Beta prior for correlation parameters: betacorrelation

This is a prior for the correlation parameter $\rho \in (-1, 1)$ which is internally represented as

$$\theta = \log \frac{\rho + 1}{\rho - 1}$$

Parametrization

The prior defined on θ so that the correlation parameter ρ has a Beta(a, b) distribution scaled to have domain in $(-1, 1)$:

$$\pi(\rho|a, b) = 0.5 \, \frac{\Gamma(a + b)}{\Gamma(a)\Gamma(b)} \rho^{a-1}(1 - \rho)^{b-1}$$

Specification

The Beta prior for the correlation is specified either inside the `f()` function or in the `control.group()` option as following:

```
theta = list(prior = "betacorrelation", param=c(<a>,<b>),...)
```

Example

Notes

The prior is internally defined on the θ parameter therefore initial values have to be provided in the θ-scale. For example if the desired initial value is $\rho = 0.5$, which means $\theta = \log(1/3) = -1.098$ the following specification has to be provided:

```
theta = list(prior = "betacorrelation", param=c(<a>,<b>),initial=-1.098)
```