ausstion hape I i) Every rual number has its overesponding regative Ax (Real Number (x) -> = = = = = = = (Real number (y) \\
Negative (y) \lambda woushomas (x, y)) ii) Evolybody loves armibaly (automorphisms = Yx JouahyE xt T FOOD Changes ili) There is somebody whom no one lover ? iv) duran trought crecything that Ronard bought of 1 (Bought (Ronal, 2) - Brown nt (duran, 2)) 1) Rows tui green while rabbit is not Green (Pavot) $\Lambda = (viewn (Rada))$ (i) $\lambda I = \{P(a, x, f(a(y))), P(z, f(z), f(u))\}$ $\{\chi \to f(z), z \to a, y \to u\}$ ii) W= {Q (J(a), q(x)), Q(y, y) jany rusie mos. $\{y \rightarrow f(a), g(x) \rightarrow f(a)\}$ 8,8,10,11,0,12,19.6 sohn liker all kinds of food:

4x (Food (x) -> diker (3 ohn, >c)) 4a) p. num (8,2) are (11,000 yours) Apples are food: 6: (S), 6; Dery= 7 Food (Apples) r= () when b chicken us food: rs (0, p) nuise 2 Food (Chicken) Anything anyone cats isn't killed by is good xxy(Com(x,y) A - Killoca By (x,y) + Food (y)) due cass everything bill cats TX (Eats CBIU, x) - Eats (aue, x))

Qu'u cots peasur and is still alive: Eas (Pail, leanus) A - Hilled Byl Bill, Reanus) Broof using Forward chaining. > Eats (Bill, Reanelts) A - Riller By (Bill, Reanuly) -> Food (Reonuts) purplement word T FOOd (Peanuts) - dikes (John, Reanuss) - diker (sonn, leanuts) bood using Boukward Granus (Neanus) chick Food (Neanus) (4) => Pood(q) withule (June) June) (4) Eats (x, y) A Thilliany (x, y) (5) z) Eats (Bia, leanuts) 17 Killed By (Bil, leanus) ((Food cleanut)=) true (100000) neuro diker (John, Recenuts) is satisfied become Food Cleanuts) is true = (5) (5) .. John liker peaneus) is ((0), 400), is deaf Moch Valuer: 6,9,16,14,12,20,2 46) deaf Mock Valuer. 10 Lines all Remish of Level 2 (min noder) D:min (8,2)=2 1/2 = (K) KOUT ... E=mun(10,11)=10 By in the (2004; F=mun (8,12)=3 Cn=min(4,6)=4 L = min (9,16) = 9

M = mun (20, 2) = 12 M = mun (20, 2) = 2

sevel 1 (max nodes) B = max (2,10,3,4) = 10 major sent tentements in Fol-Root Node A= max Cro, 12)=12 house see a dies cons en mones pro Free Values: - Langer from Allerquis (x) devel 0: A=12 devel 1:13=10,C=12 devel 2: 0 = 2, E=10, F=3, G=4, L=9, M=12, N=2mol() reaf Nover: 8,2,10,11,3,12,4,6,9,16,14,12,20,20 word is allerged to as : Acgorithm evenducte! +, pecons orsiprover + (w us) , + function minimar (node, depth, is Maximizing Mayer): if node et a leaf node: dison with (Mary, Torm) return noch valux is a contract cours : month consistent : load principalist in best = -00 Jumy O for each child of hods. Tought From Allowan (x) Val = minimax (child, depth + 1, galx) nut: max (hest, you) 100 - 1 (pro min out) deturn best (1) interpresent where cere: West = +00 go & couch shift of node: val = minimare (child, depth +1, veue) no 10 1000 Rest mun (best, val) rukuun kust (moi peanting)

3a) 1) If comeone suffers from allergics, they oneex (x)) Represent atalements in FOL)) y domione liver with a cut and is allergies YXYy (divowith (x,4) N car (y) N Allargic rock, y) -> suggers from Allerguis (x)) $\Omega = \{\lambda_i : e_i\}$ 3) Tomais a cat on a la participation de la cataloga de la catalog Continue a man continue de la contin 4) mary is allurgic to cars: s) mary duri with tom : May show sur ins : with poen of he will diver with (mary, Tom) Negated Good: Takenzes (Mory? from ()
7 Sugus From Allorqui (x) Vaneses (x) is a continue of the continue of the from 2 2) Lives Wifer (x14) y - (out (4) y - fellingic to (x,4) y duffers from Albergres (x) rad punt. from 3 ide The or in grat crom) was where we will be with the second from Q 4)-iCat(q) VAllungreto (mory, y) from (S) s lieur with (mary, rom) of mays (may)

Resolution from @ and @ - sugges from Accergies (mary) (morey Tom) 22 mary y=10m - sives with (mosy, tom) V - cat (10m) V - Allugicio v dufferspromplurges (Mary) ening Sand 3 - Allergic To (Mary, Tom) V suffer from allergies (Mary) from @ with y=Torn - (at (Tom) Y Allurgic To (May, Tom) wing 3 pelling & to (money, Tom) dugues from Allergies (mary) · dreezes (mary) => Tow

De Jak