Monty Hall as a Finite State Machine

Jeremy Evert

December 1, 2025

1 Overview

This document models the Monty Hall game as a finite state machine (FSM). We generate the diagram programmatically using Graphviz (DOT) and include the resulting PDF directly in LaTeX.

2 FSM Diagram

Figure 1 is auto-generated from `monty_hall_fsm.dot`.

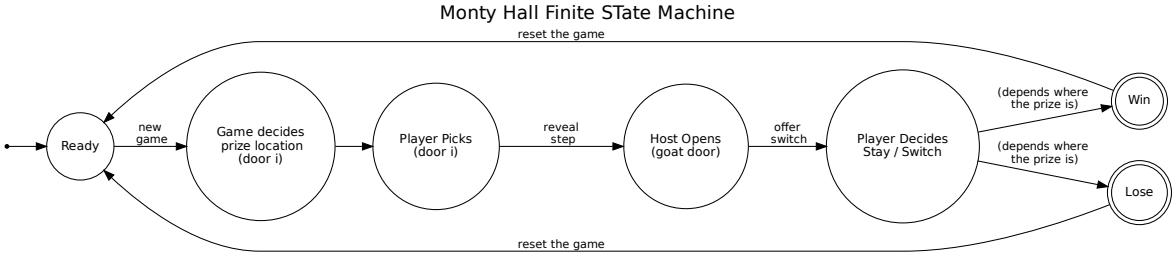

Figure 1: Monty Hall FSM (Graphviz-generated).

3 Notes (for later refinement)

You can evolve this FSM toward *about 15 states* by:

- encoding hidden state (car placement) explicitly,
- encoding player choice states,
- modeling host action as either a separate step or as labeled transitions,
- optionally adding probabilities to edges for the random parts.