Bounded Model Checking: Completeness

- Completeness condition: reaching the diameter
  - Diameter: d
    - The depth needed to unroll to such that every possible state is reachable in d steps or less
  - Recurrence diameter: d_r
    - The depth such that *every* execution of the system of length $\geq d_r$ *must* revisit states
    - Can be exponentially larger than the diameter
  - $d_r \geq d$

- Very difficult to compute the diameter
  - Requires a quantifier: find d such that any state reachable at $d + 1$ is also reachable in $\leq d$ steps