



Verteilte Algorithmen

Sommersemester 2006

Serie 2

12. April 2006

Thema: Leader Election

Ausgabetermin: 12. April 2006

Abgabe: 24. April 2006

Aufgabe 1 (Time Slice (3 Punkte)) Geben Sie den Code für den *TimeSlice*-Algorithmus an (Aufgabe 3.10).

Aufgabe 2 (Verbesserter *OptFloodMax* (4 Punkte)) Consider the “further optimized” version of *OptFloodMax* described in Section 4.1.3, which prevents processes from sending *max-uid*-information to processes from which they have previously received such messages.

1. Give the code for this algorithm.
2. Prove the correctness of your algorithm by relating it to *OptFloodMax*, using the same sort of simulation strategy used in the proof of correctness for *OptFloodMax* (i.e., in the proof of Theorem 4.2).

(Aufgabe 4.4)

Aufgabe 3 (*SyncBFSMax* (6 Punkte)) Consider the optimized version of *SynchBFS* described in Section 4.2.2, which prevents processes from sending search messages to processes from which they have previously received such messages.

1. Give code for this algorithm.
2. Prove the correctness of your algorithm by relating it to *SynchBFS*, using the same sort of simulation strategy used in the proof of correctness for *OptFloodMax* (i.e., in the proof of Theorem 4.2).

(Aufgabe 4.6)

Literatur

- [1] Thomas H. Cormen, Charles E. Leieron, and Ronald L. Rivest. *An Introduction to Algorithms*. MIT Press, 1990.
- [2] Nancy Lynch. *Distributed Algorithms*. Kaufmann Publishers, 1996.