Modeling and Verification of Probabilistic Systems
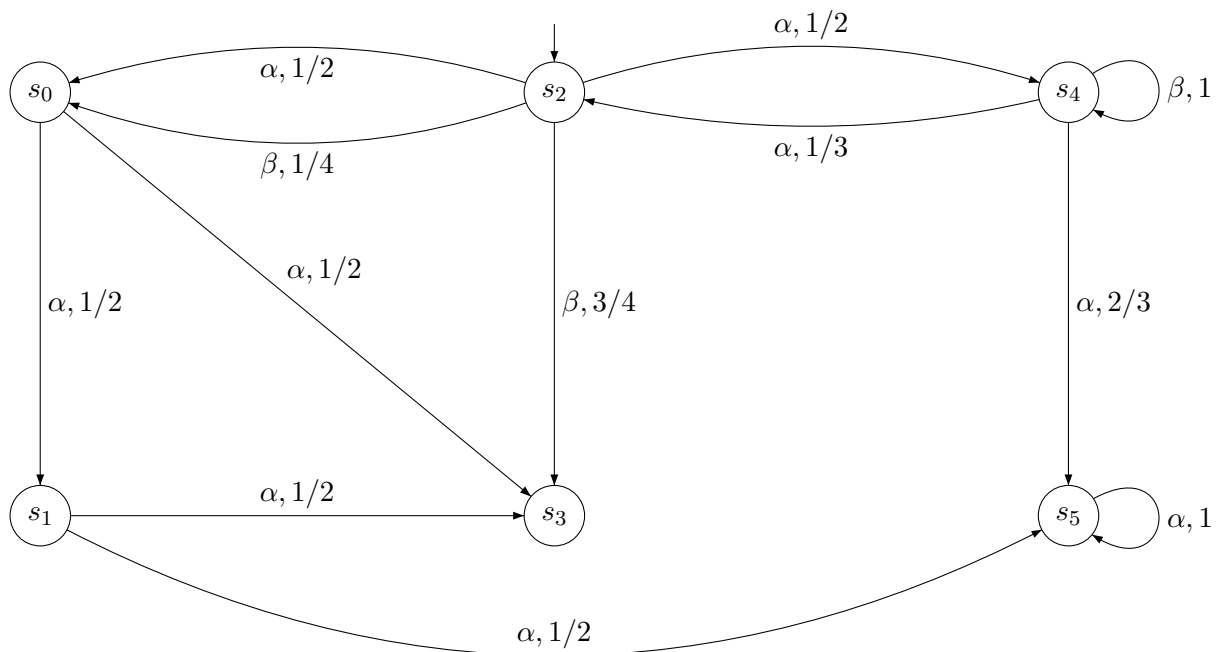## Summer term 2011

– Series 8 –

Hand in on 8th June before the exercise class.

Exercise 1 $(6 + 2 + 2 = 10$ **points**$)$

- Consider the MDP as shown in figure. Let the goal states $G = \{s_3\}$. Find out the maximum/minimum probability to reach to the set G by:

  - equation systems,
  - value iteration, and
  - linear programming

  methods as discussed during the lectures.

- Find out the optimal policy of maximum/minimum reachability probability for the set G using above results.

- Find out the induced DTMCs based on the above optimal policies.