

Linkmodel: sn

Parametrization

This is the link that map $p \in (0, 1)$ into $x \in \Re$, where

$$F_a(x) = p$$

and F_a is the cummulative distribution function for the skew-normal distribution,

$$2\phi(x)\Phi(a^{1/3}x)$$

which is renormalized to have zero mean and unit variance.

Hyperparameters

The parameter a represented as

$$a = a_{\max} \left(2 \frac{\exp(\theta)}{1 + \exp(\theta)} - 1 \right)$$

and the prior is defined on θ . There is a PC prior available for θ . The (absolute) bound of $a_{\max} = 3.2^3 = 32.768$, is there for for stability reasons¹. The PC-prior will be corrected for this bound, whereas the pc-prior in the R-functions `inla.pc.{r,p,q,d}sn` does not define a such bound.

Specification

Use `model="sn"` within `control.link`.

Hyperparameter spesification and default values

doc Skew-normal link

hyper

theta

hyperid 49031

name alpha

short.name alpha

initial 0

fixed TRUE

prior pc.sn

param 500

to.theta `function(x, amax3 = 3.2^3) log((1+x/amax3)/(1-x/amax3))`

from.theta `function(x, amax3 = 3.2^3) amax3*(2*exp(x)/(1+exp(x))-1)`

status experimental

pdf `linksn`

Example

¹This constant is defined as `LINK.SN.AMAX` in the file `inla.h`.

Notes

- The link-function is also available as R-functions `inla.link.sn` and `inla.link.invsn`
- This link-model is experimental for the moment.