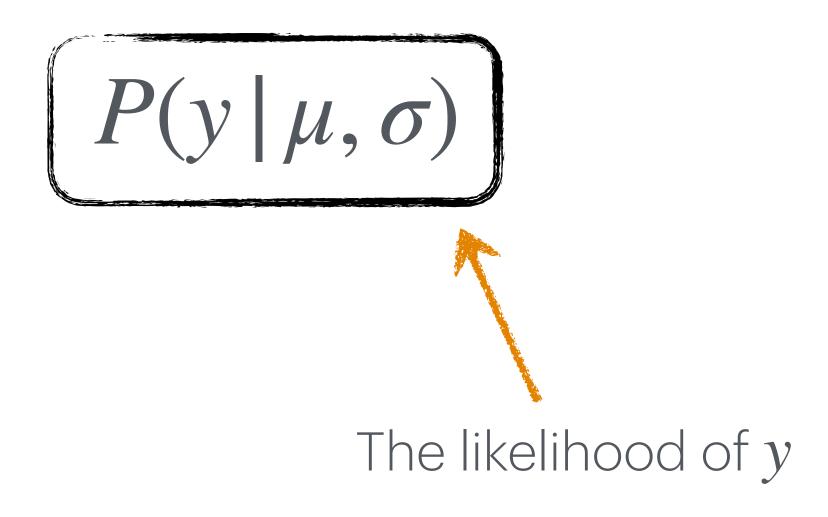
## The likelihood

The probability of each value of y

What does this mean?

$$y_i \sim N(\mu, \sigma)$$

• We can also write this as:



By the product rule:

$$P(\mu, \sigma | y) = \frac{P(y | \mu, \sigma)P(\mu, \sigma)}{P(y)}$$

- $P(\mu, \sigma) = P(\mu)P(\sigma)$ : the prior distribution
- $P(\mu, \sigma | y)$ : The posterior distribution
- P(y): A constant, the "evidence"

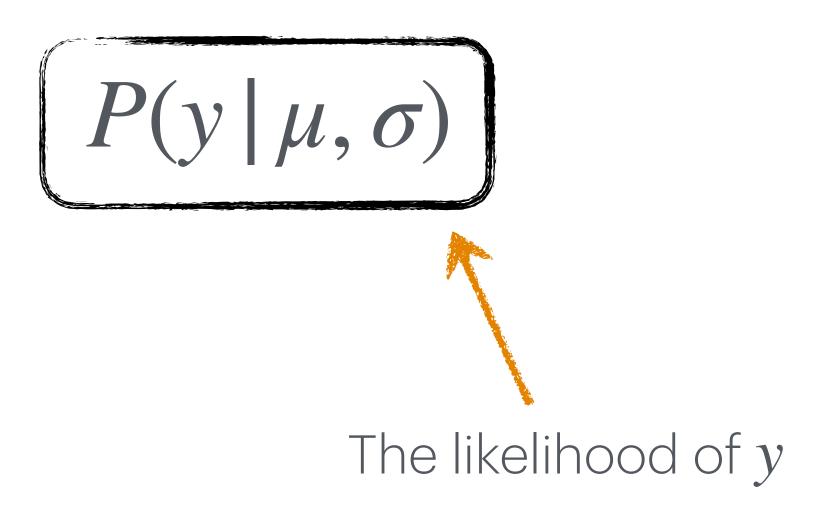
## The likelihood and friends

The probability of each value of y

What does this mean?

$$y_i \sim N(\mu, \sigma)$$

• We can also write this as:



By the product rule:

$$P(\mu, \sigma | y) \propto P(y | \mu, \sigma) P(\mu, \sigma)$$

- $P(\mu, \sigma) = P(\mu)P(\sigma)$ : the prior distribution
- $P(\mu, \sigma | y)$ : The posterior distribution
- P(y): A constant, the "evidence" Not necessary for inference, usually ignored