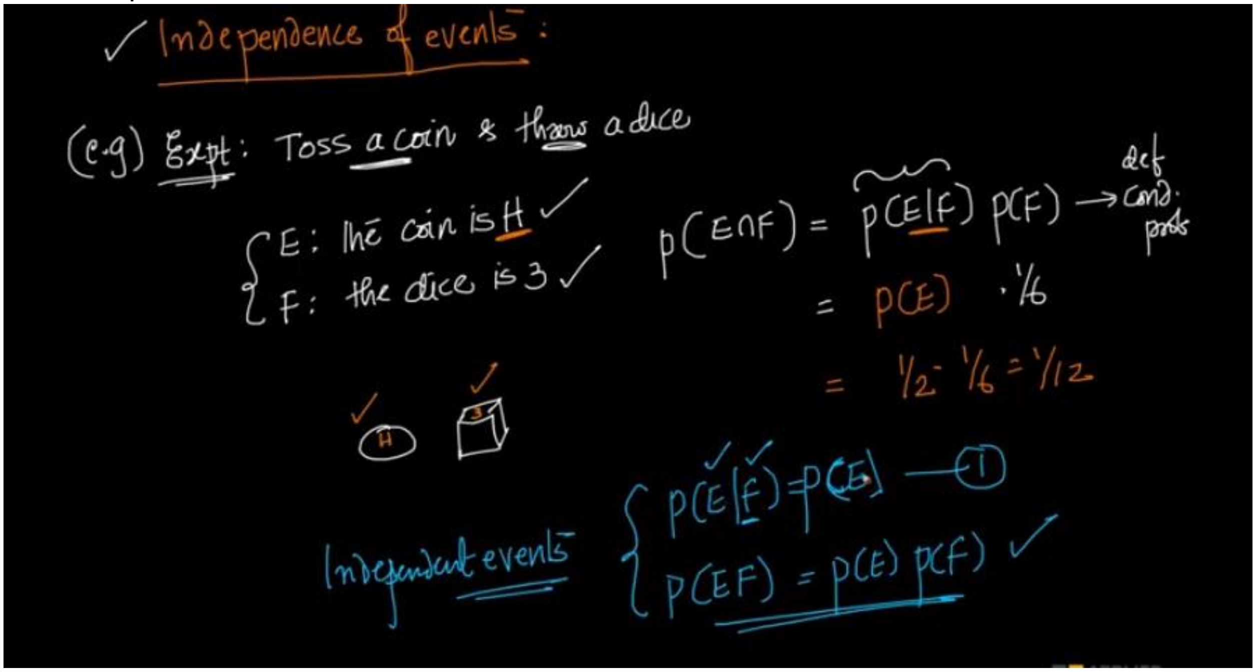
21.8 Independent events

Timestamp 4.54



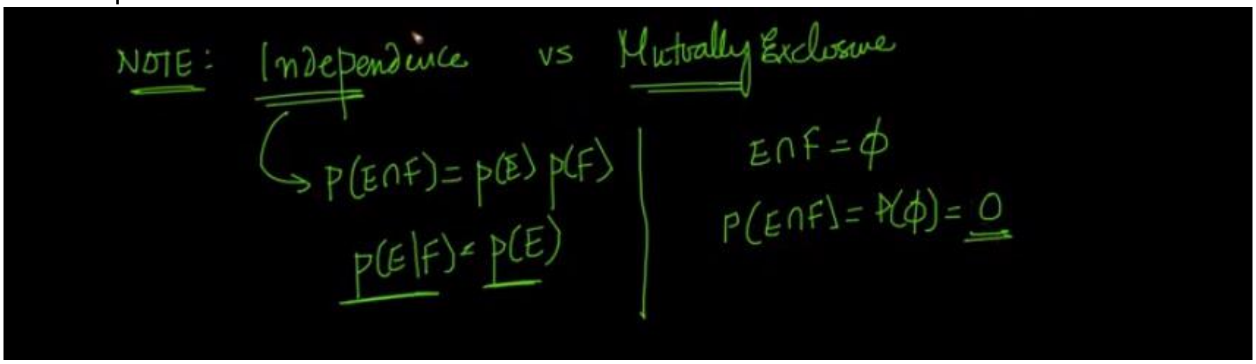
1. Consider an experiment of tossing a coin and throwing a dice. As shown above define two events E and F
   E = Probability of getting heads
   F = Probability of getting 3

2. The probability of both events happening E∩F can be obtained using conditional probability.
   p(E∩F) = p(E/F). p(F)

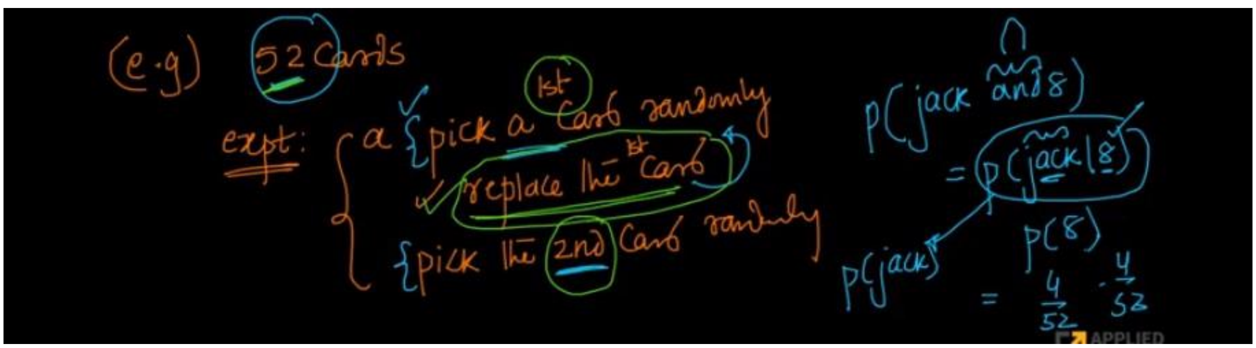
3. The fact that F has already happened has no impact on E happening. Event E happening doesn't depend on event F (E is independent if F), so p(E/F) = p(E).
   Then
   p(E∩F) = p(E). p(F)

4. Two events are said to be independent events when their intersection is equal to the product of the product of events.

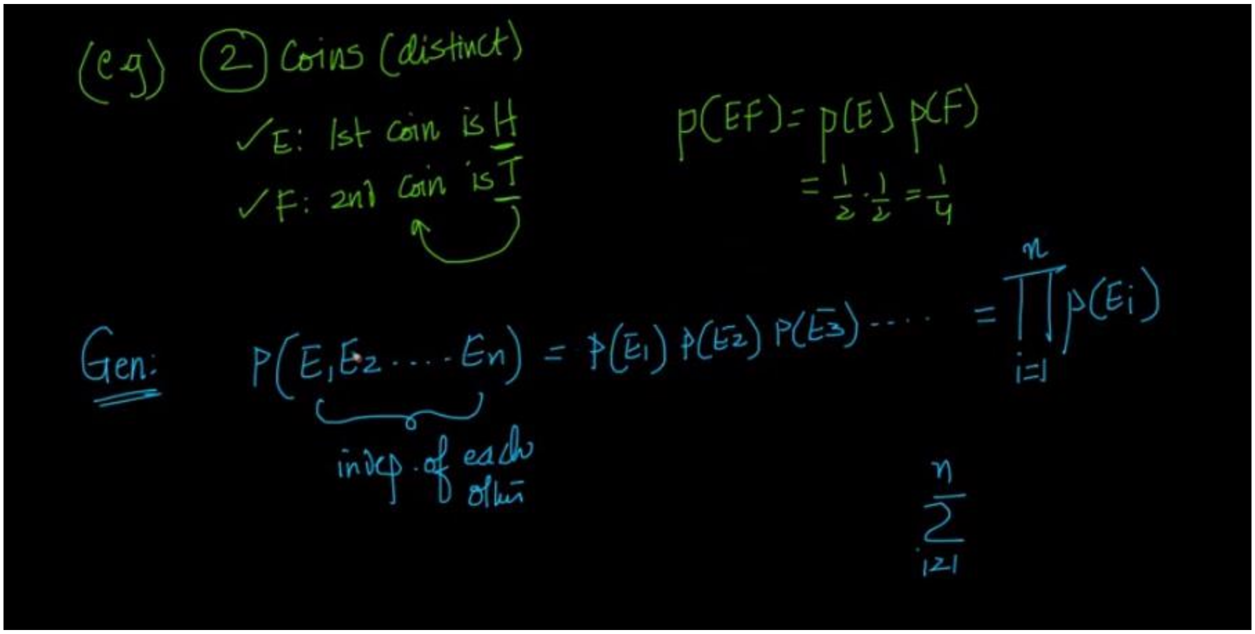
Timestamp 11.53



- For mutually exclusive events the intersection of events is null, independent events when their intersection is equal to the product of the product of events.

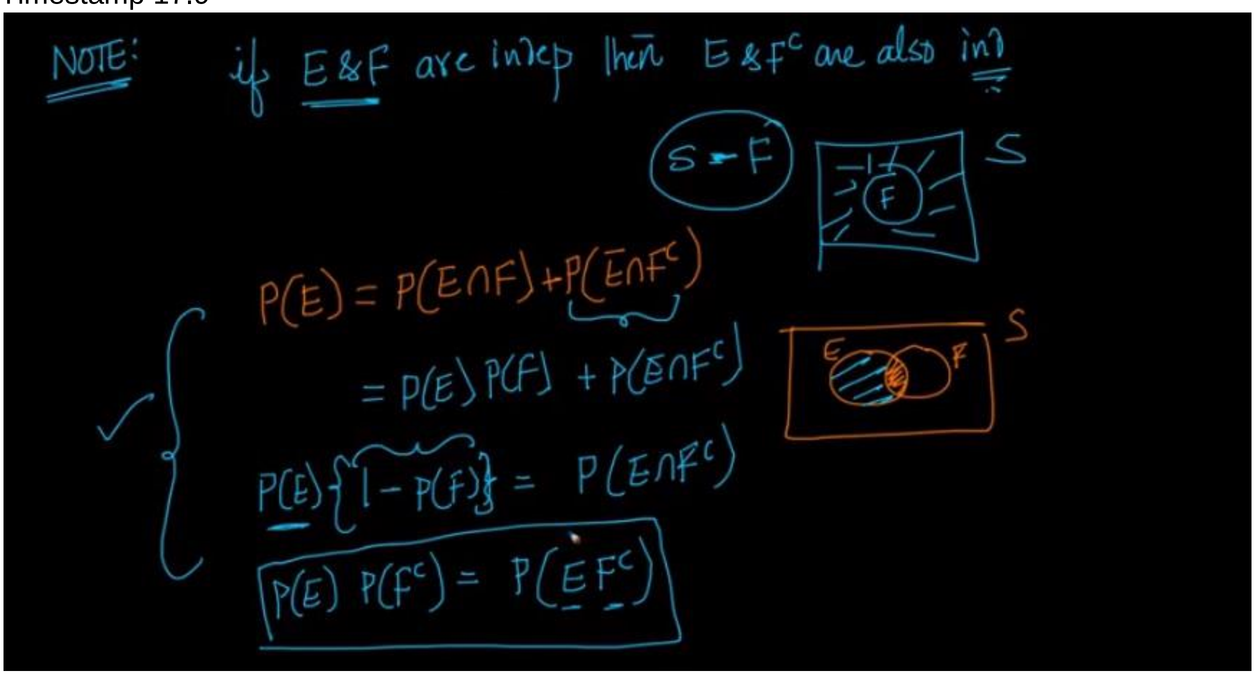


- In the above example probability of picking a second card doesn't depend on the event of picking the first card since we are replacing the first card. They both are independent events.



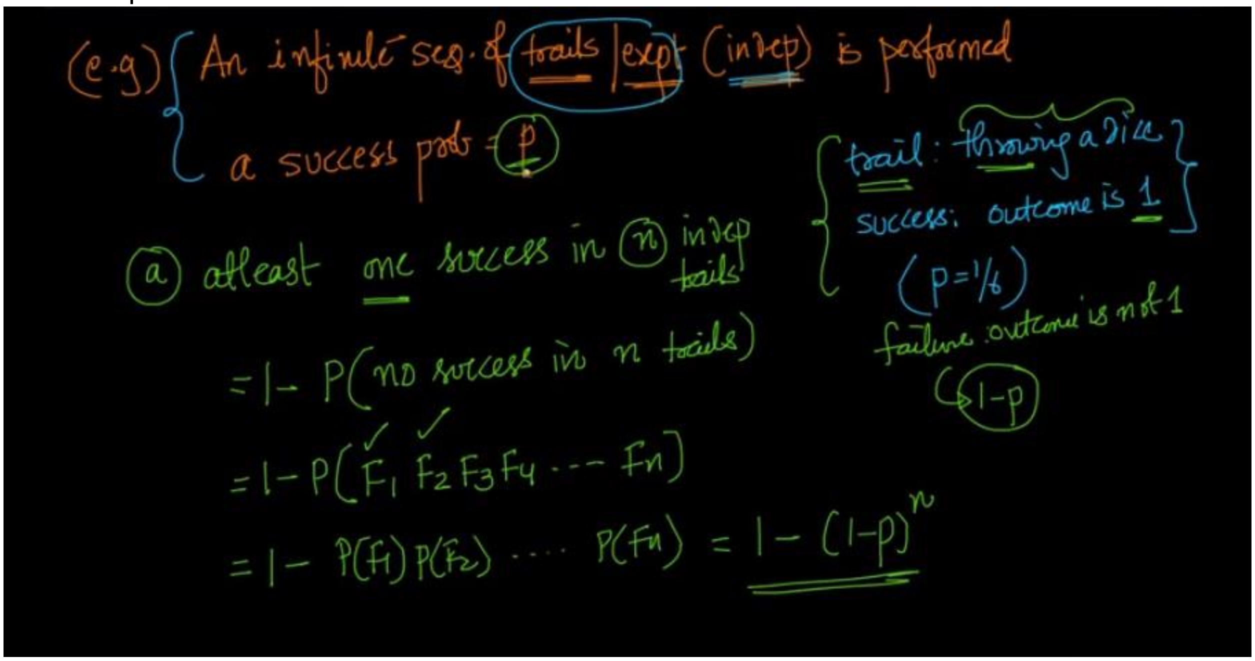
- We can extend the concept of independent events and generalize it for n events as shown above. It's nothing but the product of all the events which are independent.

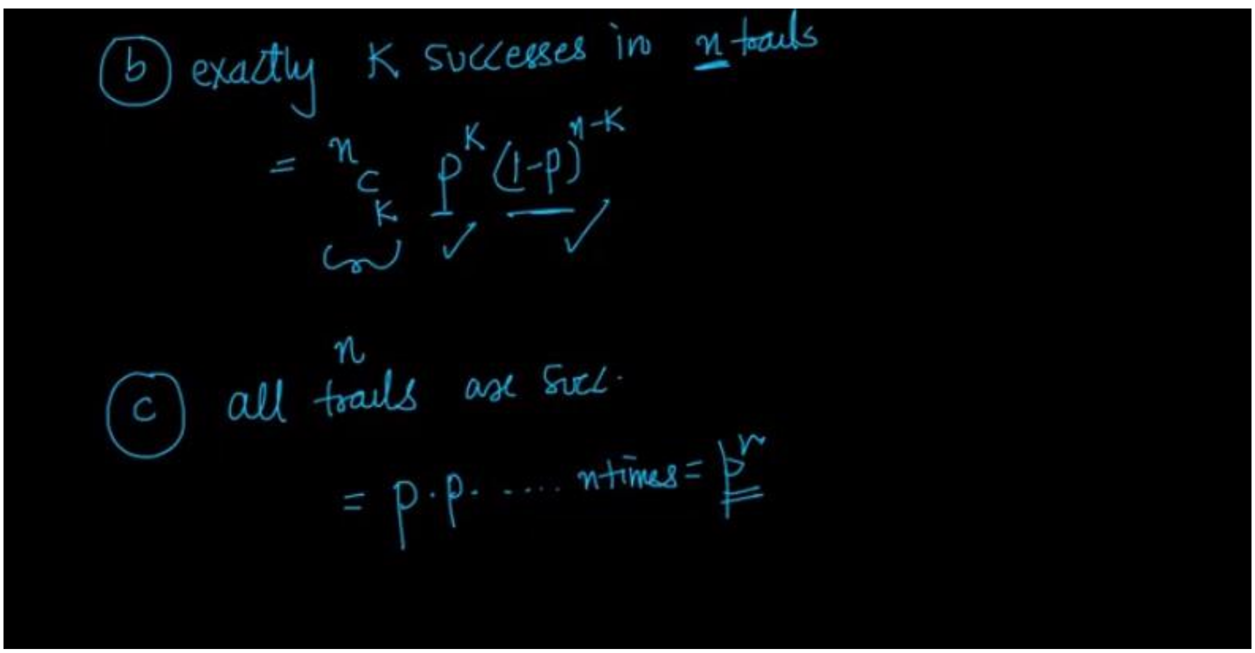
Timestamp 17.9



- As shown above if two events E and F are independent then E and F^ are also independent.

Timestamp 24.30





- Above is an example of using independent events to solve problems.