

## ECE 302, An auto-fill-application problem

*Question 1:* An alien is learning to use a computer to type down the language of his planet. Here is a list of words he has typed in the past.

{it, it, is, id, as, id, as, at, is, at, ad, at, id, at, id, ad, is, it, ad, id }

A programmer tries to save the alien's time by implementing the auto-filling function for him, but do not know how to choose the next word.

1. What is the “most likely” next word?
2. Conditioning on that the first letter that the alien types down is “a”, then what is the “most likely” next letter?
3. The alien then sends a word back to his planet via satellite communication. The US government happens to intercept the second letter of the word and knows it is a “d.” What is the “most likely” first letter?