Aaron Knestaut

CISC 304 HW 2

1. $(\sim P3 \vee \sim(P2 \vee P1)) \wedge ((P2 \wedge \sim P3) \vee (\sim P3 \wedge \sim P2))$

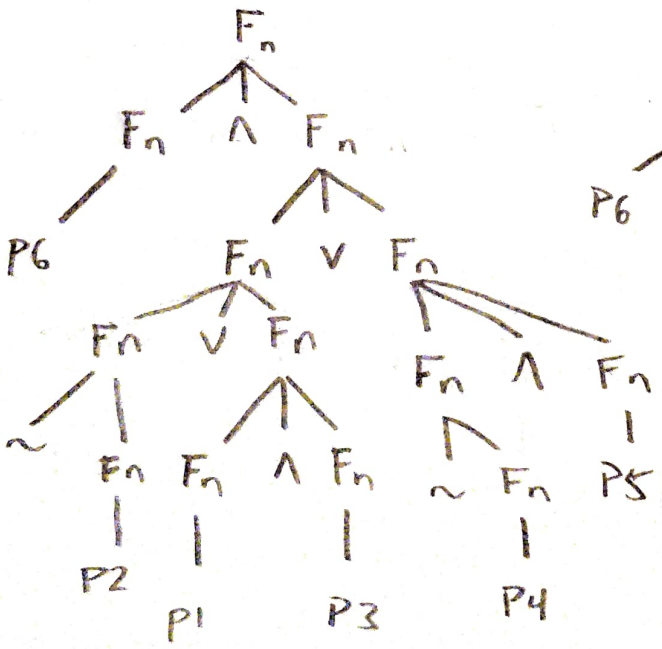
$(\sim F \vee \sim(F \vee T)) \wedge ((F \wedge \sim F) \vee (\sim F \wedge \sim F))$

$(T \vee (T \wedge F)) \wedge ((F \wedge T) \vee (T \wedge T))$

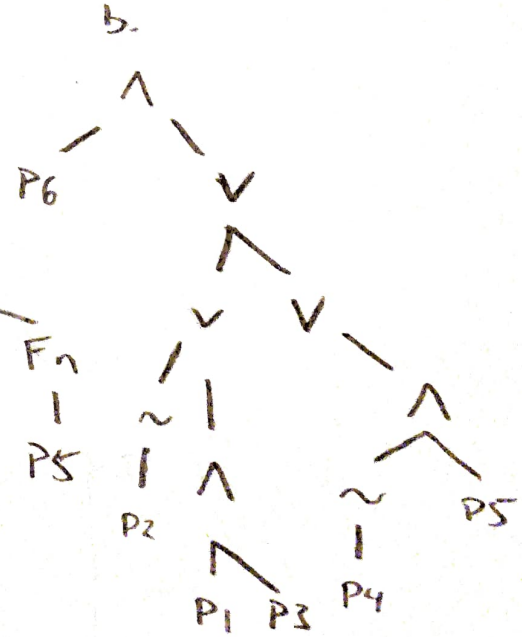
$(T \vee F) \wedge (F \vee T)$

$T \wedge T = True$

2. a.

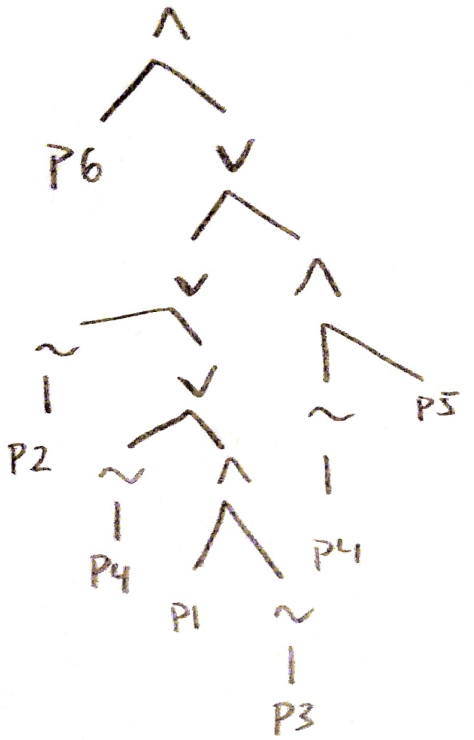


b.



c. $\sim P4$, $\sim P2 \vee P1$, $P6 \wedge (\sim P2 \vee P1 \wedge P3)$,
$(\sim P2 \vee P1 \wedge P3) \vee \sim P4 \wedge P5$

d.



3.a. $Q = \sim(A \wedge B) \wedge \sim(A \vee B) \wedge C$

$Q = (\sim A \vee \sim B) \wedge (\sim A \wedge \sim B) \wedge C$

b.

a	b	c	Q
F	F	F	F
F	F	T	T
F	T	F	F
F	T	T	F
T	F	F	F
T	F	T	F
T	T	F	F
T	T	T	F

4. a. GENDER = female ∧ STATE = nevada ∧ (EDUCATION = masters ∨ EDUCATION = Phd)

b. (AGE = young ∧ GENDE = male ∧ ~(STATE = delaware ∨ STATE = new York) ∧ (EDUCATION = college ∨ EDUCATION = masters)) ∧ (AGE = young ∧ GENDER = female ∧ EDUCATION = college)

5. a. $p8 \rightarrow p3 \vee p4 \vee p5$

b. $(p8 \wedge p1) \vee (p9 \wedge p2)$

c. $\sim p8 \rightarrow \sim p1$

d. $\sim p1 \rightarrow \sim p10$

e. $p2 \rightarrow p6 \wedge p7$

f. $\sim p7 \rightarrow p1$

g. $\sim p6 \rightarrow \sim p1 \vee \sim p2$