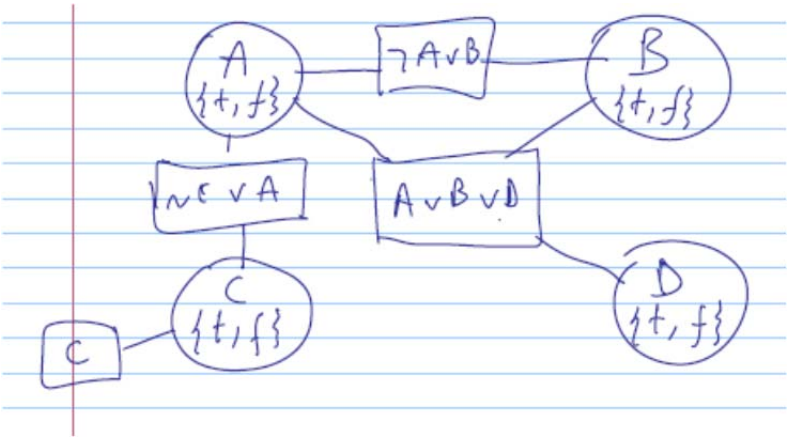
Quiz 12 CSCE 580 March 19, 2015

This quiz is about the DPLL algorithm (section 4.6.1 [P]). Recall the definition of constraint network for a constraint satisfaction problem (CSP):

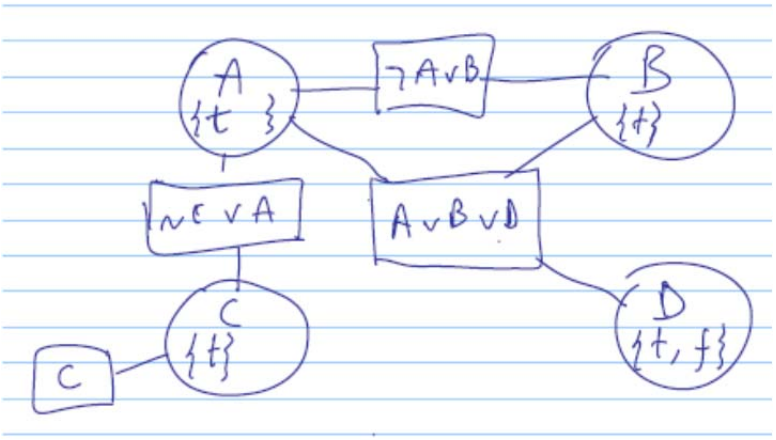
- There is a node for each variable of the CSP. These nodes are drawn as ovals.
- There is a node for each constraint. These nodes are drawn as rectangles.
- Associated with each variable, X, is a set D_X of possible values. This set of values is initially the domain of the variable.
- For every constraint c, and for every variable X in the scope of c, there is an arc (X, c).

For this quiz, it is important to draw the domains and the unary constraint(s).

Draw the constraint network for the Boolean formula (in conjunctive clausal form)
{(~A v B), (~C v A), (A v B v D), (C)}. **Answer:**



Draw the same constraint network after unit propagation. **Answer:**



Split on the domain of D and provide the two solutions.

Answer: (1) A=B=C=D=t, (2) A=B=C=t, D=f.