

Exercise No. 10
Peer-To-Peer Networks
Summer 2010

Exercise 1 *Pareto-Distribution*

1. Sort all files on your computer according to the size. E.g. you can use the following command on Unix-based systems:

```
du / | sort -n > data.out
```

Does the distribution of the file size obey a power law?

2. Prove that all moments of the exponential distribution are defined.

Exercise 2 *Game Theory*

Consider the winning matrix of the rock-paper-scissors game, see <http://en.wikipedia.org/wiki/Rock-paper-scissors>.

1. Compute the Nash-Equilibrium.
2. Compute the mixed Nash-Equilibrium.
3. What is the winning strategy?