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 $\mathrm{E}(y) = \mu = a$.

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.

```
n <- 300
x <- rnorm(n, sd = 0.3)
eta <- 1 + x
mu <- exp(eta)
y <- rgamma(n, shape = mu, scale = 1)
r <- 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)
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.