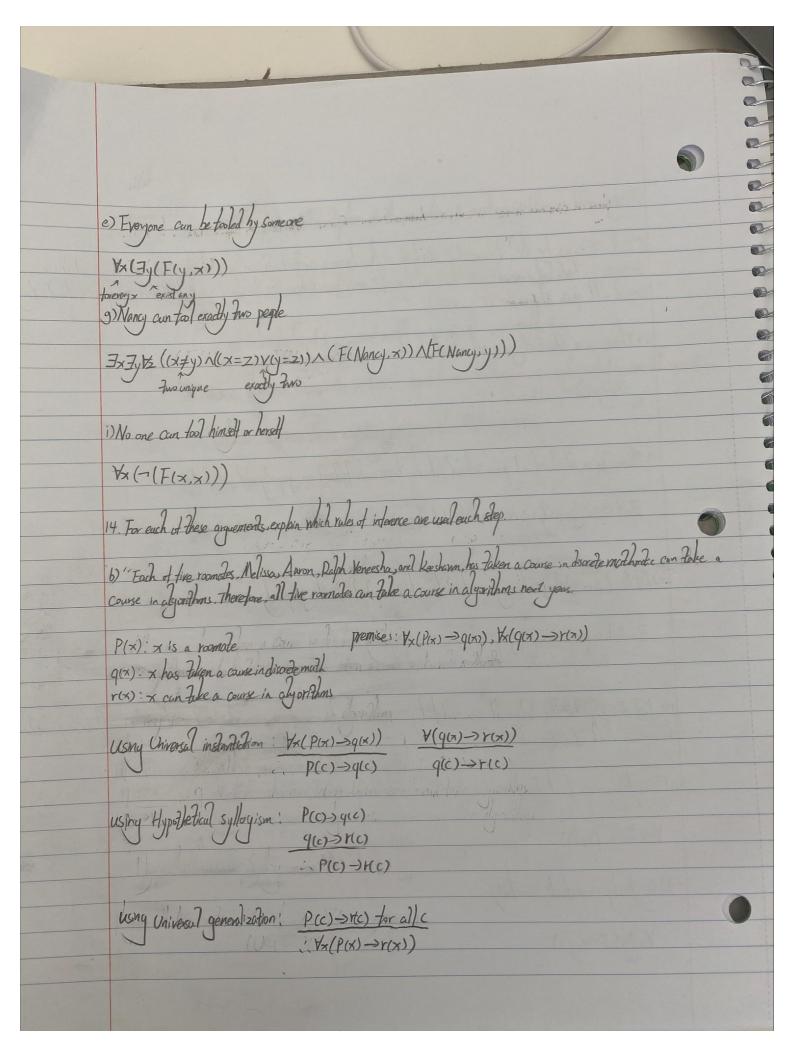
Assignment week 5 8. Let Q(x, y) be the statement " student x has been a contestant on quiz show y". Express each of these sentences in terms of Q(x, y) quantifers, and lagical connectives. Where the clomain of x is all students of your school. to ansist all quiz shows on TV. a) There is a shulerly your school who has been a contestant of a TV quiz show. Jx Jy (Q(x,y)) c) There is a student at your school who has been a contestant on Jeoparty and wheel of Favlune Ix (Q(x, Jeopardy) \Q(x, wheel of turbune)) e) At least two students from your school have been contextands of Jespandy ∃x∃z(x≠z) N(Q(x, Jeopardy) AQ(z, Jeopardy))) To express each of these statements. "x can tooly", where the clamain of main consider of all people in the world. Use quartitien a) Everybody can tool Fred Vx(F(x, Fred)) c) Everybody can fool somebaly ((y,x)) YEXY



al) There is someone in this class who has been to France. Exerpne who upes to France visits the Lournes, Therefore, some one in this class has visited the Lournes. P(x) x in this clas room premises:]x(p(x)/(q(x)), \(\frac{1}{2}x(q(x)) > \(\frac{1}{2}x(q(x)) = \frac{1}{2}x(q(x)) \) q(x): x has been to France r(x): x has visited Lauries using existential instantiation: Ix(P(x)Ag(x)) 'Rc) 19(0) to some element c using universal instantion: Yx(q(x)->r(x)) :, q(c)->r(c) for all donote 9(4) using singlification, maken ponens: P(c) Aq(c) P(c) Aq(c) 9(c)->r(c) i.rlc) using anjurction: PCC) , RC)AHC) why extended generalization: there exist P(c) \r(c) for some element C

16. For each of these arguements determine whether the asquement is correct a incorrect and explain why b) A convertible our is tun to drive Issac's cur is not a convertible therefore Isaac's cur is not fun to drive. P(x): x is a convertible car premess: Yx (P(x) -> q(x)), TiP(Isacc's car) q(x): x is tun to drive Using Universal instantiation: \fr(P(x) -> q(x)) then, we have; P(c) -> G(c)
-> P(Isacc's car) then replace c with Isacc's car: P(Isacc's car) -> 9(Isacc's car) This is an invalid arguement as it is tallacy of denying the hypothesis

WAll bodermen set at least a dozen Jups, Hamilton is a luboterman, Theretore, Hamilton sets at least a closen of P(x): xis a botterman premises: (P(x)->q(x)) g(x): x has set a dozens of Engs. P(Hamifton) using universal inflantation: $\forall x (f(x) \rightarrow g(x))$ using Madus pones, replace C with Hamiton: P(Hamilton) -> q(Hamilton)

P(Hamilton)

q(Hamilton) Arquement is vailed