part b.** Consider a statement: There exists a member of the Alpine Club who is a mountain climber but not a skier. Use resolution refutation to show whether the knowledge extracted from the paragraph entails the statement. Your solution should give a proof in terms of a sequence of clauses derived by applying the resolution rule to existing sentences and corresponding variable substitutions.