The posterior distribution

The encoding of our inference

- We can use the posterior distribution to understand what out data says about our parameter values
- By finding the posterior $P(\mu, \sigma \mid y)$, we can infer the most probable values for the parameters.
- So, we just need to define the ingredients:
  - $P(\mu), P(\sigma), P(y_i \mid \mu, \sigma)$

- A full model:

$$y_i \sim N(\mu, \sigma)$$
$$\mu \sim N(0,1)$$
$$\sigma \sim Exp(1)$$

The priors

The encoding of our guesses

$$y_i \sim N(\mu, \sigma)$$
$$\mu \sim N(0,1)$$
$$\sigma \sim Exp(1)$$