

## PC prior for precision

### Parametrization

The PC prior for precision has density

$$\pi(x) = \frac{\theta}{2} \exp\left(-\theta \exp\left(-\frac{x}{2}\right) - \frac{x}{2}\right) \quad (1)$$

for  $x > 0$  where

$$\theta = -\frac{\ln(\alpha)}{u}$$

and  $(u, \alpha)$  are the parameters to this prior. The interpretation of  $(u, \alpha)$  is that

$$\text{Prob}(\sigma > u) = \alpha$$

where  $\sigma = 1/\sqrt{\exp(x)}$ , as  $x$  is the log-precision.

### Specification

This prior for the hyperparameters is specified inside the `hyper`-specification, as

```
hyper = list(<theta> = list(prior="pc.prec", param=c(<u>,<alpha>)))
```

### Example

#### Notes

See also functions `inla.pc.{d,p,q,r}prec`