The following question will ask you about the below context-free grammar, where S is the start symbol.

```
S -> NP V
NP -> N | A NP
A -> "small" | "white"
N -> "cats" | "trees"
V -> "climb" | "run"
```

The following question will also ask you about the following four sentences.
Sentence 1: Cats run.
Sentence 2: Cats climb trees.
Sentence 3: Small cats run.
Sentence 4: Small white cats climb.

✓ Of the four sentences above, which sentences can be derived from the above context-free grammar? *1/1

- ○ Only Sentence 1
- ○ Only Sentence 1 and Sentence 2
- ○ Only Sentence 1 and Sentence 3
- ○ Only Sentence 1 and Sentence 4
- ○ Only Sentence 1, Sentence 2, and Sentence 3
- ○ Only Sentence 1, Sentence 2, and Sentence 4
- ◉ Only Sentence 1, Sentence 3, and Sentence 4 ✓
- ○ All four sentences
- ○ None of the four sentences

✓ Which of the following is not a true statement? *1/1

- ○ Attention mechanisms can be used to determine which parts of an input sequence are most important to focus on.
- ◉ One-hot representations of words better represent word meaning than distributed representations of words. ✓
- ○ Transformers can be faster to train than recurrent neural networks because they are more easily parallelized.
- ○ A Naive Bayes Classifier assumes that the order of words doesn't matter when determining how they should be classified.

✓ Why is "smoothing" useful when applying Naive Bayes? *1/1

- ○ Smoothing allows Naive Bayes to turn a conditional probability of evidence given a category into a probability of a category given evidence.
- ○ Smoothing allows Naive Bayes to be less "naive" by not assuming that evidence is conditionally independent.
- ◉ Smoothing allows Naive Bayes to better handle cases where evidence has never appeared for a particular category. ✓
- ○ Smoothing allows Naive Bayes to better handle cases where there are many categories to classify between, instead of just two.

✓ From the phrase "must be the truth", how many word n-grams of length 2 can be extracted? *1/1

- ○ 0
- ○ 1
- ○ 2
- ◉ 3 ✓
- ○ 4
- ○ 5
- ○ 6
- ○ 15
- ○ 17