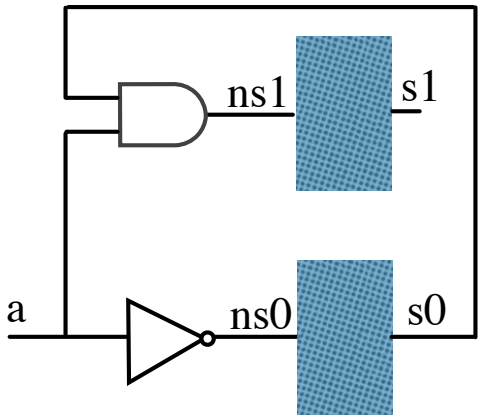
Problem set 1 Due on Canvas by start of class on 2/25/25.

Submission consists of a single PDF file and two dimacs CNF text files. The PDF can be a digitized version of a hand-written page.

1. Write a CNF formula to check whether this system can reach target state 10 from initial state 00 in one transition. Solve the CNF by hand. How many satisfying assignments exist?
2. Write a CNF formula to check whether this system can reach target state 10 from initial state 00 in two transitions. Solve the CNF by hand. How many satisfying assignments exist?
3. Re-solve questions 1 and 2 using a SAT solver. Do this by translating your CNF formulas to dimacs format and feeding them to a solver. See Lab 1 for details.
   - (1) Report the name of the SAT solver used
   - (2) Report whether each formula is satisfiable
   - (3) If satisfiable, report the assignment found by the solver. Report the assignment using the alphanumeric node/ variable names from the circuit, not the solver's raw output
   - (4) Submit both dimacs CNF files to Canvas with your pdf

Given:
Initial state (s1,s0)=00



Gate-to-CNF Mapping Rules: