

Assignment 5,6 + Smoothing 2

(SNLP Tutorial 6)

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Assignment 5

- Exercise 1: OOV Words
- Exercise 2: Additive smoothing
- Exercise 3: Perplexity, infinite smoothing, interpolation
- Bonus: Other language models

Good-Turing

Data: 

- $N_4 = \{\text{banana}\}$
- $N_3 = \{\text{apple}, \text{eggplant}\}$
- $N_2 = \{\text{cherry}\}$
- $N_1 = \{\text{grape}, \text{leaf}\}$
- $N_0 = \{\text{fruit bowl}\}$

$$p_r = \frac{(r+1)N_{r+1}}{N_r} \cdot \frac{1}{N}$$

- Nominator: expected total number of occurrences of words that occur $r+1$ times
- Denominator-left: previous bucket size
- Fraction-left: expected number of occurrences of a single word from that bucket
- Denominator-right: divide by total occurrences

Good-Turing - Questions

- Let k be the maximum occurrence of a word. What's the issue?
- A similar issue related to the one above?
- Do the probabilities sum up to 1?
- How to make it work for anything above unigrams?

Assignment 6

- TODO

Resources

- ① UdS SNLP Class: <https://teaching.lsv.uni-saarland.de/snlp/>
- ② Twitter emojis