

## Section 2.1/2.2: Intro to Probability

Tuesday, January 15, 2019 5:00 PM

probability: used as a tool in statistics to evaluate, for example, the reliability of conclusions about a population based on a sample

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experiment - process by which an observation (measurement) is obtained

simple event - the outcome observed on a single repetition of an experiment

sample space - the set of all simple events

event / compound event - a collection of simple events

example: rolling a single six-sided die  
(one die, two dice)

sample space:  $\{1, 2, 3, 4, 5, 6\}$  ← set brackets are optional

↑ ↑  
each of the outcomes is a simple event

event: "rolling an odd number" =  $\{1, 3, 5\}$

mutually exclusive - two events are mutually

exclusive if when one event occurs, the other cannot occur

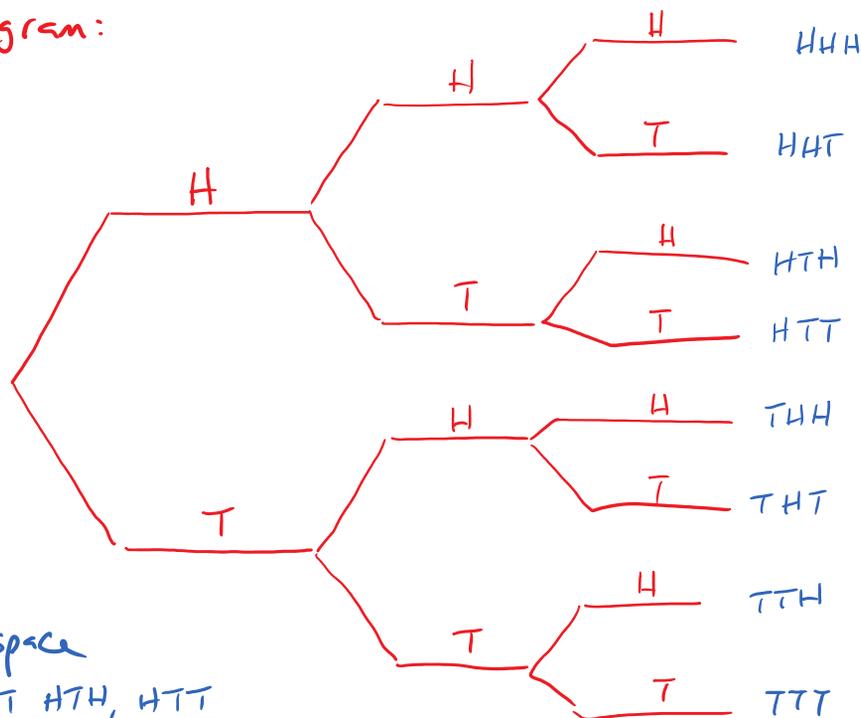
example: { rolling an even number  
rolling a 3

note: mutually exclusive events don't have to "span the sample space"  
- there can be other events (rolling a 1 or 5) left over

also: simple events are always mutually exclusive

example: what is the sample space for flipping a coin three times?

tree diagram:



sample space  
{ HHH, HHT, HTH, HTT,  
TTH, THT, TTH, TTT }