

Independent random noise model

Parametrization

This model simply defines \mathbf{z} 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 specification and default values

hyper

theta

```
name    log precision
short.name  prec
prior    loggamma
param    1 5e-05
initial  4
fixed    FALSE
to.theta function(x) log(x)
from.theta function(x) exp(x)
```

constr FALSE

nrow.ncol FALSE

augmented FALSE

aug.factor 1

aug.constr

n.div.by

n.required FALSE

set.default.values FALSE

pdf indep

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