The rho1 prior

Parametrization

The rho1-prior is a density for a correction ρ with a reference in $\rho = 1$. The density for ρ is

$$\pi(\rho) = \frac{\lambda \exp(-\lambda\mu(\rho))}{1 - \exp(-\sqrt{2}\lambda)} J(\rho)$$

where

$$\mu(\rho) = \sqrt{1-\rho}$$

and

$$J(\rho) = \frac{1}{2\sqrt{1-\rho}}$$

The parameter λ is defined through

$$\text{Prob}(\rho > u) = \alpha, \qquad -1 < u < 1, \quad 0 < \alpha < 1$$

where (u, α) are the parameters to this prior. The solution is implicite

$$\frac{\exp(-\lambda\sqrt{1-u})}{1 - \exp(-\sqrt{2}\lambda)} = \alpha$$

Specification

The spline prior for the hyperparameters is specified inside the `f()` function as

```
f(<whatever>, hyper = list(<theta> = list(prior="rho1", param=c(<u>,<alpha>))))
```

Example

Notes

This prior is experimental and for internal use only