Summary of Functions: Multiparameter Models

Multiparameter Models

`normchi2post` – computes the log of the posterior density of a mean M and a variance S2 when a sample is taken from a normal density and a standard noninformative prior is used

Usage: `normchi2post(theta,data)`

Arguments: `theta`, a matrix of parameter values where each row is a value of (M, S2); `data`, a vector containing the sample observations

Value: a vector of values of the log posterior where the values correspond to the rows in theta

Multiparameter Models

`mycontour` – for a general two parameter density, draws a contour graph where the contour lines are drawn at 10%, 1%, and .1% of the height at the mode
Usage: `mycontour(logf,limits,data,...)`
Arguments: `logf`, a function that defines the logarithm of the density; `limits`, a vector of limits (`xlo, xhi, ylo, yhi`) where the graph is to be drawn; `data`, a vector or list of parameters associated with the function `logpost`; ..., further arguments to pass to `contour`
Value: a contour graph of the density is drawn

Multiparameter Models

`normpostsim` – gives a simulated sample from the joint posterior distribution of the mean and variance for a normal sampling prior with a noninformative prior

Usage: `normpostsim(data,m)`

Arguments: `data`, a vector containing the sample observations; `m`, number of simulations desired

Value: `mu`, vector of simulated draws of normal mean; `sigma2`, vector of simulated draws of normal variance

Multiparameter Models

`rdirichlet` – simulates values from a Dirichlet distribution
Usage: `rdirichlet(n,par)`
Arguments: `n`, the number of simulations required; `par`, the vector of parameters of the Dirichlet distribution
Value: a matrix of simulated draws, where a row contains one simulated Dirichlet draw

Multiparameter Models

`logisticpost` – computes the log posterior density of (beta0, beta1) when yi are independent binomial(ni, pi) and logit(pi)=beta0+beta1*xi

Usage: `logisticpost(beta,data)`

Arguments: `beta`, a matrix of parameter values where each row represents a value of (beta0, beta1); `data`, a matrix of columns of covariate values `x`, sample sizes `n`, and number of successes `y`

Value: vector of values of the log posterior where each value corresponds to each row of the parameters in beta

Multiparameter Models

`simcontour` – for a general two-parameter density defined on a grid, simulates a random sample

Usage: `simcontour(logf,limits,data,m)`

Arguments: `logf`, a function that defines the logarithm of the density; `limits`, a vector of limits `(xlo, xhi, ylo, yhi)` that cover the joint probability density; `data`, a vector or list of parameters associated with the function `logpost`; `m`, the size of the simulated sample

Value: `x`, the vector of simulated draws of the first parameter; `y`, the vector of simulated draws of the second parameter

Multiparameter Models

`howardprior` – computes the logarithm of a dependent prior on two proportions proposed by Howard in a *Statistical Science* paper in 1998

Usage: `howardprior(xy,par)`

Arguments: `xy`, a matrix of parameter values where each row represents a value of the proportions (p1, p2); `par`, a vector containing parameter values alpha, beta, gamma, delta, sigma

Value: vector of values of the log posterior where each value corresponds to each row of the parameters in `xy`