

**Exercise for the lecture Modeling Methods in Computer Science,
Winter Semester 2007/08**

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Consultation-hour: Thursday, 15:00-16:00

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Exercise Sheet 10Due date: **09.01.2008, 14:00**

Exercise 19: Propositional Resolution

If Paul is on vacation and it is snowing, then he goes skiing. Paul goes on a holiday to France or to Florida. You cannot go skiing in Florida. Paul is on vacation and goes on a holiday to Florida.

- Give a propositional formula in conjunctive normal form that reflects the sentence above.
- Show that the text implies that it is not snowing, by means of propositional resolution.

Hint: If F is the propositional formula out of (a) and S is describing the fact that it is snowing one has to show the validity of $F \rightarrow \neg S$.

3 + 7 = 10 Points

Exercise 20: Propositional Resolution

Given the formula

$$F := (A \vee \neg B \vee C) \wedge (A \vee B) \wedge (B \vee \neg C)$$

- Please give the respective set of clauses
- Please give the set of resolvents $Res^i(F)$ for each number $i \geq 0$
- Which is the smallest number n with $Res^*(F) = Res^n(F)$?
- Is F satisfiable? Please give an explanation.

2,5 + 2,5 + 2,5 + 2,5 = 10 Points

Merry Christmas and a happy new year! :-)