

[A2] P+7

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CART498 - GenAI

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Reflection

In altering the x value to the $P+x$ algorithm, I observed that smaller positive x values resulted in sensical results, in which the last word would be replaced with synonyms of the original word or words commonly found or expected in the context of the phrase. As the x values increased, the poem would lose its original meaning and become increasingly nonsensical. Phrases became unfinished, leaving dangling nouns with no verbs, or dangling adjectives describing no nouns. What I found most interested was experimenting with negative x values, leading the algorithm to replace each line's last word with alternate words with the lowest probability (eg. $x = -1$). This led to words uncommon in any context, not just within the context of the poem, such as large numbers, proper nouns (for instance, DragonMagazine), terms similar to programming variable names (isSpecial), and special characters.

Implementing $P+7$ on all nouns

To implement an alternate $P+7$ algorithm in which all nouns are replaced rather than the last word of every line, I would add additional logic to identify each line's nouns and apply the existing $P+7$ probability calculation and replacement logic to each noun. To do so, after tokenizing each line of the poem, I would use a POS tagger to identify the nouns in each line and apply the existing $P+7$ logic to these nouns. The text preceding each noun would become the context with which the GPT2 model would calculate probabilities. Like the original algorithm, these probabilities are sorted and the 7th highest probably word would replace the noun.

The logic behind this hypothetical implementation was generated in collaboration with ChatGPT-4, specifically to understand how noun-recognition could be implemented and what tools are available.

Prompt: I implemented a $P+7$ variation of the $N+7$ technique using the GPT-2 language model, replacing the final word of each line in a poem with the seventh-most probable token predicted by the model. As a hypothetical, I am asked how I can create an alternate algorithm in which every noun is replaced, rather than just the last word of every line. Are there existing noun-recognition tools that I could use in this context, and how would this integrate into my current logic?