

# Truncated Gaussian prior

## Parametrization

This is a prior for a precision  $\tau$  and defined as follows. The standard deviation  $\sigma = 1/\sqrt{\tau}$  is Gaussian distributed with mean  $\mu$  and precision  $\kappa$  but truncated to be positive.

## Specification

This prior for the hyperparameters is specified inside the `f()` function as the following using the old style

```
f(<whatever>, prior="logtnormal", param=c(<mean  $\mu$ >, <precision  $\kappa$ >))
```

or, better, the new style

```
f(<whatever>, hyper = list( <theta> = list(prior="logtnormal", param=c(<mean  $\mu$ >, <precision  $\kappa$ >))))
```

Similar with "logtgaussian".

## Example

In the following example we estimate the parameters in a simulated example with gaussian responses and assign for the precision  $\tau$ , the above prior.

```
n=100
z=rnorm(n)
y=rnorm(n,z,1)
data=list(y=y,z=z)
formula=y~1+z
result=inla(formula, family="gaussian", data=data,
             control.family=list(hyper = list(prec = list(prior="logtnormal", param = c(0, 0.01)))))
```