

Software Quality FS 2014

Exercise 1 - Discussion

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Grading



Colony of Chameleons

- Non-Determinism in Spin
 - Do-loop
 - Processes

Colony of Chameleons

- Duration of change
- Probability of change

Colony of Chameleons

Safety? Liveness?

Safety

Something *bad never* happens

Liveness

Something *good Eventually* happening

Colony of Chameleons

Safety? Liveness?

- At least two chameleons of different color
- No chameleon left

Colony of Chameleons

Where is the mistake?

active proctype birth()

```
:: d_step {nRed && nRed ;nRed++;}
```

Colony of Chameleons

Limitations of SPIN

Number of states explodes rapidly.

If the search is not exhaustive, no guarantee to find a violation even within the search range.

extinction possible with $N=30$, but not with $N=350$

Petri Nets

All verifications can be done using ltl formulas

Petri Nets

Where is the mistake?

T4 can be fired at least once

[] <> t4

Petri Nets

P4 never gets empty again

`<> (p4NotEmpty == true && p4 == 0)`

- How to check the property without adding a variable in the process?