```
;; Proof of invariance by 2-induction
(define proof_obs
 (: (invariant IO TO PO)
  (invariant-implies IO TO PHIO PO implication_proof_2 (kinduction 2 IO TO PHIO
  _ _ base_proof_2 induction_proof_2))))

;; Proof of observational equivalence
(define proof_obs_eq
 (: (weak_obs_eq I1 T1 P1 I2 T2 P2)
  (obs_eq I1 T1 P1 I2 T2 P2 same_inputs proof_obs)))

;; Final proof of safety
(define proof_safe
 (: (safe I1 T1 P1) (inv+obs I1 T1 P1 I2 T2 P2 proof_inv proof_obs_eq)))

(check proof_safe)
```