LE1.5

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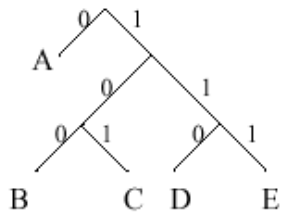
LE1.5.1: Variable-length Encoding

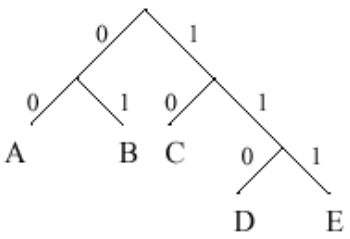
2/2 points (ungraded)

Consider the following two Huffman decoding trees for a variable-length code involving 5 symbols: A, B, C, D and E.

Tree #1



Tree #2



Using Tree #1, decode the following encoded message: "01000111101".

Decoded message (as a string): ABAEC ✔

Suppose we were encoding messages that had the following probabilities for each of the 5 symbols:

```
p(A) = 0.5
p(B) = p(C) = p(D) = p(E) = 0.125
```

Which of the two encodings above (Tree #1 or Tree #2) would yield the shortest encoded messages averaged over many messages?

- (•) Tree #1
- ( ) Tree #2

✔

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I think we can not generalize and say Tree#1 yield shorter messages, it depends on the specific message. right? 3

What if we send the message BBB 1000 time? which Tree would yield shorter message? Tree#1 = 3*0.125*3*1000 = 1125 bits Tree#2 = 3*0....

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