If $\theta \sim \text{Gamma}(\gamma_0, \lambda_0)$

$$E(\theta) = \frac{\gamma_0}{\lambda_0}$$

$$V(\theta) = \frac{\gamma_0}{\lambda_0^2}$$

How we could get $\gamma_0 = 80$

$\lambda_0 = 20$?

Ask say 10 experts about $\theta = \frac{1}{\sigma^2}$

$\theta_1 \dots \theta_{10}$ Mean $(\theta_1 \dots \theta_{10})$

$V(\theta_1 \dots \theta_{10})$

match with $\frac{\gamma_0}{\lambda_0}$ $\frac{\gamma_0}{\lambda_0^2}$

Predictive distribution

$$P(X_{new} > 4.8) = E\left[P(X_{new} > 4.8 \mid \theta)\right]$$

1 − pnorm(4.8, 5, $\frac{1}{\sqrt{\theta}}$) (mean)

$\theta \sim \text{Gamma}(\gamma_1, \lambda_1)$

$X_{new} \sim N(\mu = 5, \sigma^2 = 1/\theta)$