A. I. Planing - Ex. 12

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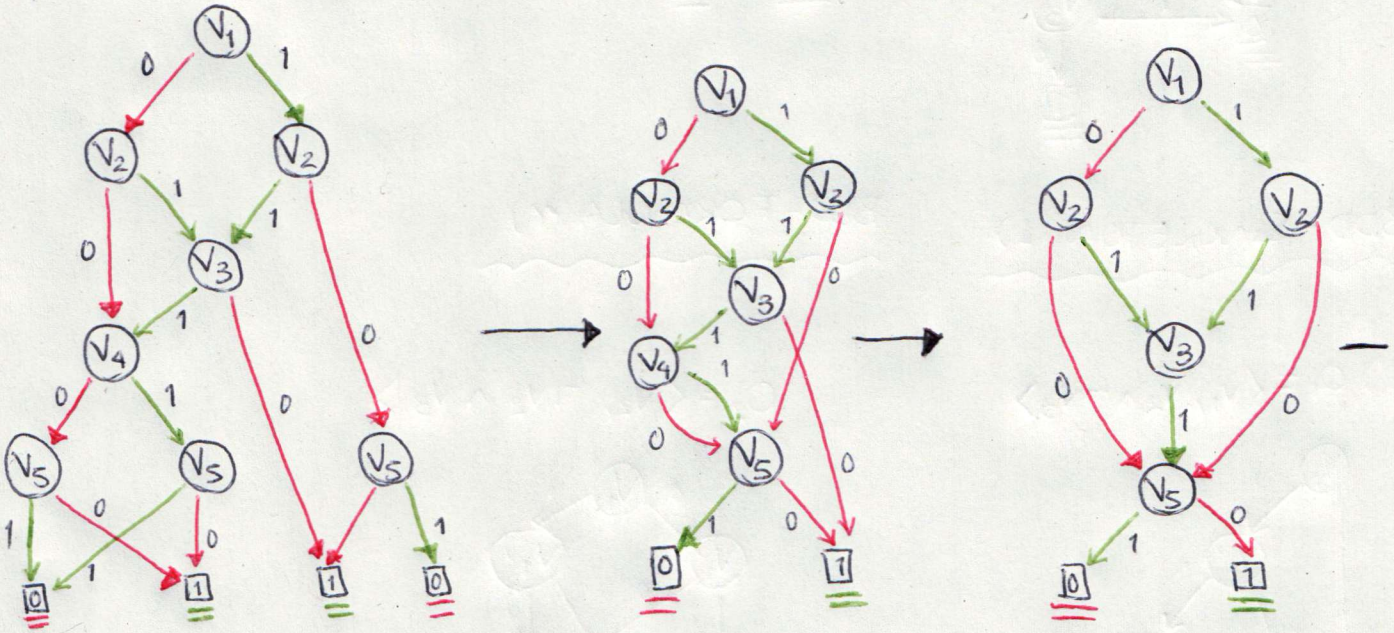
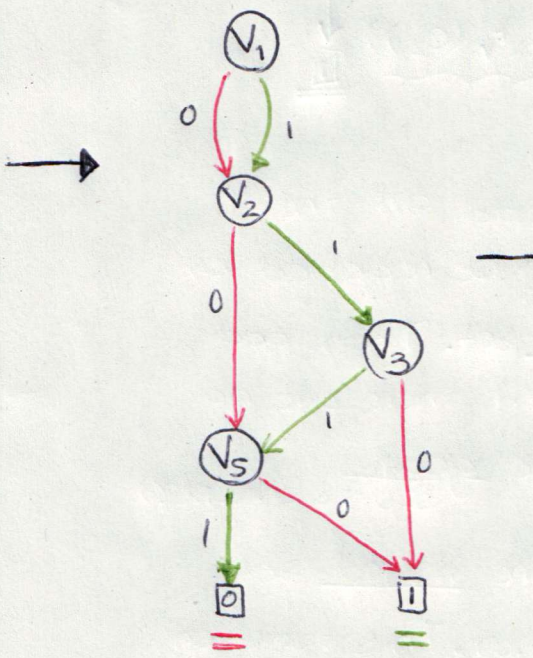
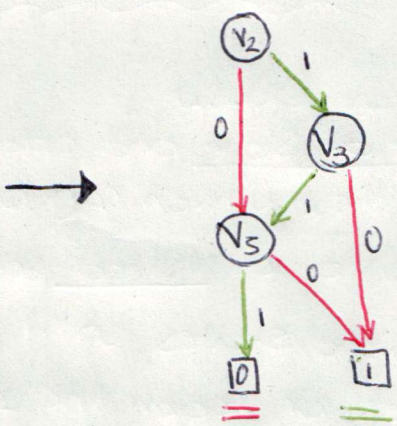
Ex. 12.1



*X means consider states where var V→T and V→F





DNF

$(\neg V_3 \wedge V_2) \vee (V_2 \wedge V_3 \wedge \neg V_5)$

CNF

$(V_2 \vee \neg V_5) \wedge (\neg V_2 \vee \neg V_3 \vee \neg V_5)$

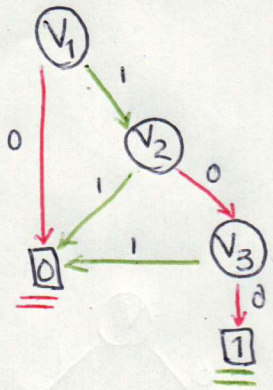
Set of states

*X means don't care

$S = \{\{V_1 \to X, V_2 \to T, V_3 \to F, V_4 \to X, V_5 \to X\}, \{V_1 \to X, V_2 \to T, V_3 \to T, V_4 \to X, V_5 \to F\}\}$

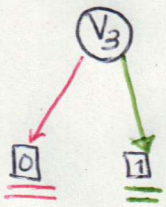
Ex. 12.2

(a)



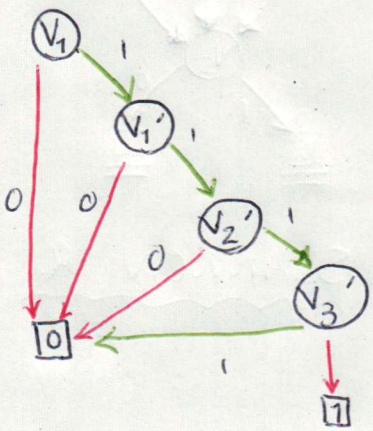
BDD-SINGLETON(1)

(b) γ



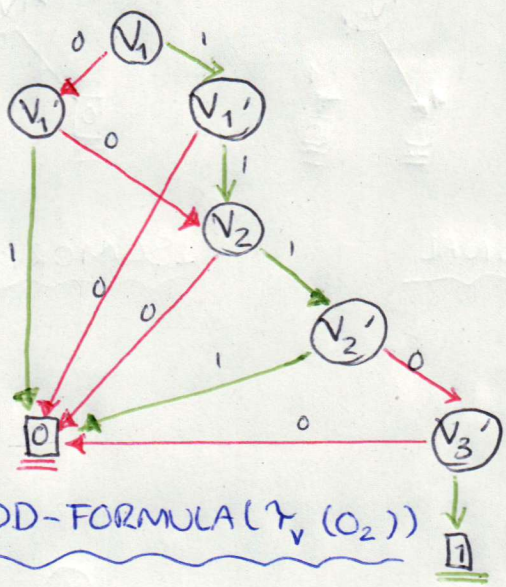
BDD-FORMULA(γ)

(c) $O_1 = \langle V_1, V_2 \wedge \neg V_3 \rangle$



BDD-FORMULA($T_v(O_1)$)

$O_2 = \langle V_2, \neg V_2 \wedge V_3 \rangle$



BDD-FORMULA($T_v(O_2)$)

BDD-SINGLETON(1)

(d) We start at the initial State and add all the possible next States (those which can be reached by applying an operator) to a visited set. Then add to the set the reachable states until there are no new reachable states or reach the goal

BDD-FORMULA(γ)

To calculate the next states given the visited set we use the image(visted, O) function. This function is calculated using the transition relation $T_v(O)$.

BDD-FORMULA($T_v(O)$)