

fmri

Parametrisation

We will use the following reparameterisation

$$\mu = \lambda\alpha\gamma, \quad p = \frac{\alpha + 2}{\alpha + 1}, \quad \frac{\phi}{w} = \frac{\lambda^{1-p}(\alpha\gamma)^{2-p}}{2-p}$$

where $w > 0$ is a fixed scaling, so the mean of Y is $\mu > 0$, variance is $\frac{\phi}{w}\mu^p$ where $1 < p < 2$, and ϕ is a dispersion parameter.

Link-function

The linkfunction is given as

$$\log(\mu) = \eta$$

where η is the linear predictor.

Hyperparameters

The hyperparameters are $\theta = (\theta_1, \theta_2)$, where

$$p = 1 + \frac{\exp(\theta_1)}{1 + \exp(\theta_1)}, \quad 1 < p < 2.$$

and

$$\phi = \exp(\theta_2), \quad \phi > 0$$

The priors are given on (θ_1, θ_2) .

Specification

- family = `tweedie`
- Required arguments: y (and optional w through option `scale`)

Hyperparameter specification and default values

Example

In the following example we estimate the parameters in a simulated example.

Notes

This distribution is experimental, and changes will occur.