Assignments $\mathcal{N}^{\underline{o}}$ 12

released: 29.01.2014   **due:** 04.02.2014,12:00h

Note: There is no tutorial next week.
We will discuss the assignment sheet at the end of the lecture

Task 1: R: Selection and Influence   **10 points**

Download the Dataset *data_ass12.zip* from the lectures homepage. The data
for the four networks were collected in a school class. The file *demographics.dat* gives you the the gender (1=girl, 2=boy) in the first column and
their religion (1 = Christian, 2 = non-religious, 3 = non-Christian religion,0
= missing) in the second column. *delinquency.dat* describes the delinquency
level of the students in the four periods. The values are rounded averages
of four items (stealing, vandalizing, fighting, graffiti) and is coded as:
1 = never, 2 = once, 3 = 2-4 times, 4 = more than 5 times, 0 = missing.

(1) Check if it makes sense to study the coevoultion of friendship and
delinquency behavior using this data.

(2) Estimate the model to establish the truth of the following statements
and explain your decision:

    (a) the friend of my friend is not my friend

    (b) students with the same gender are more likely to be friends

    (c) students with the same religion are less likely to be friends

    (d) it is easier to change a friendship tie rather than the level of
delinquency

    (e) delinquency is a "social event", you do as your friends do

(f) the more popular an actor is, the higher the delinquency behavior becomes

(g) the higher the level of delinquency, the more popular an actor becomes

(h) students adjust their delinquency level according to that of their friends

(3) Looking at the results: Do you see a way that a teacher could prevent delinquency?

Report your siena output as a table and send the R-script to
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