Concurrent Systems II

Practical 4 SPIN — Promela

February 21, 2014

This practical is worth 2% of your year-end result. Have your program ready at the usual time in the week after reading week. Have a printout also.

Write a Promela program to situation depicted in the following slide. Use SPIN to show that the Promela program works. Figure out how to use SPIN to prove that a scenario exists where n is 2 when the program has completed.

Concurrent Counting Algorithm

Example: Concurrent Counting Algorithm	
integer n ← 0;	
р	q
integer temp	integer temp
pl: do 10 times	q1: do 10 times
p2: temp ← n	q2: temp ← n
p3: n ← temp + I	q3: n ← temp + I

- Increments a global variable *n* 20 times, thus *n* should be 20 after execution.
- But, the program is faulty.
 - Proof: construct a scenario where n is 2 afterwards.
- Wouldn't it be nice to get a program to do this?

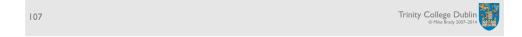


Figure 1: From the Overheads

(http://www.scss.tcd.ie/CourseModules/CS3015/Assets/Practicals/p4/practical.pdf)