Input Arguments to GERGM function

**Last Updated: April 28th, 2015 by JW**

*object* - a formula object that specifies the relationship between statistics and the observed network. Currently, the following statistics can be specified: c(“out2star”, “in2star”, “ctriads”, “recip”, “ttriads”, “edgeweight”).

*directed -* logical specifying whether or not the observed network is directed. Default is TRUE.

*MPLE.only -* logical specifying whether or not only the maximum pseudo likelihood estimates should be obtained. In this case, no simulations will be performed. Default is FALSE.

*transform.data -* a n x n x m array where each of m layers contains a covariate that models the transform of the unbounded weighted network to a network whose edges are all on the unit interval. Default is NULL.

*method -* simulation method for MCMC estimation. Default is “Gibbs”.

*max.num.iterations -* maximum number of iterations of outer MCMC loop which alternately estimates transform parameters and ERGM parameters. In the case that *transform.data = NULL,* this argument does not matter. Default is 10.

*mc.num.iterations -* maximum number of iterations within the MCMC inner loop which estimates the ERGM parameters. Default is 100.

*nsim -* number of simulations generated for estimation via MCMC. Default is 500.

*thin -* the proportion of samples that are kept from each simulation. For example, *thin = 1/200* will keep every 200th network in the overall simulated sample. Default is 1.

*shape.parameter -* the variance specified for the Metropolis Hastings simulation method. This parameter is inversely proportional to the average acceptance rate of the M-H sampler and should be adjusted so that the average acceptance rate is approximately 0.25. Default is 1.

*weights -* a vector of weights specifying the down weighting (via exponentiation) of each possible statistic. This vector must be the same length as the number of statistics used in *object.* Values are between 0 and 1. Default is NULL specifying a 1 for each statistic.

*together -* binary value specifying whether or not the *weights* should be applied inside (0) or outside (1) the sum. Default is 0.

*MCMC.burnin -* number of burnin samples for the MCMC simulation procedure. Default is 100.

*seed -* seed used for reproducibility. Default is 123.

*tolerance -* threshold designated for stopping criterion. If the difference of parameter estimates from one iteration to the next all have a p-value (under a paired t-test) greater than this value, the parameter estimates are declared to have converged. Default is 0.01.

*gain.factor -* multiplicative constant between 0 and 1 that controls how far away the initial theta estimates will be from the standard MPLEs via a one step Fisher update. In the case of strongly dependent data, it is suggested to use a value of 0.10. Default is 0.