

Exercises for Statistical analysis of network data – Sheet 8

1. Write out the latent class model as a latent space model.
2. * Show that the eigenmodel with K -length vectors generalizes the latent class model.
3. Write down the log-likelihood for a block model with fixed block sizes h and assume $n = hk$. Maximize the likelihood.
4. Write down $\Pr(A_{ij} = 1)$ for a geometric random graph.
5. Assume we observe a random with edges weighted by integer weights. Model them as Poisson, write down the likelihood for the stochastic blockmodel, the profile likelihood, and describe how to estimate the parameters of that model. Assume the blocks are of equal size again so $hk = n$, rather than $\sum_a h_a = n$.