

✓ **Video:** Probability and Bayes' Rule
3 min

📖 **Reading:** Probability and Bayes' Rule
10 min

▶ **Video:** Bayes' Rule
4 min

📖 **Reading:** Bayes' Rule
10 min

▶ **Video:** Naïve Bayes Introduction
5 min

📖 **Reading:** Naïve Bayes Introduction
10 min

▶ **Video:** Laplacian Smoothing
2 min

📖 **Reading:** Laplacian Smoothing
10 min

▶ **Video:** Log Likelihood, Part 1
6 min

📖 **Reading:** Log Likelihood, Part 1
10 min

▶ **Video:** Log Likelihood, Part 2
2 min

📖 **Reading:** Log Likelihood Part 2
10 min

▶ **Video:** Training Naïve Bayes
3 min

📖 **Reading:** Training naïve Bayes
10 min

📄 **Lab:** Visualizing likelihoods and confidence ellipses
1h

▶ **Video:** Testing Naïve Bayes
4 min

📖 **Reading:** Testing naïve Bayes
10 min

▶ **Video:** Applications of Naïve Bayes
3 min

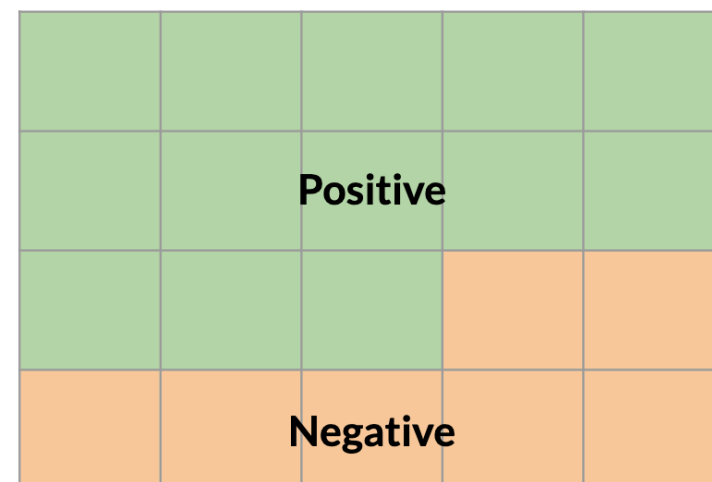
🏠 > [Week 2](#) > Probability and Bayes' Rule

< [Previous](#) [Next](#) >

Probability and Bayes' Rule

You learned about probabilities and Bayes' rule.

Corpus of tweets

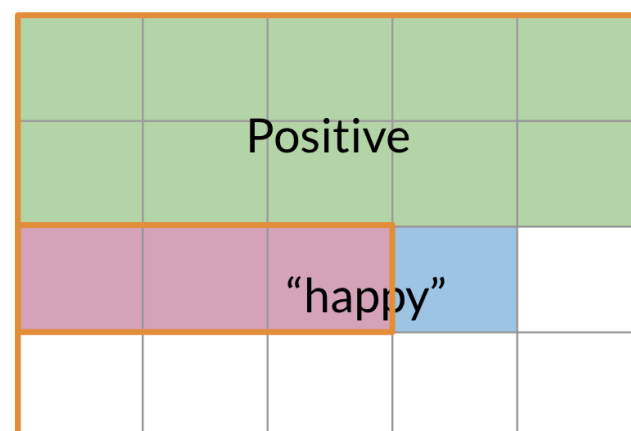


$A \rightarrow$ Positive tweet

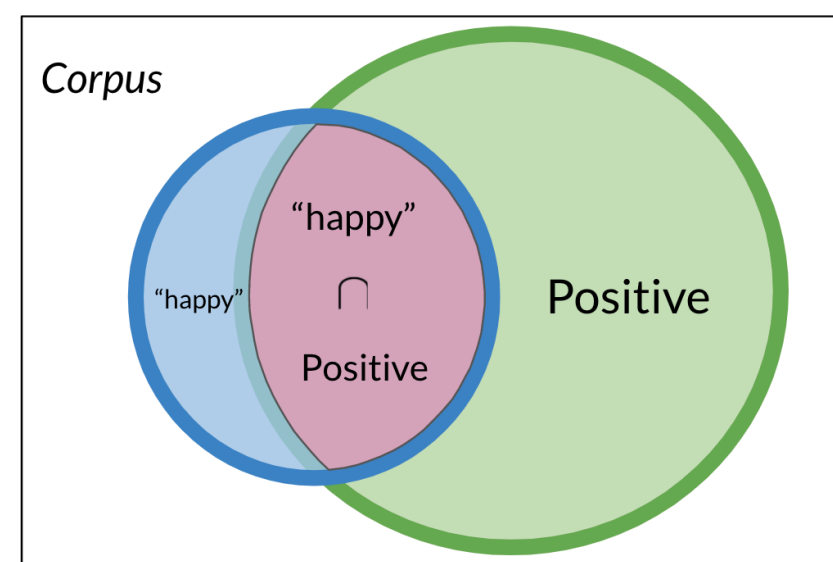
$$P(A) = N_{\text{pos}} / N = 13 / 20 = 0.65$$

$$P(\text{Negative}) = 1 - P(\text{Positive}) = 0.35$$

To calculate a probability of a certain event happening, you take the count of that specific event and you divide by the sum of all events. Furthermore, the sum of all probabilities has to equal 1.



$$P(A \cap B) = P(A, B) = \frac{3}{20} = 0.15$$



To compute the probability of 2 events happening, like "happy" and "positive" in the picture above, you would be looking at the intersection, or overlap of events. In this case red and blue boxes overlap in 3 boxes. So the answer is $\frac{3}{20}$.

