Advanced topics in Machine Learning
Lab 5: Hidden Markov Models

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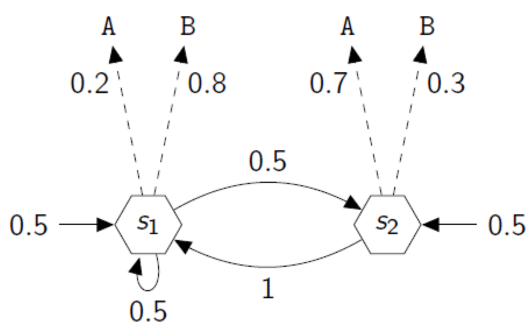
1. Install the package `HMM` and try it out:

2. Create HMM presented on lecture and simulate a sequence of output values from it.



3. Compute exact probability of `BBB` sequence occurence, compare it with estimated (from simulations) probability.

4. Try to recreate the HMM by estimating parameters from the sequence using the Baum-Welch algorithm.

   (a) can you recreate the exact same parameters?

   (b) what if you keep increasing the training sequence?

   (c) how do emission probabilities of the true model affect learning effectiveness?

5. Analyze example of HMM modelling unfair casino from http://www.stanford.edu/class/stats366/hmmR2.html