

## Optimization 1: Early detection and $2N+1+\log(N)$ bits

**procedure** DFSblue(s,i)

s.color[i] := cyan

**for all** t  $\in$  post(s) **do**

**if** t.color[i]=cyan and s or t  $\in$  Acc **then** ExitCycle

**if** t.color[i]=white and  $\neg$ t.red **then** DFSblue(t,i)

**if** s  $\in$  Acc **then** s.count++; DFSred(s,i)

s.color[i] := blue

**procedure** DFSred(s,i)

s.color[i] := pink

**for all** t  $\in$  post(s) **do**

**if** t.color[i]=cyan **then** ExitCycle

**if** t.color[i] $\neq$ pink and  $\neg$ t.red **then** DFSred(t,i)

**if** s  $\in$  Acc **then** s.count--; **await** s.count=0

s.red := true