Dr. Ulrich Meyer **SS 2005**

Exercises for Online- and Approximation-Algorithms

2. Assignment Due 12. May 2005

Exercise 1 (*Fractional* MTF, 6 *Points*)
Let MTF_d ($d \geq 1$) be a variant of MTF that moves an accessed item at position i at least $i/d - 1$ positions to the front of the list. Sketch a proof that MTF_d is $(2 \cdot d)$-competitive.

Exercise 2 (MTF-*every-other-access* , 6 *Points*)
Prove that the algorithm MTF-*every-other-access* (i.e., move the item to the front on every even request for that item) is $O(1)$-competetive.

Exercise 3 (*Another variant of* MTF, 3 *Points*)
We slightly modify Exercise 2 by only moving the elements of requests $\sigma(j)$ with $j \bmod 2 = 1$. Show that the resulting strategy is not competitive.