**Machine Intelligence Homework 7**

7.3 a)

Let p be the probability that person A likes Linkin Park. (x\_i = 1)

And let (1-p) be the probability that he doesn’t like Linkin Park. (x\_i = 0)

Conditions for Binomial

  1. Numbers of observations n is fixed

  2. Each Observation is independent

  3. Each observation represents one of two outcomes (only 2 classes)

  4. Probability p is the same for every outcome

Situations which arent described well by Binomial:

- Changing probabilty p, e.g. Not putting back balls into the bowl

- More than two classes to differ from, e.g. 3 different colors in a bowl

- Numbers of observations not fixed #todo

- Observations not independent #todo

b) Under which aspects is it reasonable to use Normal Distribution as Approximation for Binomial?

- Great n

When is it not good to use Normal as Binomial approximation?

- little n

Why is Binomial widely used?

Sum of independent processes are often nearly normal distributed

Measurement errors are mostly normal distributed

Is it a good approximation for the example?

c) When is the poisson distribution a good approximation for the binomial distribution?

Is it a good approximation for the given example?