

## Logit-Beta prior: logitbeta

This is a prior for a probability parameter  $p \in (0, 1)$  which is internally represented as

$$\theta = \log \frac{p}{1-p} = \text{logit}(p)$$

and  $p$  is Beta-distributed.

### Parametrization

The logitbeta-prior is defined on  $\theta$  so that the probability parameter  $p$  has a  $\text{Beta}(a, b)$  distribution with density

$$\frac{\Gamma(a+b)}{\Gamma(a)\Gamma(b)} p^{a-1} (1-p)^{b-1}$$

### Specification

The prior is specified in the `hyper` argument as follows:

```
hyper = list(<theta> = list(prior = "logitbeta", param=c(<a>,<b>)))
```

### Default values

**doc** Logit prior for a probability

**nparameters** 2

**pdf** logitbeta

### Example

### Notes

The prior is internally defined on the  $\theta$  parameter therefore initial values have to be provided in the  $\theta$ -scale. For example if the desired initial value is  $p = 0.5$ , which means  $\theta = \log(0.5/(1 - 0.5)) = 0$ , and

```
hyper = list(<theta> = list(prior = "logitbeta", param=c(<a>,<b>), initial=0))
```