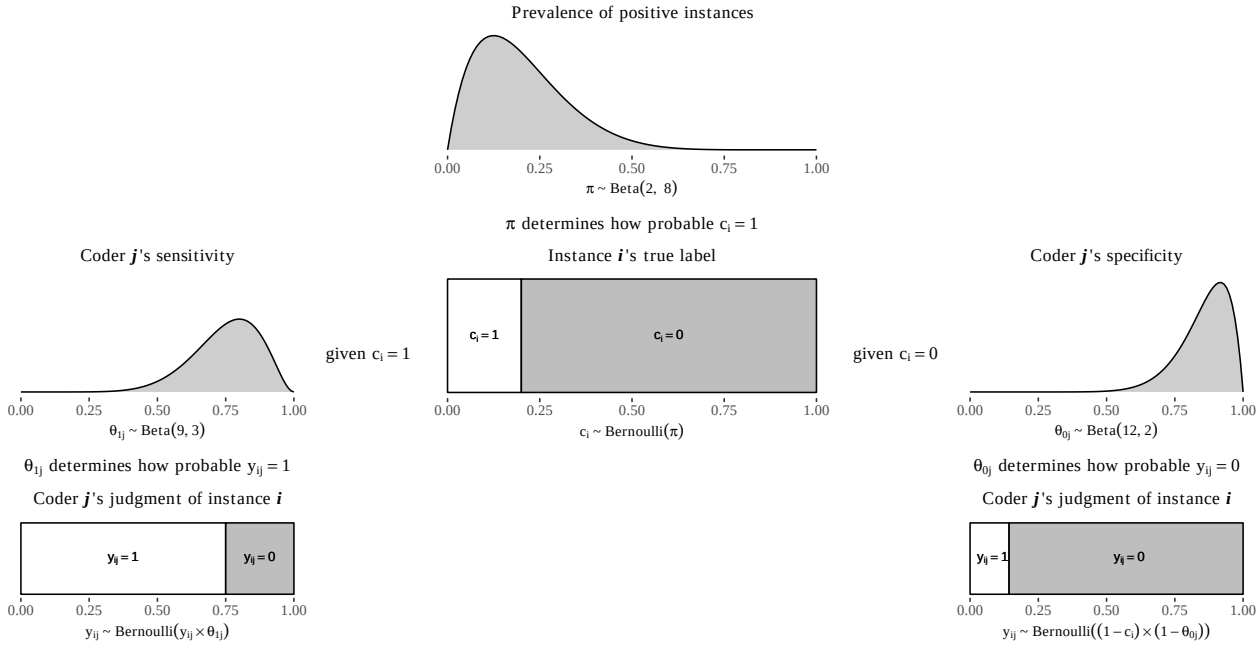
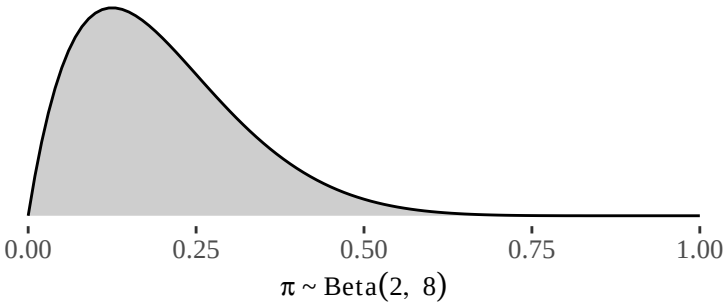
Data-generating process assumed by the Beta-Binomial by Annotator model

true

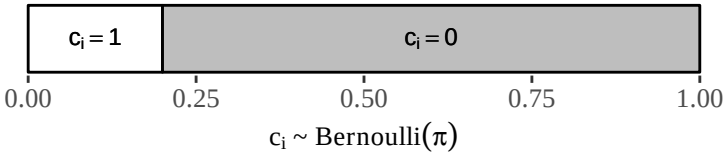


Prevalence of positive instances



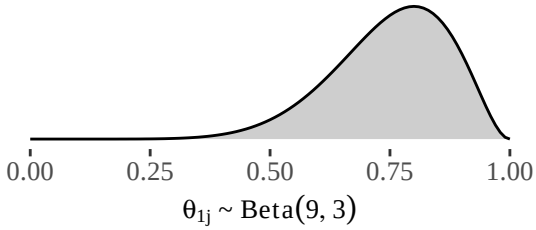
π determines how probable $c_i = 1$

Instance ***i***'s true label



given $c_i = 1$

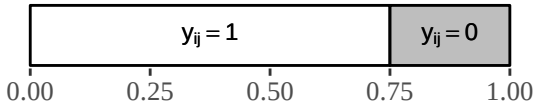
Coder ***j***'s sensitivity



$\theta_{1j} \sim \text{Beta}(9, 3)$

θ_{1j} determines how probable $y_{ij} = 1$

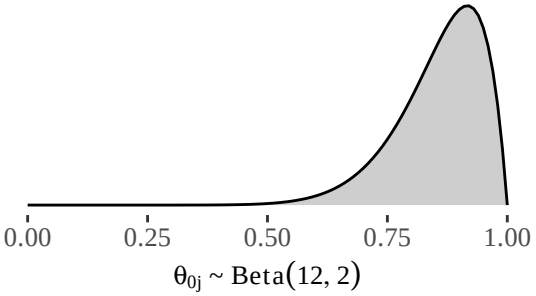
Coder ***j***'s judgment of instance ***i***



$y_{ij} \sim \text{Bernoulli}(y_{ij} \times \theta_{1j})$

given $c_i = 0$

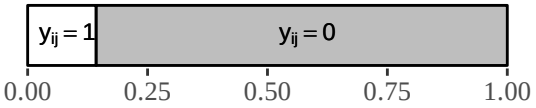
Coder ***j***'s specificity



$\theta_{0j} \sim \text{Beta}(12, 2)$

θ_{0j} determines how probable $y_{ij} = 0$

Coder ***j***'s judgment of instance ***i***



$y_{ij} \sim \text{Bernoulli}((1 - c_i) \times (1 - \theta_{0j}))$