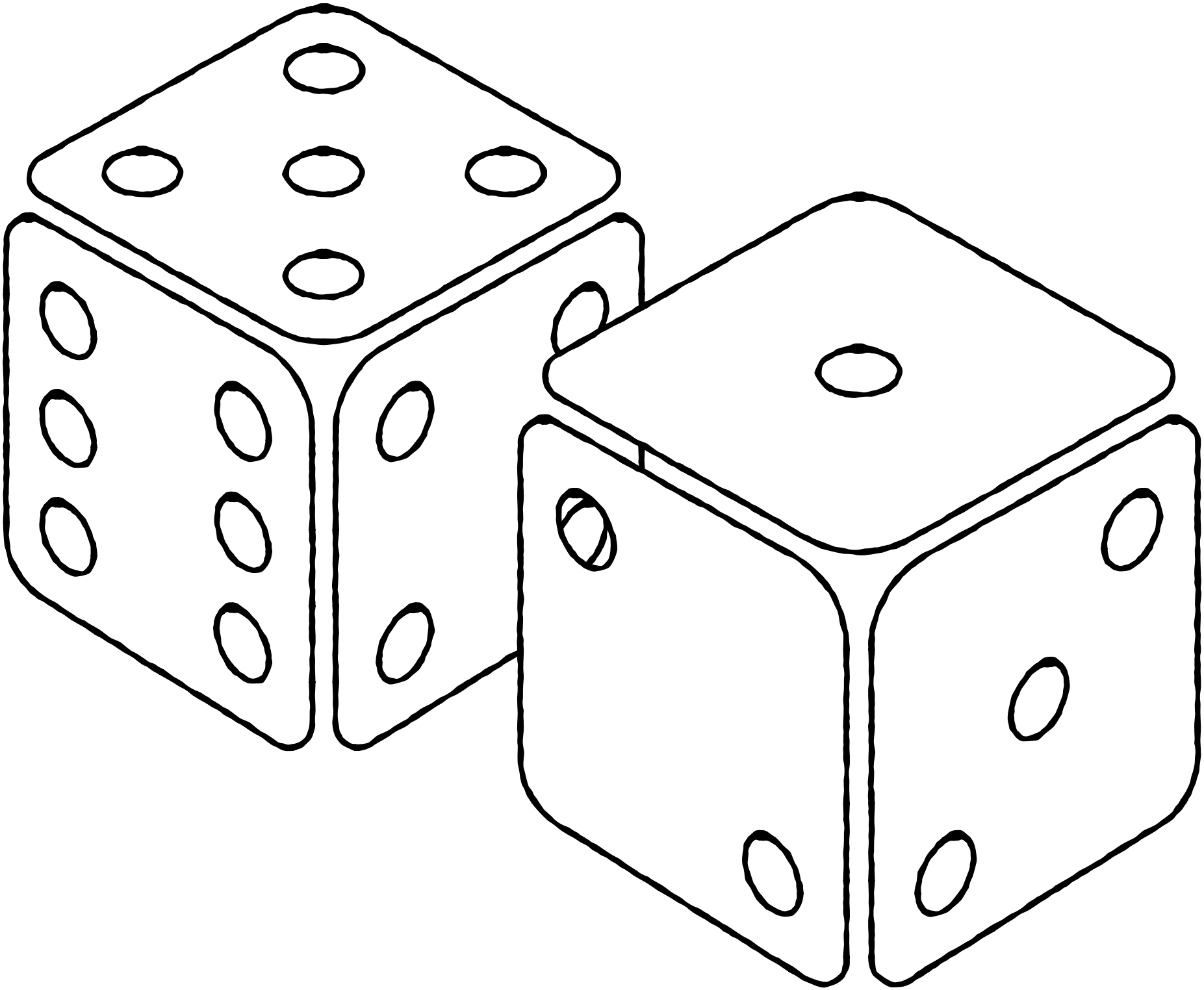
terminology for probability theory

example

exercise 1



terminology for probability theory

example

Flip a coin 3 times and record the side facing up each times

Sample space S = {HHH, HHT, HTH, HTT, THH, THT, TTH, TTT}

Events:

{all heads} = {HHH}

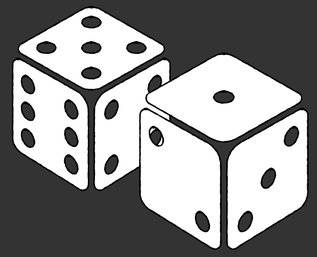
{get at least one head} = {HTT, THT, TTH}

{get at least two heads} = {HHT, HTH, THH, HHH}

exercise 1

Roll two dice, each with numbers 1–6.

Describe the event of rolling a total of 7 with the two dice.



the algebra of events

- Often we are interested in combinations of two or more events
- Events are sets (i.e. subsets of the sample space Ω) so we can do the usual set operations
- Assume sample space with two events A and B
  - complement $\overline{A}$ (also denoted A^c or A')
    all elements of S that are not in A
  - subset $A \subset B$
    all elements of A are also elements of B
  - union $A \cup B$
    all elements of Ω that are in A or B
  - intersection $A \cap B$
    all elements of Ω that are in A and B
- These operations can be represented graphically using Venn diagrams