

## H Predicate (Halting)

$H(e, x, t) = \text{"Program } P_e(x) \text{ halts in } t \text{ or fewer steps"}$

- Decidable
- Used to check program termination within bounded steps
- Characteristic function:  $\chi_H(e, x, t)$

## S Predicate (Step)

$S(e, x, y, t) = \text{"Program } P_e(x) \text{ halts with output } y \text{ in } t \text{ or fewer steps"}$

- Decidable
- Used to check specific program output within bounded steps
- Characteristic function:  $\chi_S(e, x, y, t)$