Constrained Linear

Parametrization

This model is like a "fixed" effect where you can constrained the coefficient of a covariate to be in an interval:

$$\eta_i = \beta x_i$$

where β is in the interval [low, high] and x are the covariates.

Hyperparameters

The β parameter, since its is constrained in general, is a hyperparameter. The internal transformation depends on the values of low and high. If low is -Inf and high is Inf, then

$$\beta = \theta$$

and the prior is put on θ . If low is finite and high is Inf, then

$$\beta = \text{low} + \exp(\theta)$$

and the prior is put on θ . If low is finite and high is finite, then

$$\beta = \text{low} + (\text{high} - \text{low}) \frac{\exp(\theta)}{1 + \exp(\theta)}$$

and the prior is put on θ .

Specification

```
f(x, model="clinear", range = c(low, high), precision = crecision>)
```

where precision is the precision for the tiny noise used to implement this as a latent model.

Hyperparameter spesification and default values

doc Constrained linear effect

hyper

```
theta
```

}

```
from.theta function(x, REPLACE.ME.low, REPLACE.ME.high) {
                                               stopifnot(low < high)</pre>
                                           } else if (all(is.finite(c(low, high)))) {
                                               stopifnot(low < high)</pre>
                                           } else if (is.finite(low) && is.infinite(high) && hi
                                               return (low + exp(x))
                                                stop("Condition not yet implemented")
                                       }
constr FALSE
nrow.ncol FALSE
augmented FALSE
aug.factor 1
aug.constr
n.div.by
n.required FALSE
set.default.values FALSE
\mathbf{pdf} clinear
Example
n = 100
x = runif(n)
y = 1 + x + rnorm(n)
r = inla(y ~f(x, model = "clinear", range = c(0, Inf)),
         data = data.frame(y,x))
summary(r)
Notes
```

None