

## Homework 9

Due Thursday, 04/14/2016, by 11:55 p.m.

There are no programs to be turned in for this week's assignment.

1. (10 points) Please represent the following statements with a DRS diagram. In each case explain why your diagram represents the sentence(s).
  - (a) "A boy talked to a store manager. He asked him for help"
  - (b) "No boy who beat a donkey was liked by it."
  - (c) "All girls admire someone"
2. (20 points) In this exercise you are to provide proofs of the following using both resolution and semantic tableaux. Remember that for each you will perform a proof by contradiction by negating the conclusion. For resolution, each formula will need to be converted to conjunctive normal form before using resolution.
  - (a) Propositional logic:  $(P \rightarrow Q) \vee (R \rightarrow S) \vdash (P \rightarrow S) \vee (R \rightarrow Q)$
  - (b) Predicate logic: John owns a dog. Every person who owns a dog, pets it. John is a person. Therefore John pets a dog.

We discussed the second of these with resolution (see the lecture notes). You may use the material in the lecture notes to help you get started on the resolution version. The tableaux version will work differently as it does not need to be put in conjunctive normal form first.