

Assignments \mathcal{N}^o 4 - PART I

released: 12.12.2012 **due:** 19.12.2012, 13:30h
(solutions can be handed over at the beginning of the lecture)

Task 1: Assumptions in SAOM **3 points**

What is your opinion about the assumptions of stochastic actor-oriented model? Give an example where a general assumption seems implausible.

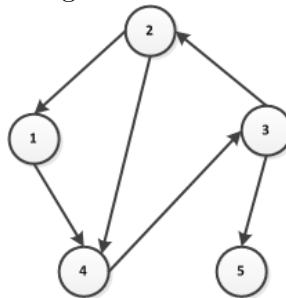
Task 2: Markov property **3 points**

Provide and discuss an illustrative example in reference to a network where markov property seems unrealistic (for instance a friendship network).

Task 3: Transition probabilities **4 points**

Consider the following network with 5 nodes.

Figure 1: Network



Let us assume that Actor 4 has the opportunity to change one of his outgoing ties. His decision is based on an objective function including outdegree, reciprocity, transitive and three-cycle effects with parameters $\beta_{out} = -1.5$, $\beta_{rec} = 2.5$, $\beta_{tran} = 0.8$ and $\beta_{cyc} = -0.1$. Compute the transition probabilities for Actor 4.