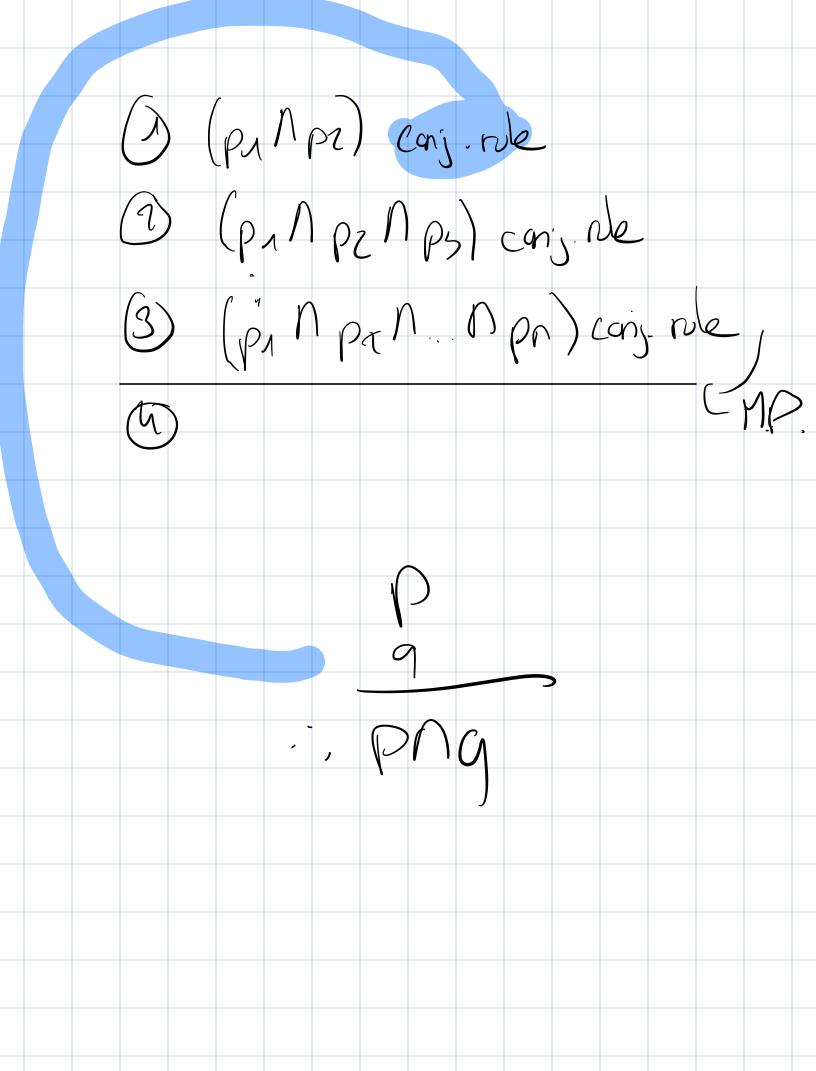
valid argument form tre ger any p and q Modus Panens p n (p -> q) -> q premised P -> a P Vantology
i. 9 3 conclusion (never gaise) Argument · seque of proposito - propositions are called premises - last statement is the conclusion - voild is permised imply conclusion

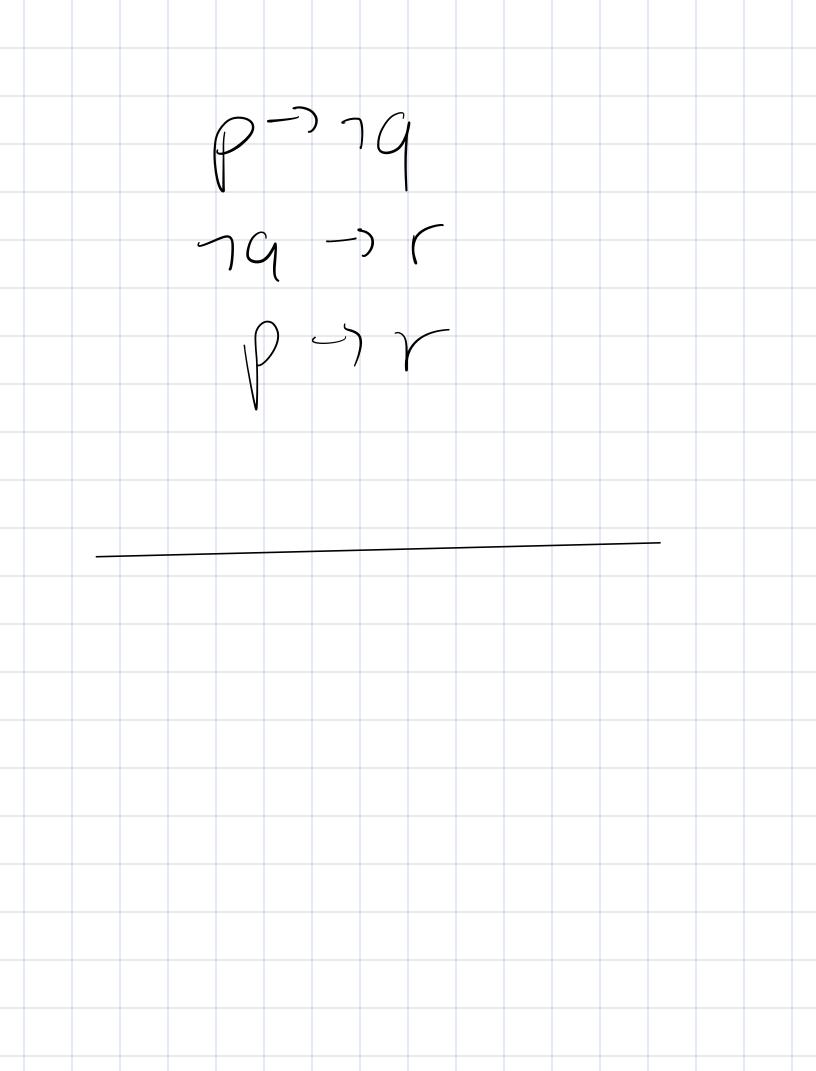
· argument forces - abel no mather what we put in it · plerere rue are simple argunent Jomes Inference role Stepa P -> 9 Stepz Deguner Your Stepn  $(r N S) \rightarrow q$ . . Conclusion

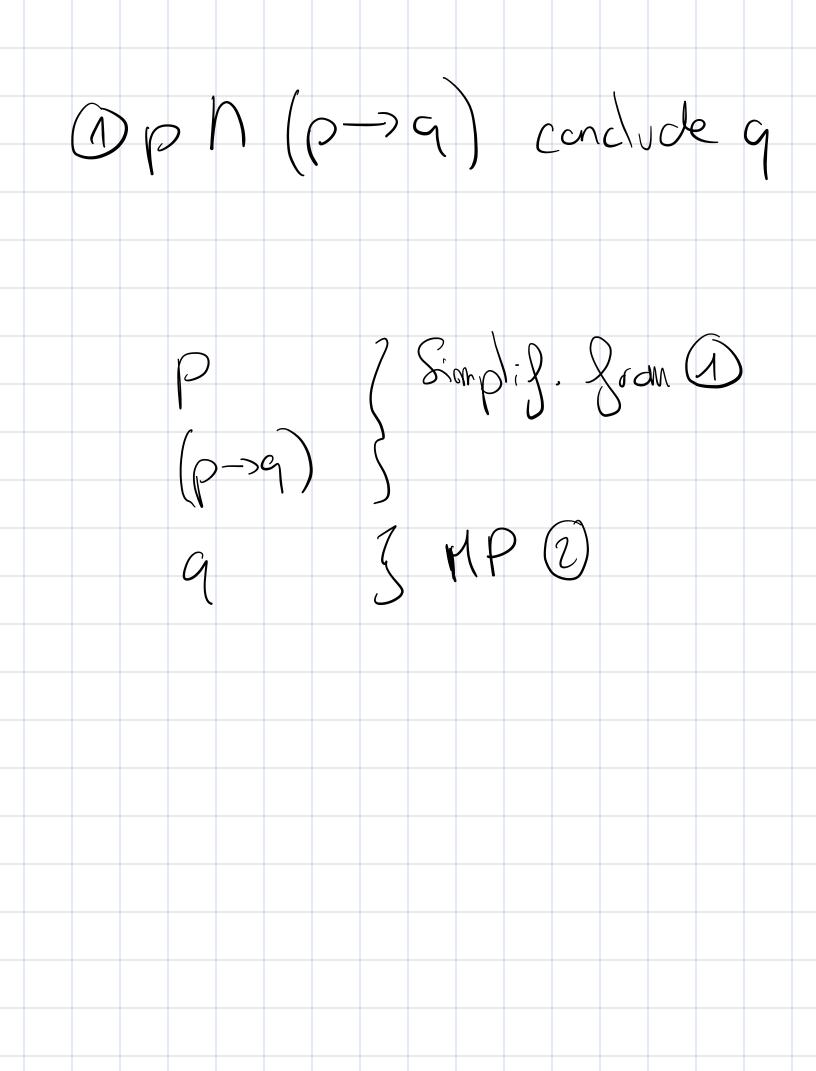
Premises Assumption of p -> (MS) ( ( 1 s) - q ) Modus Poners  $(\Gamma \cap S)$ Modus Peners  $\left(\rho_{\Lambda}\Lambda\rho_{L}\Lambda-\Lambda\rho_{n}\right)\rightarrow q$ 



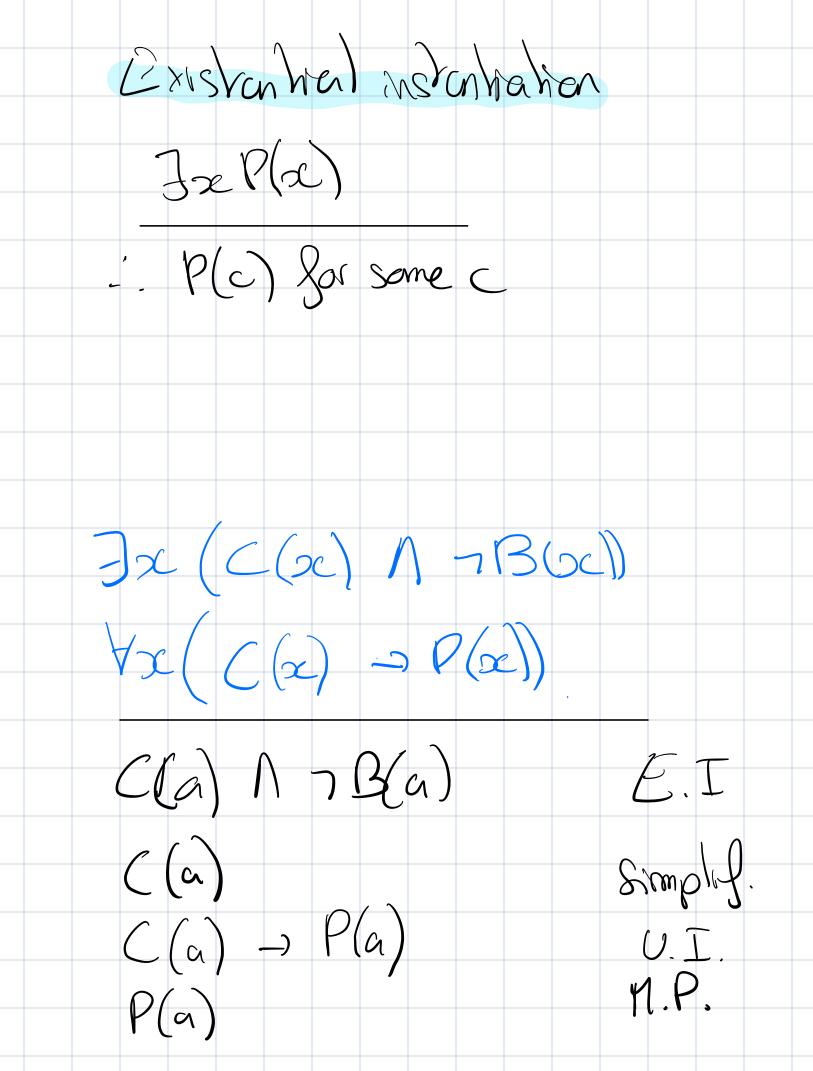
Modus tollers Hypotheneal Sylogism

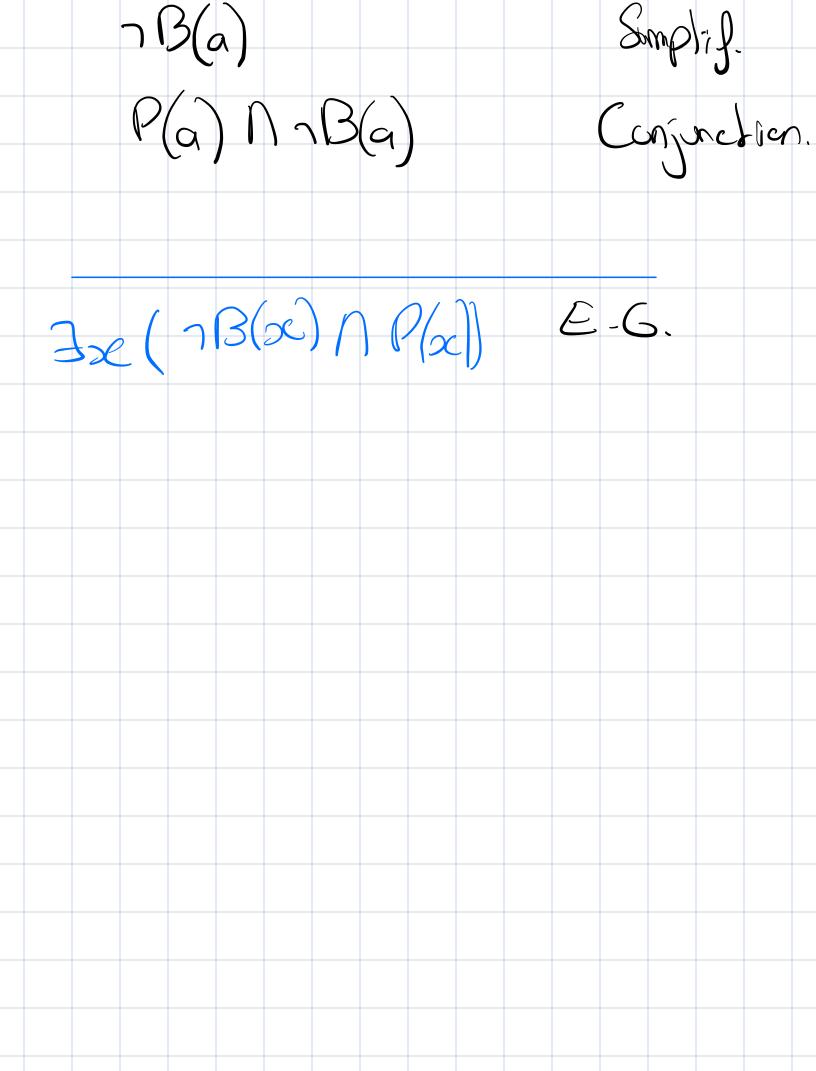
Addition Simplification PNG Report

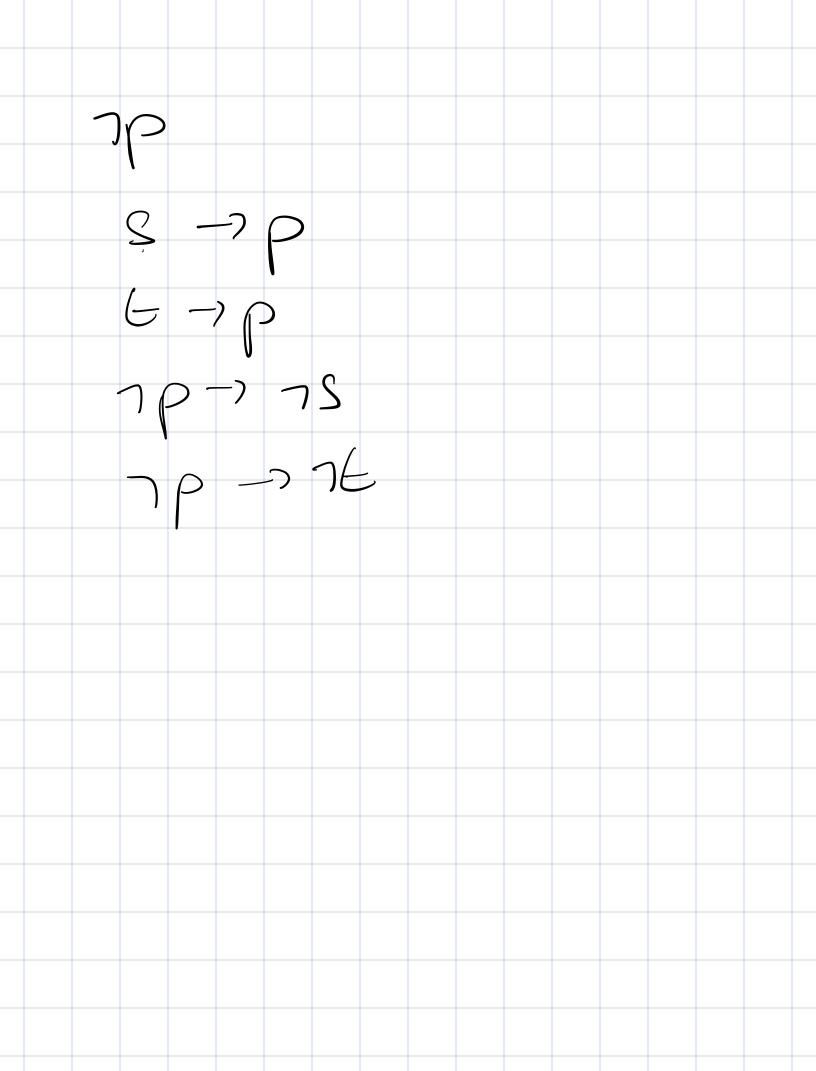




Universal instantation A 20 (20) 2 - P(c) Universal generalization P(c) for an arbitry c i. Ve P(x) Existential generalization P(C) for some element C 3 20 P(SC)







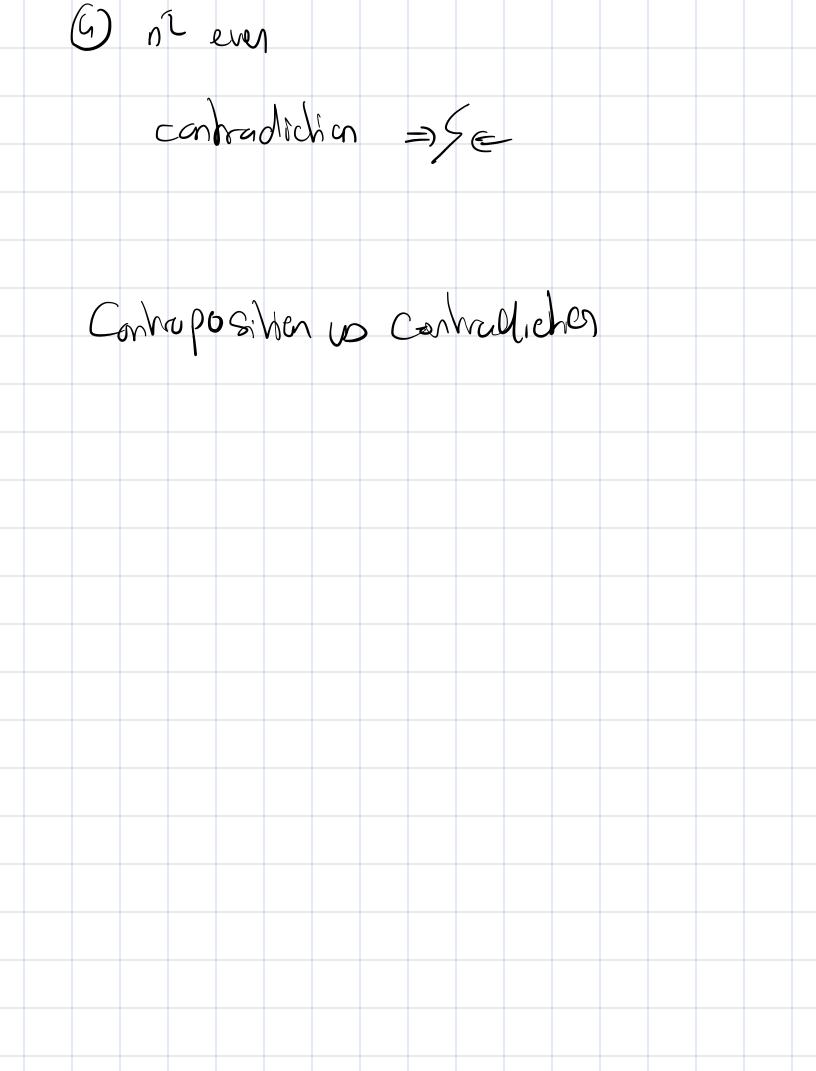
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Prove Measur toprue toe (P(sc) -> Q(x)) prive P(c) - Q(c) for an orbitrary c. then U. Generalisation -> 7x

Pramy p->q · torial pool il we know q hue · Vacuous proof if pis false

P -> 9 Proof by contraposition 79-27 Proof by contradiction  $(= \neg (p \neg q))$ Assume phog to show pog then Show theat  $(p \land \neg q) \rightarrow (r \land \neg r)$ Imposible. e.g n2 is an odd wreger then nis odd @) n2 is an odd integer and n is even. (2) p2 = 2k.41 n= 2k1 3 n2=4k/2



Proof by cores (pr Vpz V... Vpn) -> q use the gast that (p, Vp2 V... Vpn) -> g = (P1-)a) N (P2-)g) N (Pn-)g)

|xy| = |x1.6 x/3 ), 0 Car be He serve x > 0 / y < 0x (0, 4)0 x(0,y(0)

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