

Optional Assignment on Flow Logic

If you want to earn full credits for the summerschool by doing the assignment on Flow Logic you should solve the following exercise:

1. Find and read a suitable reference on the process algebra CSP;
 - make sure to select a version where values are passed as part of communication.
2. Define the syntax and operational semantics of CSP;
 - explain the choices made;
 - informally argue why it captures the intention behind CSP.
3. Develop a simple control flow analysis in the Flow Logic format for determining which values reach what places;
 - explain the choices made;
 - illustrate the analysis on a well-chosen example;
 - argue in detail for the well-formedness of the specification;
 - formally prove the subject reduction result;
 - establish the Moore family result.

Try to answer one of the following questions:

- 4a. Estimate the complexity of the Flow Logic specification.
- 4b. Develop an interesting analysis (perhaps dealing with security) on top of your simple control flow analysis.

Write the report in the form of a conference style paper.

It is quite acceptable to seek inspiration in the slides and in published papers (e.g. <http://www2.imm.dtu.dk/~nielson/FlowLogic.html> or papers providing partial answers to question 2).