(i.) D. {{a,-b},{a,b,c}, {-a,c},{-c,-b}} & C,={a,~b}, C2-{a,b,c}, C3={~a,c}, C4={~a,n}} C1.5 (,, C2, C3, C4) Pa=C,(a), Cz(na) {a, nb}: {~a,c} (C,-{a}) (23-{~a}) =) resolvent: {vb,c} P2: (2(a), (3(na) {a,b,c}, {~a,c} (C2-{a}) (C3-{va})+ => resolvent : Eb, c} P3, C26, C, (~b) {a,b,c}! {a,~b} (C2-{b}UC,-{~b}) Py, Cacbl, Cylabl resolvent, {a,c} {a,b,c}: {~c,~b} (C2- {b} U C4-{vb}) resolvent: {a,c,~c3 Ps, C2(1), C4(~c) {a,b,c}: {~c,~b} (C3-{c3UC4-{~c}}) P6, C3(c), Cylvcl resolvent, {va, vb} {~a,c},{~c,nb} (c3-{c})UCur {~c}) resolvent, {ana, Nb}

(ii) D= {{a,7a,7b}, {a,b,c}, {-a,7b,7c}, {b}} (,-{a,~a,~b}, c2-{a,b,c}, c3-{na,nb,nc}, c4-{b} Pr. C.(a), (3(va) Ea, va, nb 3: {va, nb, nc} [Ci-Ea3 UC3-Erra) resolunds Erra, Nb, Nc] D2, (2(a), C7(va) {a,b,c}: {a,no,nb} {c2-{a}UC1-{na}}

resolvent, {b,c,a,nb} P3, C2(a), (3(va) {a,b,c}: {na,nb,nc} {c2-{a3UC3-{na}}}

resolund, {b,c,nb,nc} {a,b,c}: {a, na, nb} {C2-{b}uC,-{nb}} Pui C2(b), C, (~b) resolvent, {a,c,va} Ps, (2(b), (3(~b) [a,b,c]: [~a,~b,~c] (C2-863U5-8~63) resolvent, {a,c,na,nc} P6, C2(c1, C3(~c) {a,b,c3, {na,nb,nc3 (G-{c3U(-{nes}) resolvent, {asb, na, nb? 963: {a, ~a, ~b} (Cu-863U(-463) resolvent: {a, ~a} Pz: Cych1, C, (~b) P8, Ca(b), C3 (mb) {b3, {ma, nb, nc} ((4-{b})U(5-{2mb})) resolvent: Eva, nc ?

B) P(n) -> Q(n) VM(n) implication elimanation

21 n Q(n) V R(y,n) N-P(y) => Q(n) -> R(y,n) ~ P(y)*

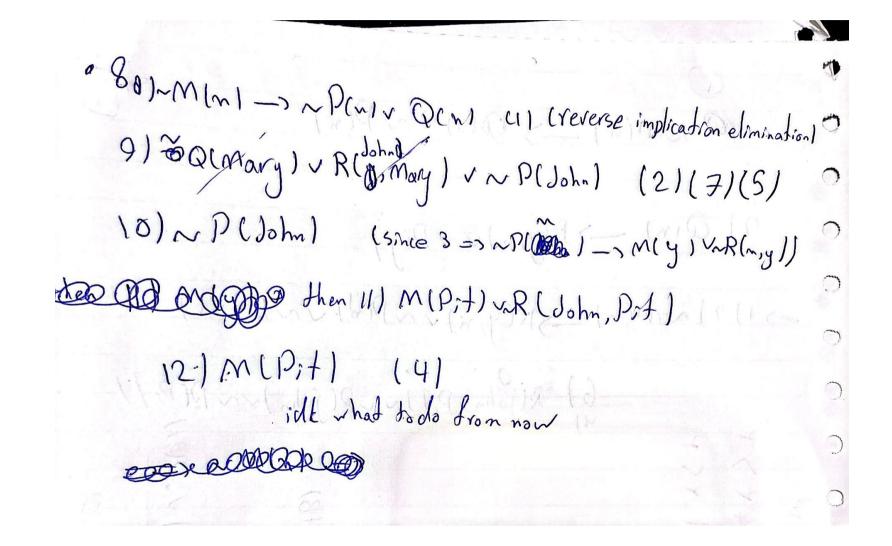
3) - M(y) -> (nP(on) n R(n,y)) => M(y) ~ P(n) ~ NR(n,y)

41 R(John, Pit)

5) - OR (John, Mary)

6) P(DPit)

7) Q(Mary)



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If Elisabeth is the mother of charles then someone loves charles.

Many

Mis the mother of y

m Loves y In [Lnc Mec] = In [Loves (n,c) Mother-of (e,c)] Some dogs hate all cats who eat birds.

From Dn Hmy V-Cy & Eny Bz

whates y weats y

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برای مر ۸ دودلتر از مقر ، ملعب ۸ مع دودلتر از مقرا _

a) there are exactly two mines adjacent to [1,1] involving some logical combination of xij. total 28 disjunds. two neighbors are true and others are false. the other 27 each select 2 different Kij to be true b) Kof n neighbors contain cominer will be ackn which Kofn is true and others are false. and then construct (B) disjuncts conjoin all the sentences together and use DPLL to answer the question e) Nö 0

4) a) In [Parent (Joan, n) ~ Female(n)] b) I'm [Parent (Joan, n) ^ Female (n) 7 give don't core about mayor Cl I'm [Parent (Joan, n) whichis, Remalela) dl I'm [Parent (Joan, n) ^ Parent (Kerin, n)] e/ 3'n [Parent (Joan, m) -> Parent (Kersnin)]