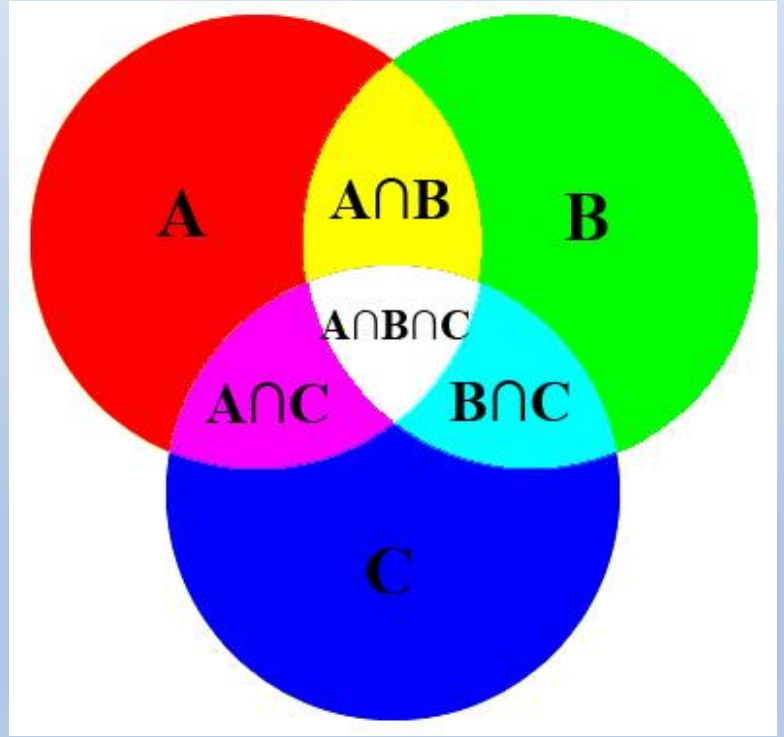
Chapter 1.3.2 Experiments, Outcomes and Events

- 3.1.1 Basic Definition
- 3.1.2 Set Theory
- 3.1.3 Venn Diagram
- 3.1.4 Summary

- 14 March, 2018



Events: problem

- Experiment: pick driver at random and check car brand:
  Trial: Honda (H), Toyota (T), Fiat (F), BMW (B)
  1) define the sample space
- Experiment 2: car brand nationality: check if the brand is Japanese
  Trials2: Japan(Honda), Japan(Japan), Italy(Fiat), Germany(BMW)
  2) define the sample space

Events: problem solution

- Experiment: pick driver at random and check car brand:
  Trials: Honda (H), Toyota (T), Fiat (F), BMW (B)
- 1) Sample space {H, T, F, B, ……????}
  - Define event O = any other brand S = {H, T, F, B, O}
- 2) Japan(Honda), Japan(Japan), Italy(Fiat), Germany(BMW)
  {Japanese, not Japanese} (don't care for anything else)

  $S = \{J, \bar{J}\}$

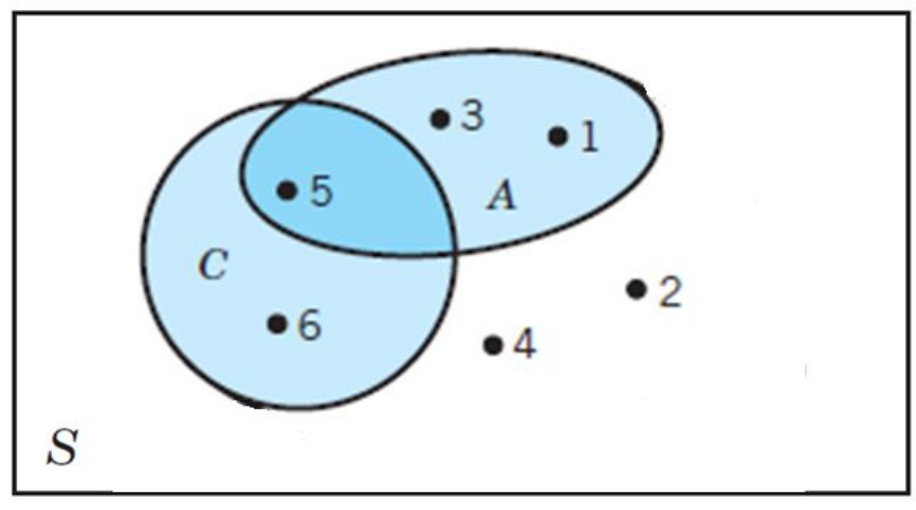
  Events are defined according to our needs!!

1.3.3 Venn Diagram, problem

Example 7

In the experiment of rolling a die, the events $A = \{1,3,5\}, C = \{5,6\}, A \cup C = \{1,3,5,6\},$

$A \cap C = \{5\}$. The corresponding Venn diagram is below.



What is the event {2, 4}?

1.3.3 Venn Diagram, problem

Example 7

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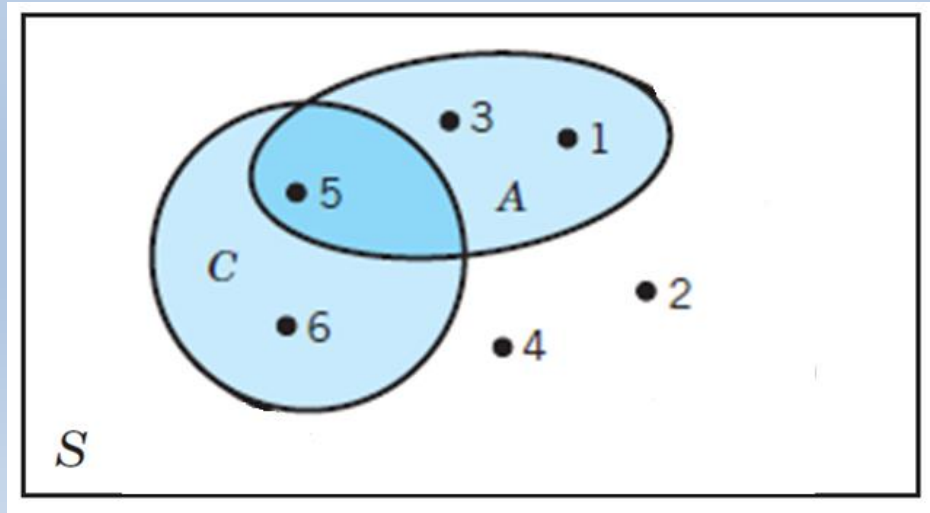

The event {2, 4} = $S \cap \overline{(A \cup C)}$

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3.1.4 Summary

- Basic definitions and their usage in a given problem
  - Sample space, event, experiment, trial
- Set theory
  - Union, intersection, complement
- Representation of sets using Venn diagrams