

**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 11Due date: **16.01.2008, 14:00**

Exercise 21: Cooking with Prolog

Given the following program in Prolog:

```
1 at_work(tamara, morning).
2 at_work(dieter, noon).
3
4 employs(X, Y) :- at_work(X, Y).
5 no_lunch(X) :- employs(X, noon).
6
7 evening.
8
9 cooking(X) :- evening, no_lunch(X).
```

- (a) Describe the function/meaning of each line of the program in your own words.
- (b) *(i)* Determine if Dieter is cooking with the help of the given Prolog program. Explain your result in your own words and name the facts and rules which are needed for your explanation.
(ii) Check if Tamara is cooking in the same manner.

3 + 3 = 6 Points

Exercise 22: Modeling with Prolog

Claudia and Klaus are at work. Klaus and Gerd didn't get much sleep while Claudia did. A person is vivid if he or she got much sleep. A person is tired if he or she did not get much sleep. There is some coffee powder available. A person needs coffee if he or she is tired and at work. A person makes coffee if he or she needs to and if there is some coffee powder available.

Model the above scenario in Prolog. Analyze which facts and rules can be extracted from the text. Write your program in such a way so that the following query may be true:

```
?- making_coffee(klaus)
```

14 Points