# CS 6320- Homework 2

1. (aba?)+
2. **Input Sentence**: *The president wants to control the board 's control*

**Case 1:** Bigram with no smoothing



Total bigram probability of the sentence with no smoothing is

=0\*0\*0.5\*0.0015408320493066256\*0\*0.1006993006993007\*0.04644808743169399\*0

=0.0

**Case 2:** Bigram with Add-one smoothing

Total bigram probability of the sentence with Add-One smoothing is 9.619576655357422e-27

Total bigram probability of the sentence with Add-One smoothing ignoring Unigram is 1.6053399380955308e-26

**Case 3:** Bigram with Good-Turing Discounting based Smoothing

Total bigram probability of the sentence with Good-Turing Discounting based Smoothing is 0.0

1. Transformation Based POS Tagging
2. Transformation-based POS Tagging
3. Naïve Bayesian Classification (Bigram) based POS Tagging

After assigning the most probable tags, Initial Error is : 3.48 %

Input incomplete POS Tagged Sentence

The\_DT president\_NN wants\_VBZ to\_TO control\_??? the\_DT board\_NN 's\_POS control\_???

Brills POS Tagged Sentence

The\_DT president\_NN wants\_VBZ to\_TO control\_VB the\_DT board\_NN 's\_POS control\_NN

Naive Bayes POS Tagged Sentence

The\_DT president\_NN wants\_VBZ to\_TO control\_VB the\_DT board\_NN 's\_POS control\_NN

Rules

1 Tranform NN to VB

If previous word is

NN or DT or JJ or IN

2 Transform VB to NN

If previous word is

TO or MD