# Coq Proof Assignment

|  |  |  |
| --- | --- | --- |
| Full Coq Proof Code | Steps of the Goal Window | Output of Print |
| Theorem theoremA\_alt : forall p q : Prop, p -> (p -> q) -> q. Proof.  intros p q Hp Hpq.  exact (Hpq Hp). Qed. | 1 goal \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/1) forall p q : Prop, p -> (p -> q) -> q  1 goal p, q : Prop Hp : p Hpq : p -> q \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/1) q  1 goal p, q : Prop Hp : p Hpq : p -> q \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/1) p  All goals completed. | theoremA\_alt = fun (p q : Prop) (Hp : p) (Hpq : p -> q) => Hpq Hp  : forall p q : Prop, p -> (p -> q) -> q. Arguments theoremA\_alt (p q)%type\_scope \_ \_%function\_scope. |
| Theorem theoremB\_alt : forall p q : Prop, (p <-> p) <-> (q <-> q). Proof.  intros p q.  split.  - split; intro H; exact H.  - split; intro H; exact H. Qed. | 1 goal \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/1) forall p q : Prop, (p <-> p) <-> (q <-> q)  1 goal p, q : Prop \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/1) (p <-> p) <-> (q <-> q)  2 goals p, q : Prop \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/2) p <-> p -> q <-> q \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(2/2) q <-> q -> p <-> p  1 goal p, q : Prop H : p <-> p \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/1) q -> q  This subproof is complete, but there are some unfocused goals: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/1) q <-> q -> p <-> p  1 goal p, q : Prop H : q <-> q \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1/1) p -> p  All goals completed. | theoremB\_alt = fun p q : Prop => conj  (fun \_ : p <-> p => conj (fun H : q => H) (fun H : q => H))  (fun \_ : q <-> q => conj (fun H : p => H) (fun H : p => H))  : forall p q : Prop, (p <-> p) <-> (q <-> q). Arguments theoremB\_alt (p q)%type\_scope. |