A special case of the Gamma-distribution

Parametrisation

We consider this distribution

$$\pi(y) = \frac{1}{\Gamma(a)} y^{a-1} \exp(-y), \qquad a > 0, \quad y > 0,$$

where $E(y) = \mu = a$.

Link-function

The linear predictor η is linked to the mean μ using a default log-link

$$\mu = \exp(\eta)$$

Hyperparameter

None.

Specification

- family = gammajw for regression models and family = gammajw.surv for survival models.
- Required arguments: for gammajw.surv, y (to be given in a format by using inla.surv()), and for gammajw, y.

Hyperparameter spesification and default values

gammajw:

doc A special case of the Gamma likelihood

hyper

survival FALSE

discrete FALSE

link default log

pdf gammajw

gammajwsurv:

doc A special case of the Gamma likelihood (survival)

hyper

survival TRUE

discrete FALSE

link default log

pdf gammajw

Example

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

```
x \leftarrow rnorm(n, sd = 0.3)
eta <- 1 + x
mu <- exp(eta)</pre>
y <- rgamma(n, shape = mu, scale = 1)
r \leftarrow inla(y ~1 + x,
          data = data.frame(y, x),
          family = "gammajw",
          control.compute = list(cpo = TRUE),
          control.fixed = list(prec.intercept = 0.01),
           verbose = TRUE)
summary(r)
yy <- inla.surv(y, event = 1)</pre>
rr <- inla(yy ~ 1 + x,
          data = list(yy = yy, x = x),
          family = "gammajwsurv",
          control.compute = list(cpo = TRUE),
          control.fixed = list(prec.intercept = 0.01),
           verbose = TRUE)
summary(rr)
print(r$summary.fixed - rr$summary.fixed)
```

Notes

None.