

Monty Hall Game Possibility Tables

The following table shows all possible configurations (there are only three) after the initial choice has been made.

Possibility	Chosen Door	Other Door A	Other Door B
1	prize	goat	goat
2	goat	goat	prize
3	goat	prize	goat

For the stand pat strategy the outcome is settled at this point. One out of three possibilities is a winner. The subsequent release of the goat has no impact on the outcome for this strategy because the goat is released from one of the two “Other” doors. Note also that whereas the probability of the prize is $1/3$ for the chosen door, it is $2/3$ for the two “Other” doors combined.

The following table shows the possible configurations following release of the goat. There is a single “Surviving” door for each of the three original configurations.

Possibility	Chosen Door	Surviving Door
1	prize	goat
2	goat	prize
3	goat	prize

The probability of a “Chosen” door win remains at $1/3$, while the surviving door win probability is $2/3$, showing that the switch strategy works.

Note that for each possibility the win probability for the “Surviving” door is the same as the win probability for the two “Other” doors from which the “Surviving” door is consolidated. Although it may not be instantaneously obvious why this should be, it poses no conflict with intuition. Note also that the win outcome for each of the “Chosen” door possibilities is the opposite of the outcome for the corresponding “Surviving” door which explains why the switch strategy wins if and only if the stand pat strategy loses.