Figure S1. Parameters can be estimated by Maximum Likelihood

While the full posterior distribution can be sampled using various bayesian machinery, this is not necessary for obtaining point estimates of μ and ϕ. A maximum likelihood estimate of each can be calculated by rearranging eq. 4 and fitting a Beta distribution to the result:

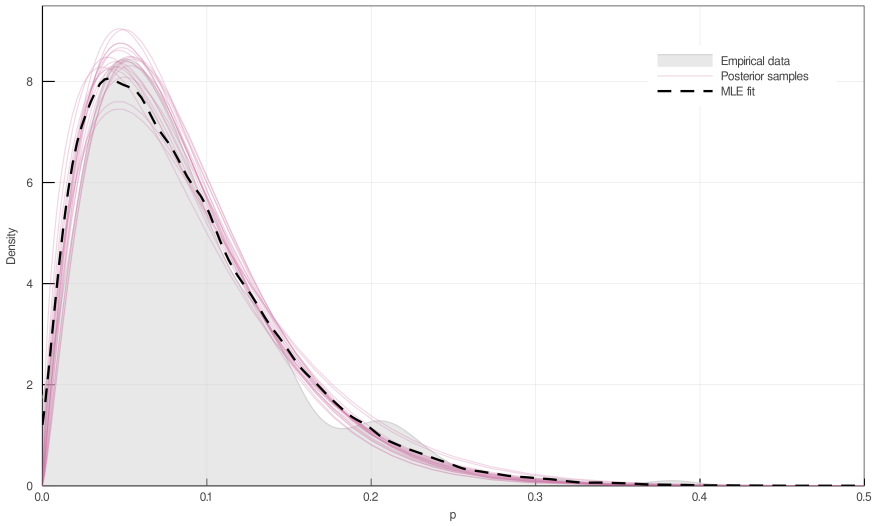

Figure 1: **Parameters can be estimated by Maximum Likelihood.** The maximum likelihood estimate of p is compared to 20 samples from the posterior distribution of the flexible links model. The empirical distribution of p, obtained from all food webs archived on the `mangal.io` database, is also included.

We include this result because ecologists may wish to apply our methods for estimating L, Co or L/S without fitting a Bayesian posterior of their own. This approach loses information about the sample size of webs, but nevertheless provides a close match to both the empirical data and the bayesian posterior.

parameter	MLE estimate	MAP estimate
μ	0.087	0.086 ± 0.0037
ϕ	21.0	24.3 ± 2.4