

## Homework 6

Please answer the following questions about probabilistic modeling.

### Question 1:

Given a Markov transition probability matrix  $P$  (row stochastic). Prove that  $P^n$  is a stochastic matrix for any  $n$  greater than 0.

### Question 2:

Given a Markov transition probability matrix  $P$  (row stochastic). Prove that

$$P^n = P^{n-m} P^m$$

### Question 3:

Work out a survey paper (3pp+) on PageRank and explain in detail the probabilistic modeling in PageRank.

**Due: 10:00am** *26. April* . Please email your homework to TA.

*Project 4.*

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*. May 1st - 7th*

*Proj. Pre. on May 24th.*