

NSWI101: SYSTEM BEHAVIOUR MODELS AND VERIFICATION

LAB 04 – MORE SPIN EXERCISES

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EXERCISE – DEKKER'S ALGORITHM FOR MUTUAL EXCLUSION

INITIALIZATION :

```
shared boolean flags[2];  
shared int turn;  
turn = 0;  
flags[0] = FREE;  
flags[1] = FREE;
```

```
EXIT PROTOCOL (for Process i):  
/* pass the turn on, and release  
the resource */  
turn = 1 - i;  
flags[i] = FREE;
```

ENTRY PROTOCOL (for Process i):

```
/* claim the resource */  
flags[i] = BUSY;  
/* wait if the other process is using the resource */  
while (flags[1 - i] == BUSY) {  
    /* if waiting for the resource, also wait our turn */  
    if (turn != i) {  
        /* but release the resource while waiting */  
        flags[i] = FREE;  
        while (turn != i) { }  
        flags[i] = BUSY;  
    }  
}
```

Model MESI protocol in Promela

Assignment specification available at:

<https://d3s.mff.cuni.cz/files/teaching/nswi101/HW1.pdf>

Deadline: February 24, 2025