

## On-Line Algorithms – F10 – Lecture 4

### **Lecture, April 20**

We finished chapter 1 in the textbook and covered all of chapter 2 except RMTF from section 2.3.

### **Lecture, April 23**

Kim Skak Larsen will lecture on chapter 3 in the textbook and begin on chapter 4.

### **Lecture, April 29, in U49**

Kim Skak Larsen will finish chapter 4 in the textbook and I will finish chapter 2 and begin on chapter 6 (introducing chapters 6, 7, and 8).

### **Problems for May 4**

1. Do Exercise 3.2 in the textbook.
2. Do Exercise 3.3 in the textbook.
3. Do Exercise 3.6 in the textbook.
4. Do Exercise 3.7 in the textbook.
5. Do Exercise 3.8 in the textbook.
6. Do Exercise 3.9 in the textbook.
7. Do Exercise 3.10 in the textbook.

8. Prove that for any pair of deterministic lazy paging algorithms,  $A$  and  $B$ , any sequence length  $n$ , cache size  $k$ , and memory size  $N$ , for any number of faults  $f$ , the number of sequences of length  $n$  where  $A$  has  $n$  faults is equal to the number of sequences of length  $n$  where  $B$  has  $n$  faults. Do this by induction on the length of the sequence,  $n$ , by finding a bijection  $f$  which maps sequences where  $A$  has a particular number of faults to sequences where  $B$  has the same number of faults.