

## **Theoretische Informatik (Kernfach)**

## **SS 2004 Exercise Set 6**

### **Exercise 1**

A state-owned company is looking for employees for 3000 positions. It has received many applications; some candidates apply for several positions (but a candidate can be hired for only one position). Is it possible to fill all positions in such a way that 300 black women and 173 male homosexuals are hired?

Explain how a maximum flow algorithm can be used to solve this problem, assuming, of course, that the relevant characteristics of the candidates are known.

If you don't succeed, describe how network flows can be used for computing a maximum bipartite matching.

### **Exercise 2**

Exercise 1.37 in the hand-out *Random(ized) Search Trees*.

### **Exercise 3**

Exercise 1.40 in the hand-out *Random(ized) Search Trees*.