Independent random noise model

Parametrization

This model simply defines § to be a vector of independent and Gaussian distributed random variable with precision τ:

$$\pi(\mathbf{x}|\tau) \propto \tau^{n/2} \exp\left\{-\frac{\tau}{2}\mathbf{x}^T\mathbf{I}\mathbf{x}\right\}$$

where $\mathbf{I}$ is the identity matrix.

Hyperparameters

The precision parameter τ is represented as

$$\theta = \log \tau$$

and the prior is defined on θ.

Specification

The independent model is specified inside the `f()` function as

```
f(<whatever>,model="iid", hyper = <hyper>)
```

Hyperparameter spesification and default values

hyper

- **theta**
  - **name** precision
  - **short.name** prec
  - **initial** 4
  - **fixed** FALSE
  - **prior** loggamma
  - **param** c(1, 1e-04)

constr FALSE

nrow.ncol FALSE

augmented FALSE

aug.factor 1

aug.constr NULL

n.div.by NULL

n.required FALSE

set.default.values FALSE

Example

```
n=12
Ntrials = sample(c(80:100), size=n, replace=TRUE)
eta = rnorm(n,0,0.5)
prob = exp(eta)/(1 + exp(eta))
y = rbinom(n, size=Ntrials, prob = prob)

data=data.frame(y=y,z=1:n)

formula=y~f(z,model="iid",
           hyper=list(theta=list(prior="loggamma",param=c(1,0.01))))
result=inla(formula,data=data,family="binomial",Ntrials=Ntrials)
```

Notes

None