Monte Carlo Tree Search (MCTS)

Achilleas Tsakpinis

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Different Operations

1. Selection Phase
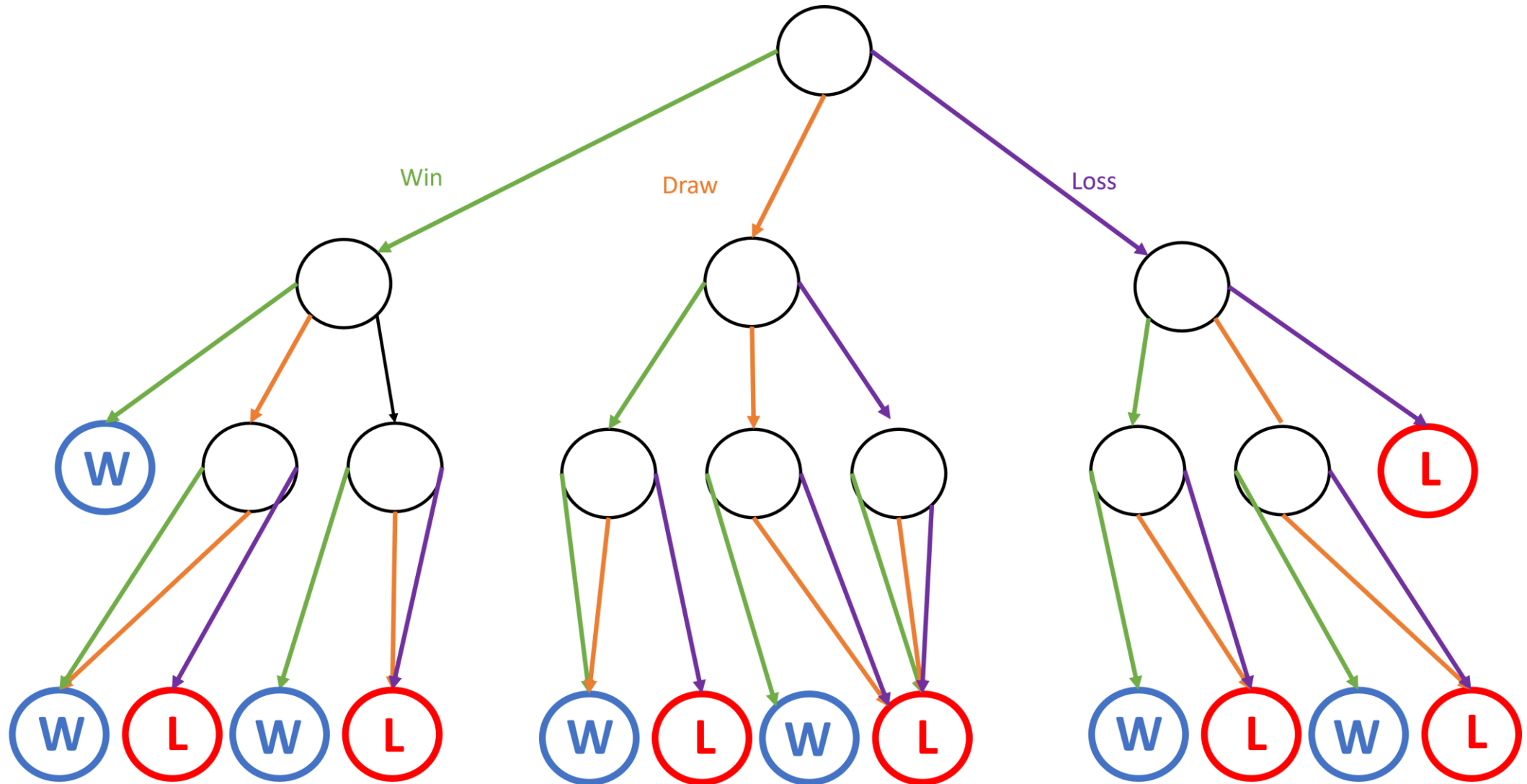
    - $UCB1(S_i) = \overline{V}_i + C * \sqrt{\dfrac{\ln N}{n_i}}$
    - *N: Number of all simulations/visits*
    - *n: Number of own simulations/visits*
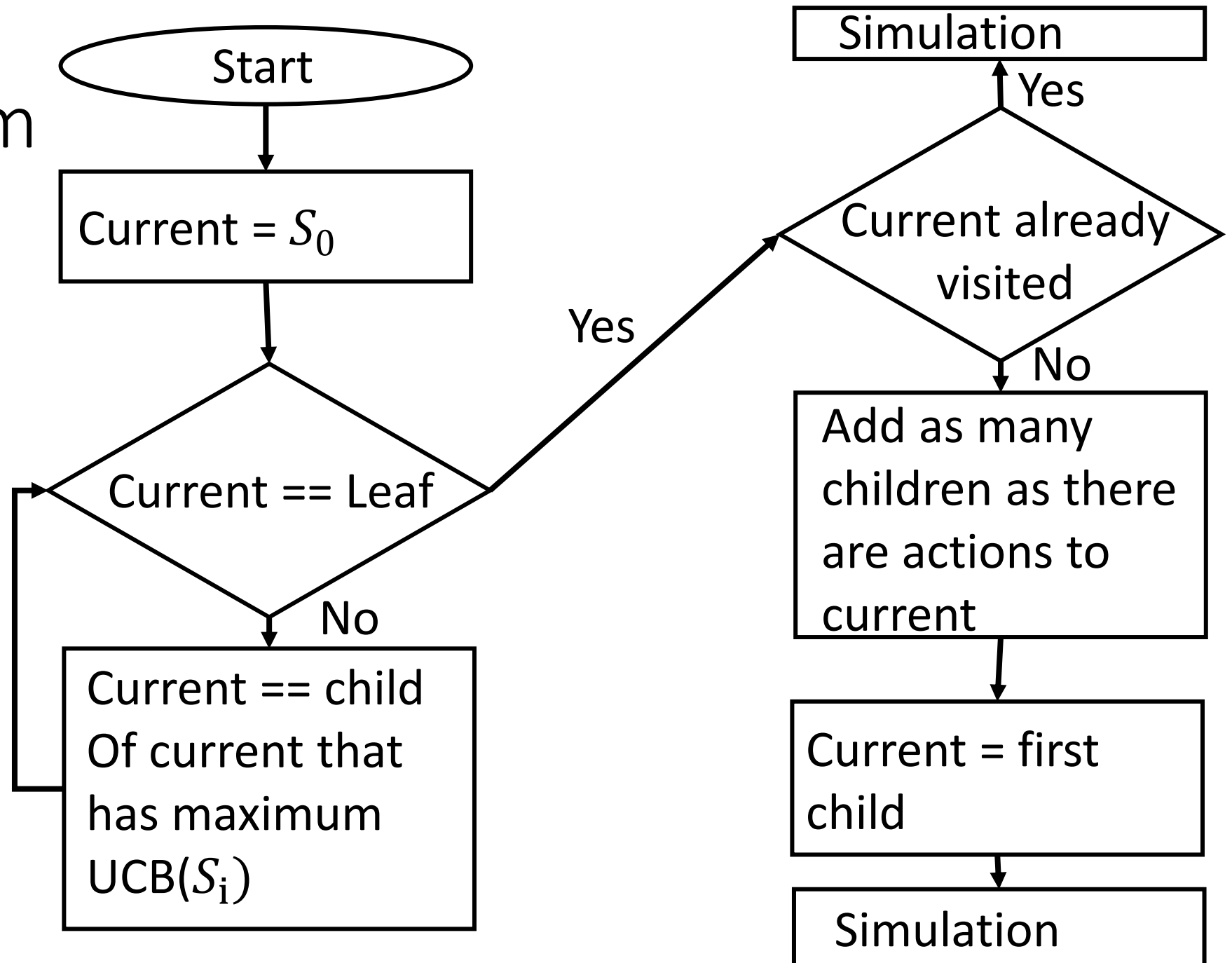   - $C \in$ [1; inf]

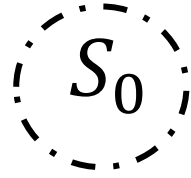2. Node Expansion Phase

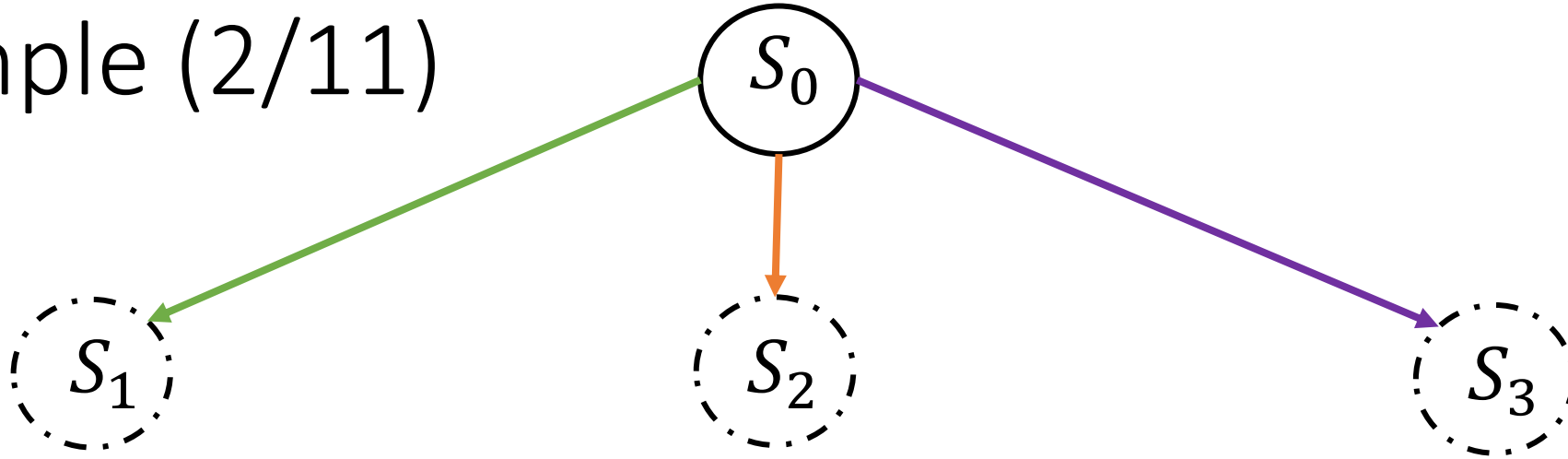3. Simulation Phase
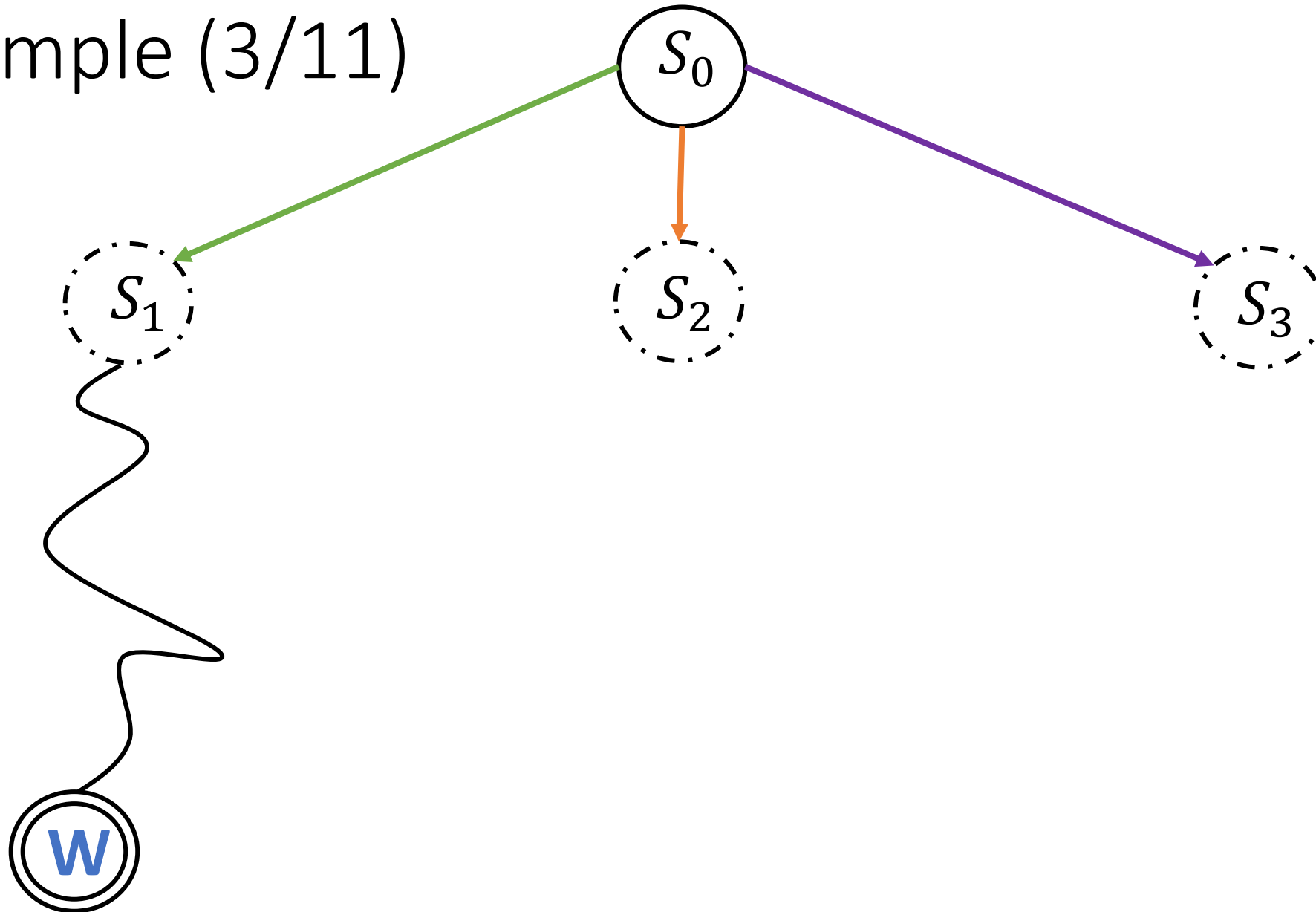
4. Estimation Phase

Rock, Paper, Scissors

Algortihm

Start

Current = S_0

Current == Leaf

No → Current == child Of current that has maximum UCB(S_i)

Yes → Current already visited

Yes → Simulation

No → Add as many children as there are actions to current
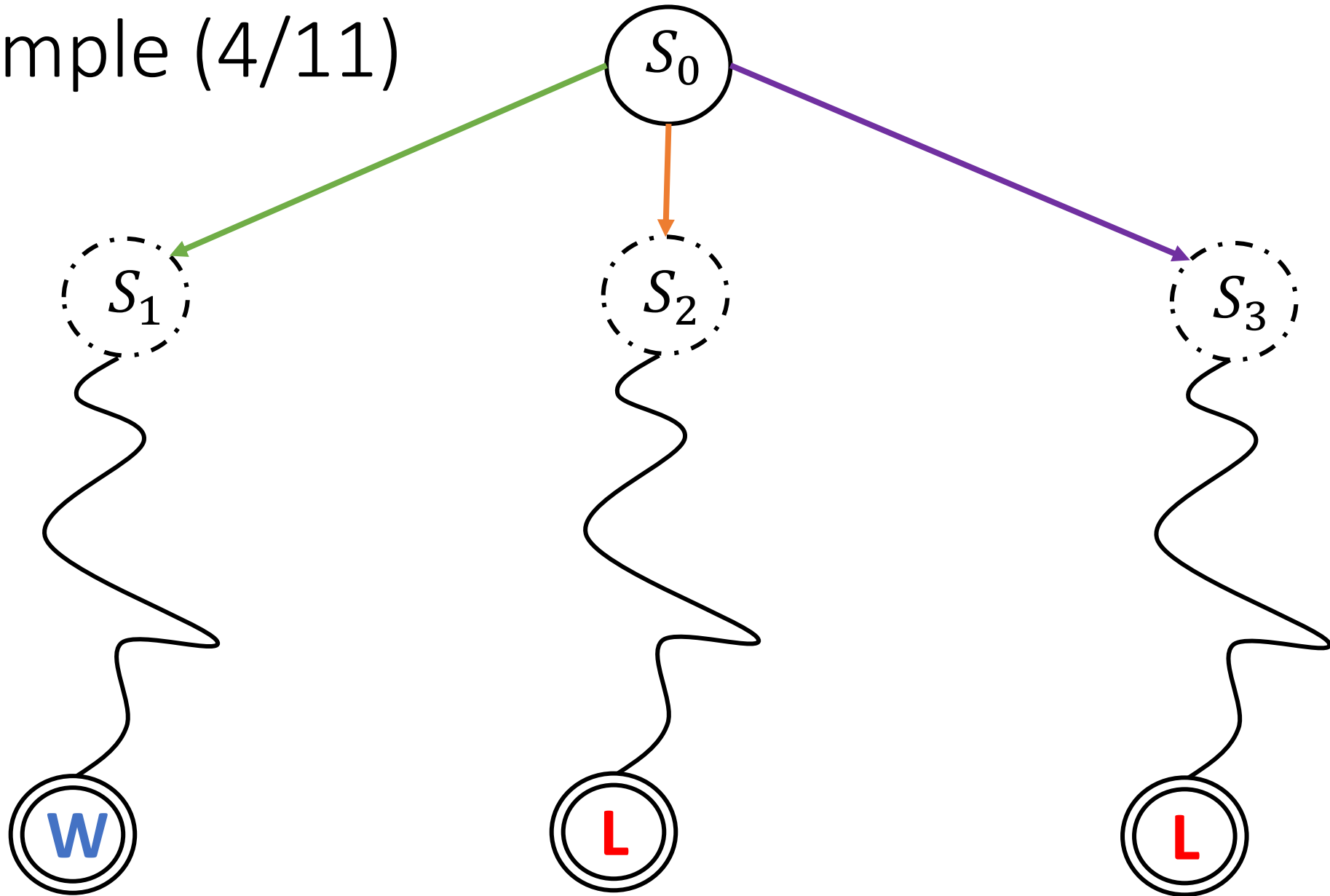
Current = first child

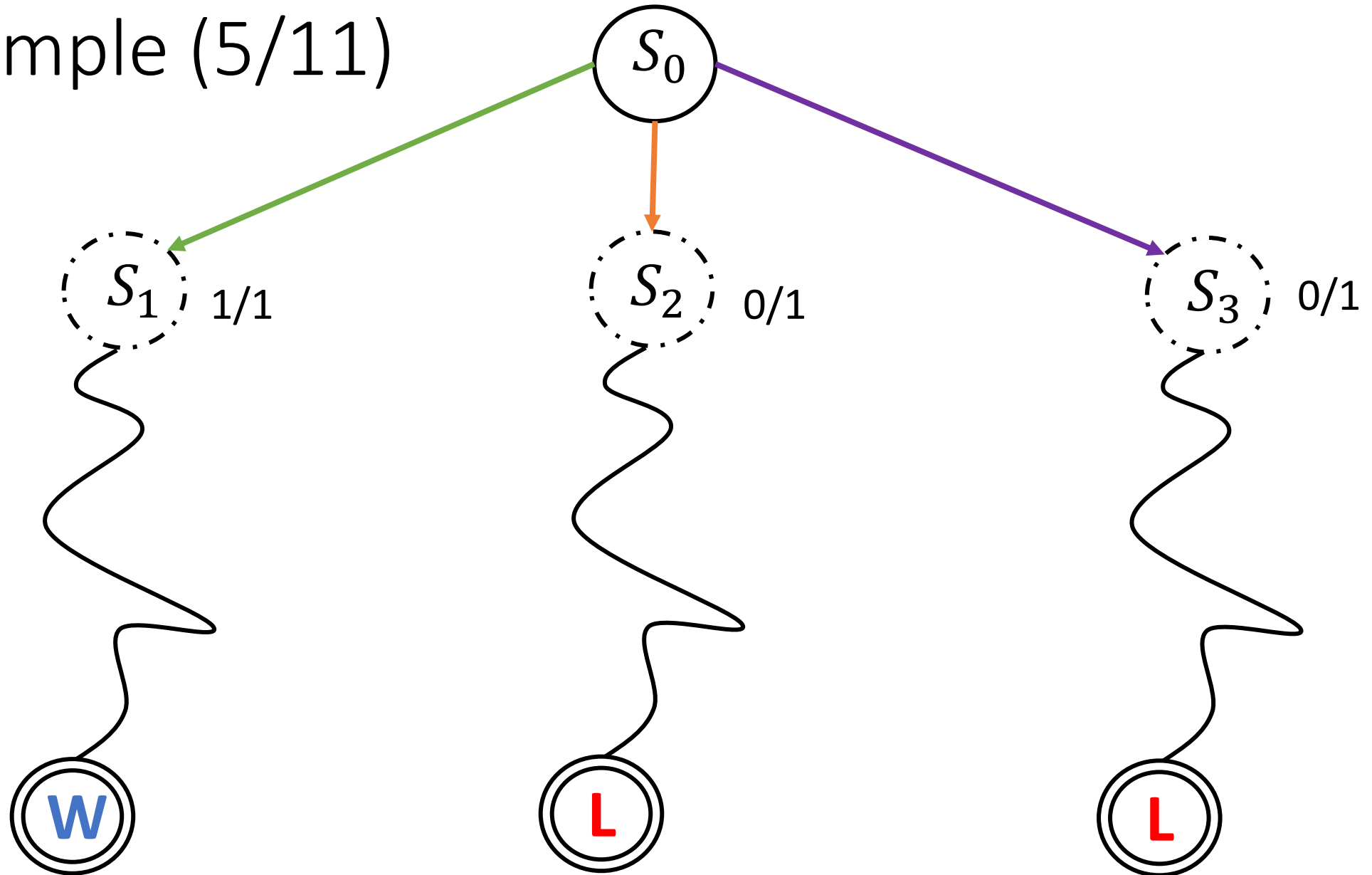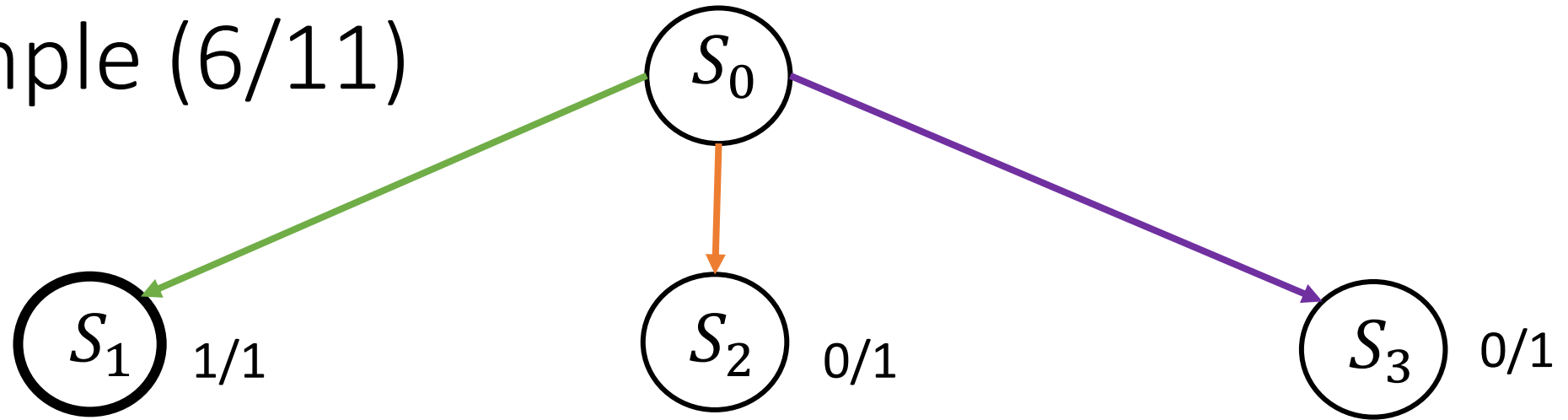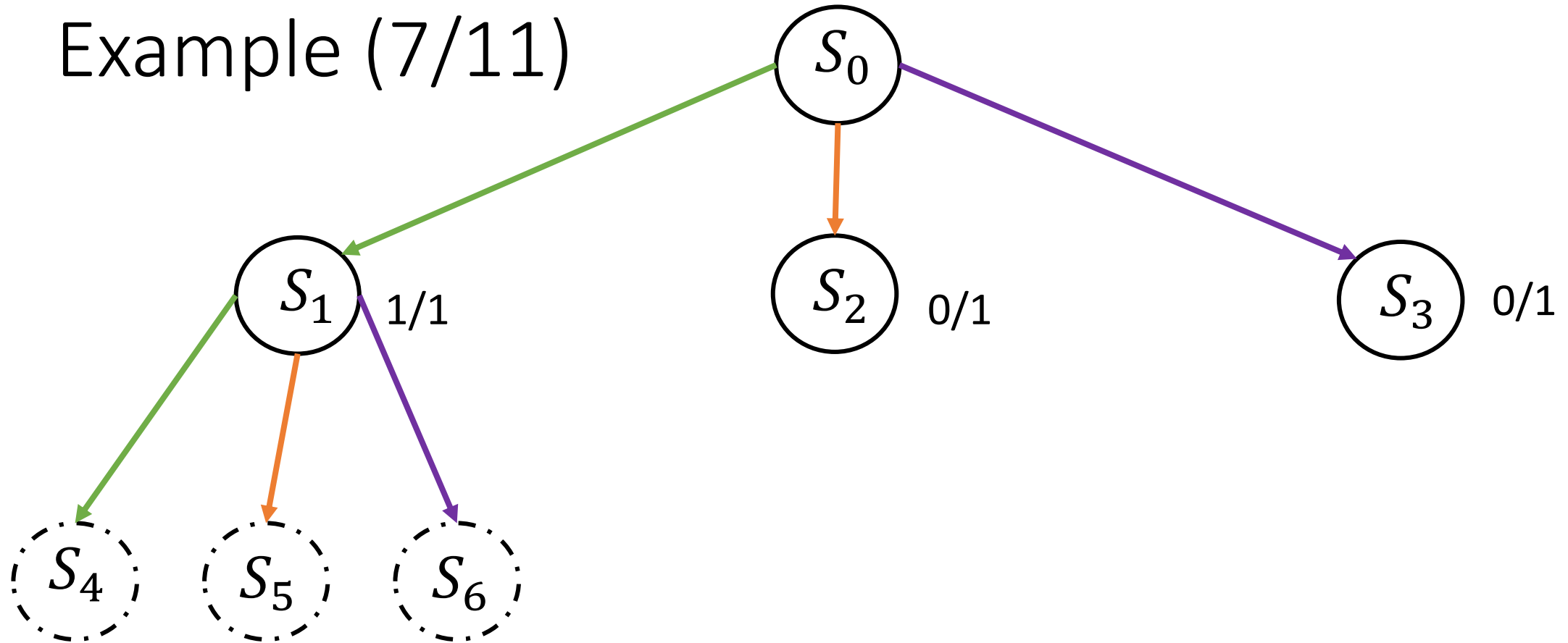Simulation

Example (1/11)

S_0

Example (2/11)

Example (3/11)

Example (4/11)

Example (5/11)

Example (6/11)

S_0

S_1 1/1

S_2 0/1

S_3 0/1
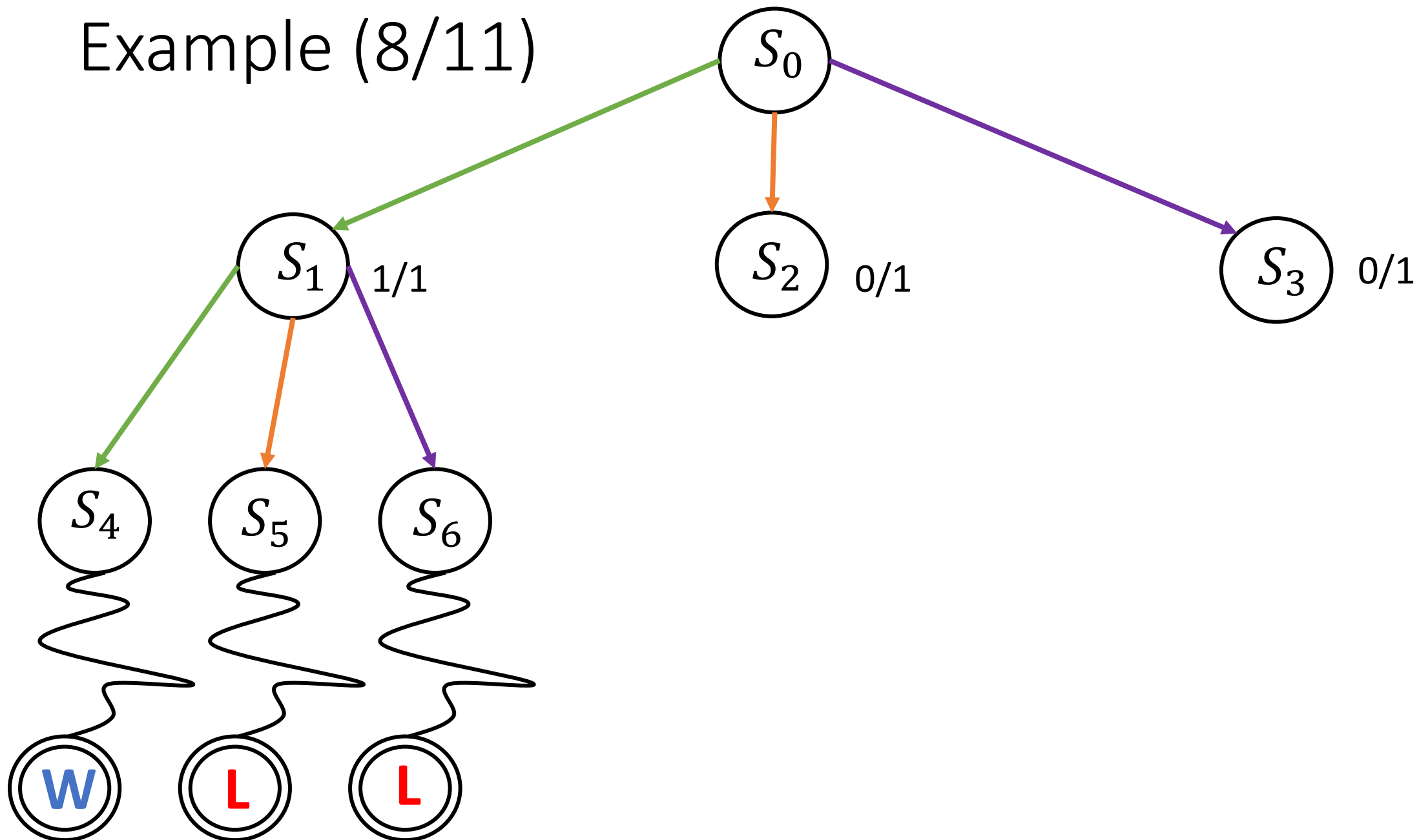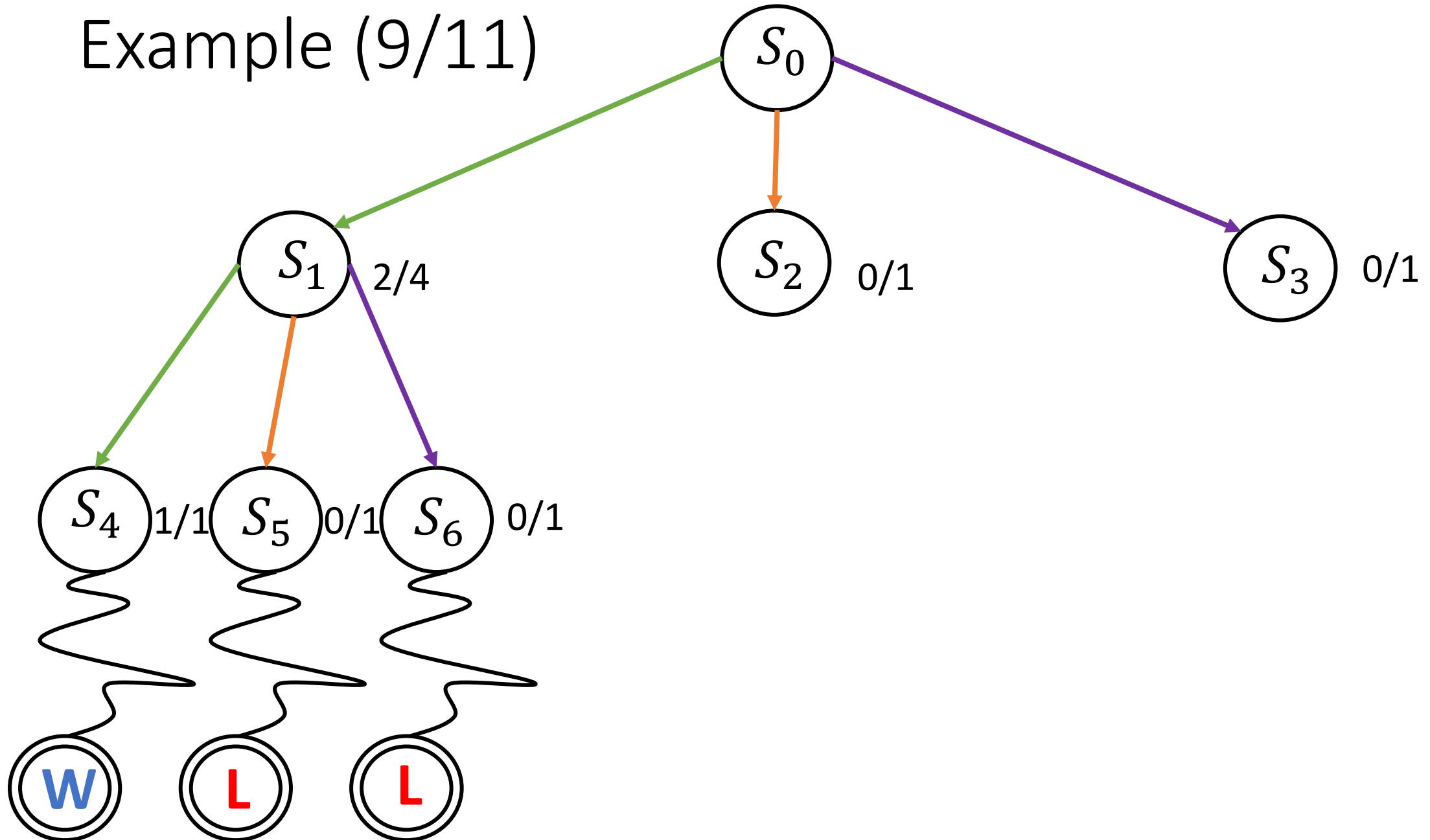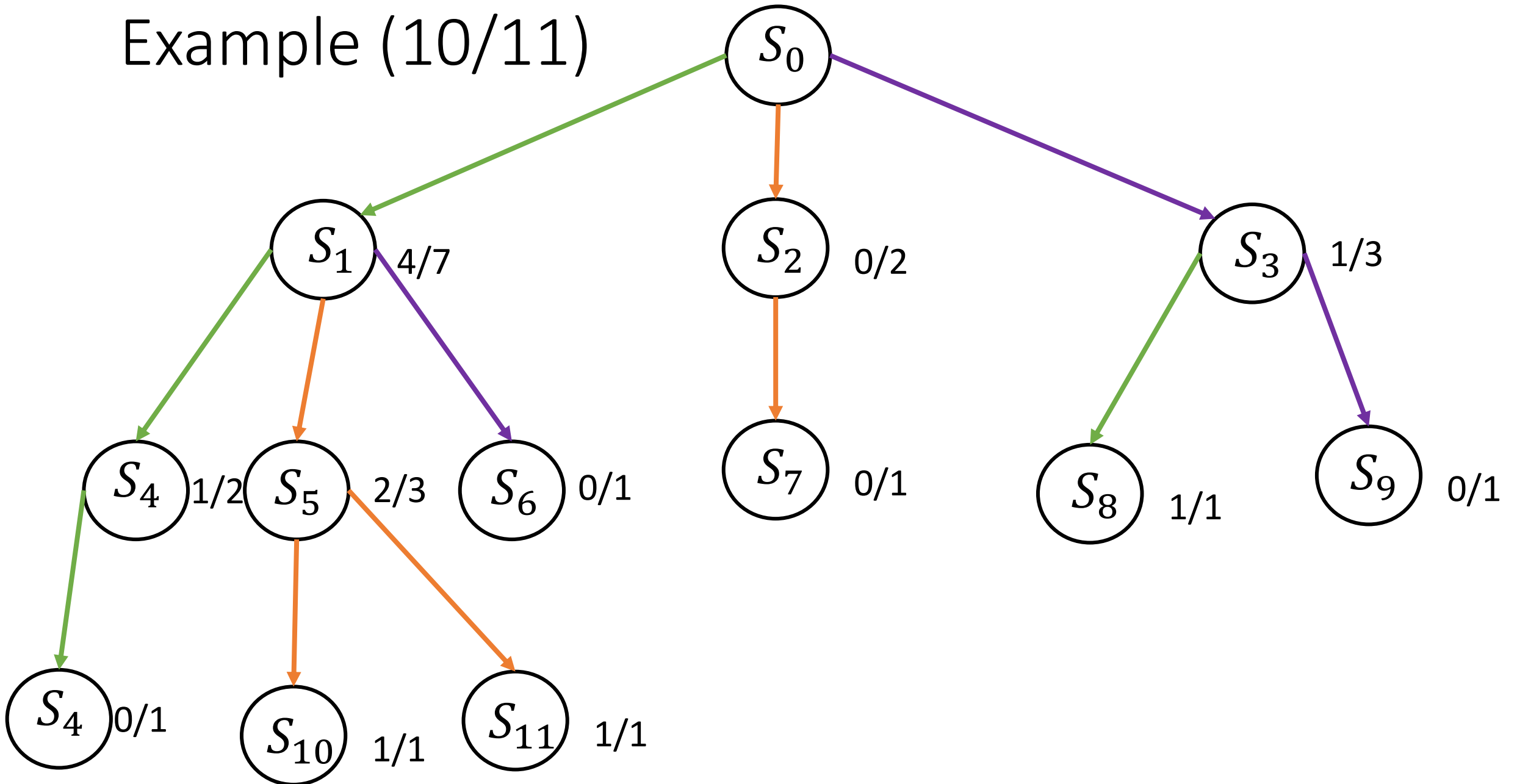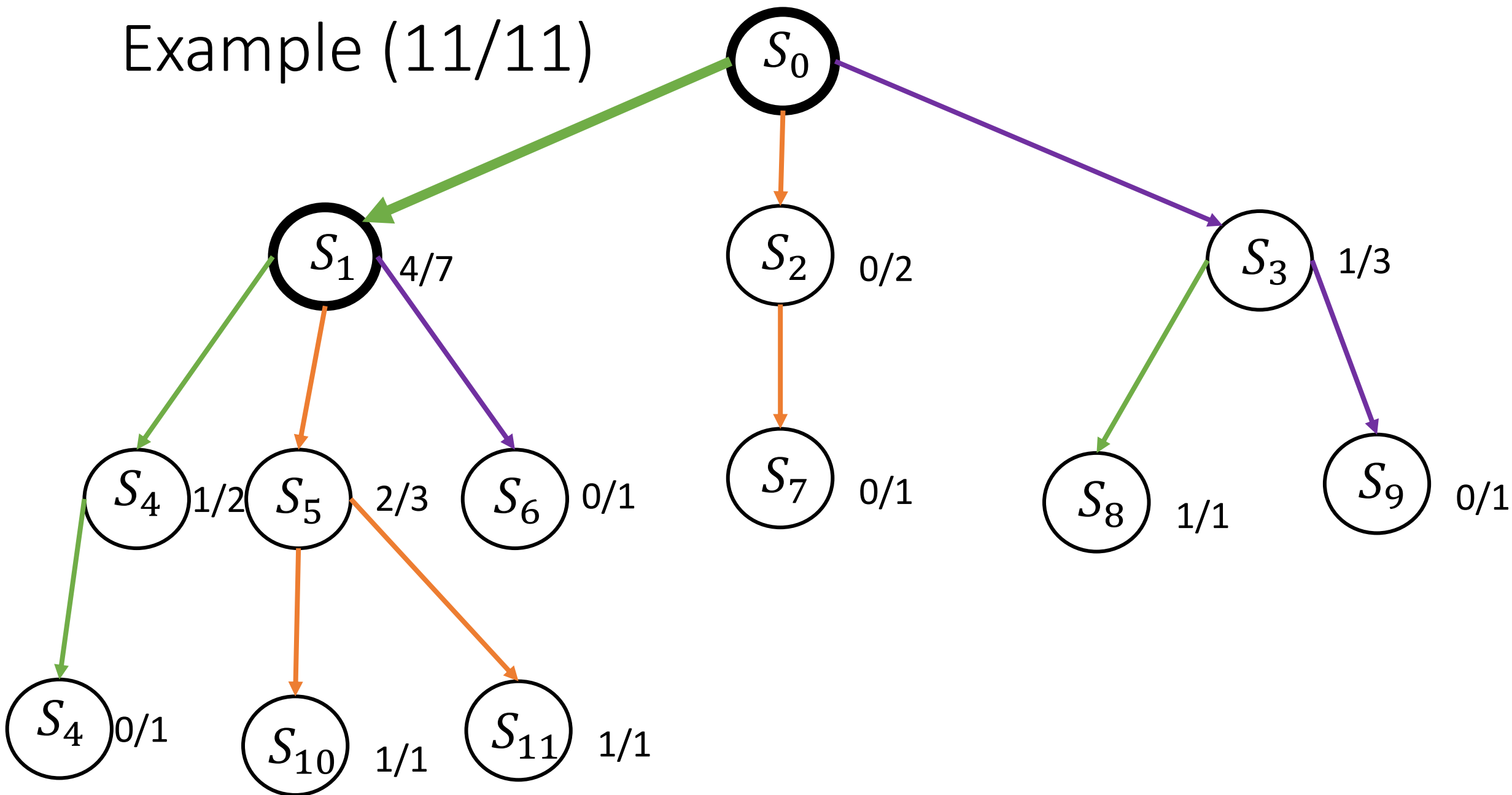
Example (7/11)

Example (8/11)

Example (9/11)

Example (10/11)

Example (11/11)

Rock, Paper, Scissors