Details

Generally, a user of LaplaceApproximation, LaplacesDemon, LaplacesDemon.hpc, PMC, or VariationalBayes does not need to use the LML function, because these methods already include it. However, LML may be called by the user, should the user desire to estimate the logarithm of the marginal likelihood with a different method, or with non-stationary chains. The LaplacesDemon and LaplacesDemon.hpc functions only call LML when all parameters are stationary, and only with non-adaptive algorithms.

The GD method, where GD stands for Gelfand-Dey (1994), is a modification of the harmonic mean estimator (HME) that results in a more stable estimator of the logarithm of the marginal likelihood. This method is unbiased, simulation-consistent, and usually satisfies the Gaussian central limit theorem.

The HME method, where HME stands for harmonic mean estimator, of Newton-Raftery (1994) is the easiest, and therefore fastest, estimation of the logarithm of the marginal likelihood. However, it is an unreliable estimator and should be avoided, because small likelihood values can overly influence the estimator, variance is often infinite, and the Gaussian central limit theorem is usually not satisfied. It is included here for completeness. There is not a function in this package that uses this method by default. Given *N* samples, the estimator is *1 / [1/N sum_N exp(-LL)]*.

o.V., Inference 2014.