

ECSE-626

Statistical Computer Vision

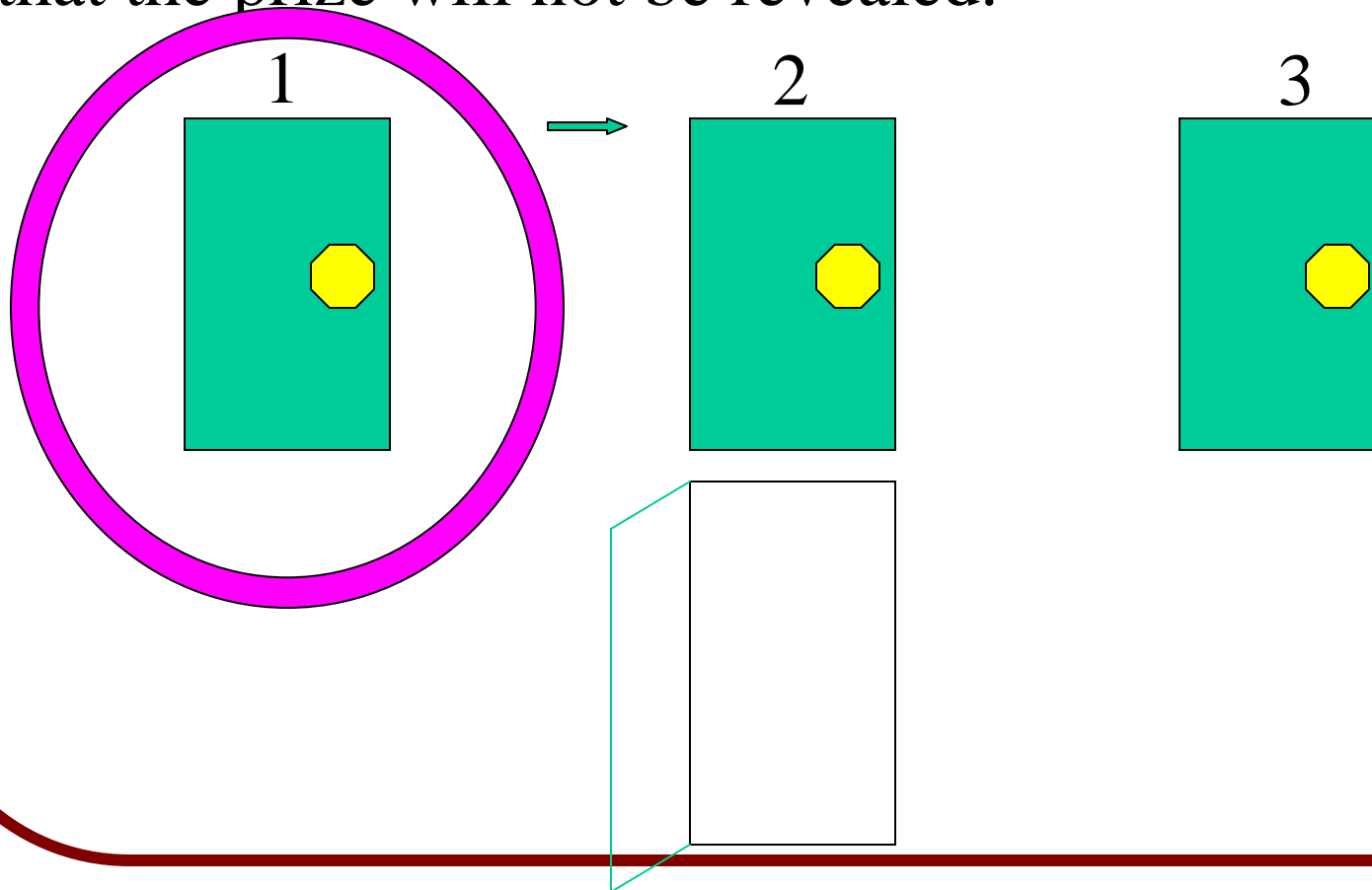
Probabilistic Inference – Monty Hall

Game Show Problem

- Supposing you have a game show.
- Contestants told the following rules:
 - 3 doors, labelled 1, 2, 3.
 - 1 prize hidden behind one of them.
 - Select one door.
 - Initially, your chosen door will NOT be opened.
 - Instead, gameshow host will open one of other 2 doors. He will do so in a way as not to reveal the prize.

Example: You choose door 1, he will open either door 2, or door 3.

It is guaranteed that he will choose the one to open so that the prize will not be revealed.



- At this point, you are given fresh choice of door:
 - Stick with your first choice or
 - Switch to other closed door.
- All the doors will then be opened. You will receive whatever is behind your final choice of door.
- Suppose that you first choose door 1. Then the gameshow host opens door 3, revealing nothing behind the door.

Should you:

(a) stick with door 1.

(b) switch to door 2, or

Does it make a difference?

Formulate the problem as a Bayesian Inference
Problem...