Concurrency: Theory, Languages and Programming

– Proofs in π-Calculus –

Session 14 – February 5, 2003

Uwe Nestmann

EPFL-LAMP

(Exam) Questions?

Joint Foundations for Lambda & Pi

- ☐ α-conversion & substitution
- ☐ equivalences
- ☐ contexts & congruence

Lambda

- ☐ semantics using evaluation contexts
- ☐ reduction strategies
- ☐ various equivalences
- ☐ Y recursion

(Exam) Questions?

CCS / Pi

- ☐ concurrency primitives
- ☐ read & write labeled transition semantics rules
- ☐ derivation of transitions
- ☐ simulation, mutual & bi- simulation
- ☐ strong vs. weak
- ☐ modeling exercises/examples w/ and w/out mobility

Scala

- ☐ transforming calculus into “language”
- ☐ transforming “language” into calculus
- ☐ representation of “high-level” concurrency primitives

Exercise: Semaphores

- ☐ recall the examples from Session 8
- ☐ now, think different !

- ☐ informal description of specification and implementation
- ☐ model in Pi
- ☐ run in Scala
- ☐ verify using the ABC