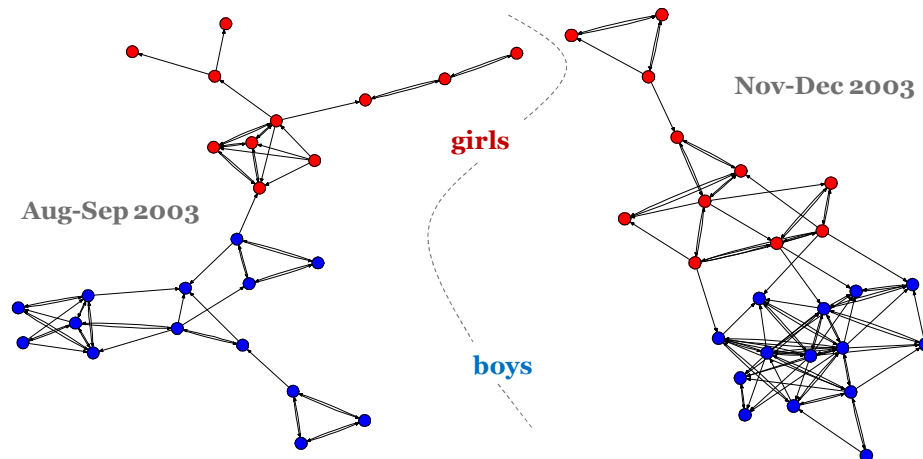


## Lab assignment: Studying segregation / homophily

In this assignment, we want to study segregation according to the sexes (or sex homophily) in the friendship networks measured in the school class *klas03e* which is one of the classes from Andrea Knecht's PhD dissertation (2008). The first two observations of the network evolution process that we are going to analyse look like this:



In stochastic actor-based modelling, the strength of sex homophily is captured by the parameter estimated for the “same sex” effect. The effect statistic is a simple count of same-sex ties.

As methodological lesson, this assignment shows ‘live’ how the omission of important determinants of network evolution in a model can affect conclusions about effect size, i.e., bias the results.

1. Create an RSiena session for the classroom data set *klas03e*. Choose the four friendship network measurements as dependent network variable; add the demographic data as actor covariates and the primary school friendship matrix as dyadic covariate.
2. Before proceeding, check in the outputfile generated by the function “print01Report” whether the data were correctly interpreted.
3. Fit a model specification that only includes outdegree, the main effect of primary school friendship, and the sender, receiver and similarity effects of sex. You may want to switch to *unconditional method of moments estimation* for being able to estimate the rate parameter. What do the estimation results suggest?
4. Add reciprocity to the model. Estimate it. What is the result for the new parameter? How do results for other parameters change? How can the change be explained?
5. Add triangulation effects: transitive triads, transitive ties, and 3-cycles. What is the result for the new parameters? How do results for previous parameters change? How can the change be explained?

What you should have seen is sensitivity of the same sex effect to inclusion of the structural effects in steps 4 and 5. If you want to add a quantitative statement about these differences, you could calculate confidence intervals for the estimated parameters, and see whether they overlap for the first and the last estimated model. They do not!