ME-fixed effect

Parametrisation

This family is part of the "ME" (measurement error) family to emulate various measurement error models. This ME-fixed-effect represent this model

$$\beta(x + u)$$

where β is the fixed-effect, x is the observed covariate, and u is the Gaussian error with precision τ.

Link-function

Not relevant.

Hyperparameters

This model has two hyperparameters. The fixed-effect β is θ_1,

$$\theta_1 = \beta$$

and the log-precision of the Gaussian error is θ_2,

$$\theta_2 = \log(\tau)$$

The prior is defined on (θ_1, θ_2).

Specification

- family = `mefixedeffect`
- Required arguments: x (as the response)

Hyperparameter spesification and default values

hyper

    theta1

        name   beta

        short.name   beta

        initial   1

        fixed   FALSE

        prior   normal

        param   0 0.01

        to.theta

        from.theta

    theta2

        name   log precision

        short.name   prec

        initial   4

        fixed   FALSE

        prior   loggamma

        param   1 5e-04

| | **to.theta** |
| | **from.theta** |

survival FALSE

discrete FALSE

link default identity

pdf mefixedeffect

status experimental

Example

```
n = 1000
beta.x = 2
prec.x = 100
prec.y = 1000 ## fixed

x.true = rnorm(n)
x = x.true + rnorm(n, sd = sqrt(1/prec.x))
y = 1 + beta.x * x.true + rnorm(n, sd = sqrt(1/prec.y))

formula = Y ~ -1 + intercept +
    f(me.fixed.effect, model="iid",
      hyper = list(prec = list(initial = -5, fixed=TRUE)))

intercept = c(rep(1, n), rep(0, n))
me.fixed.effect = rep(1:n, 2)

Y = matrix(NA, 2*n, 2)
Y[1:n, 1] = y
Y[(1:n) + n, 2] = x

r = inla(formula,
        data = list(Y=Y, intercept=intercept,
                me.fixed.effect = me.fixed.effect),
        family = c("gaussian", "mefixedeffect"),
        control.data = list(list(
                hyper = list(
                        prec = list(
                                initial = log(prec.y),
                                fixed=TRUE)
                        )
                ),
                list()),
        verbose=TRUE)
```

Notes

This model is classified as "work in progress" and can be changed without further notice. In the future, it will appear as a "f()" model, but the internal structure in the code prevent this from happen

right now.