

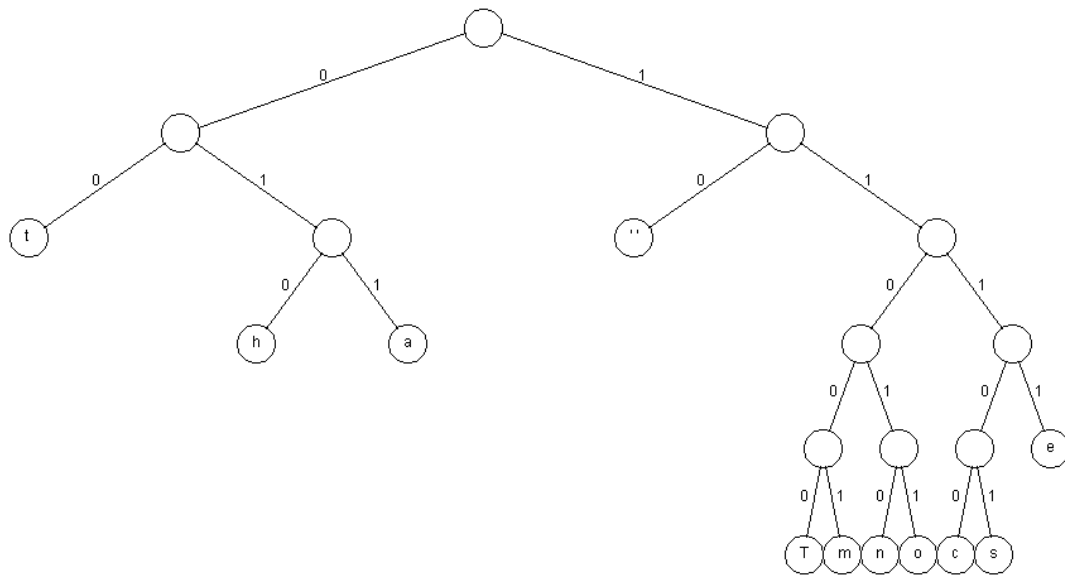
CS210 ALGORITHMS & DATA STRUCTURES II

LAB 2

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Pen and Paper Solution (note: the tree can have different shapes)

“The cat sat on the mat” would look like this:



| | |
|-----|-------|
| T | 11000 |
| m | 11001 |
| n | 11010 |
| o | 11011 |
| c | 11100 |
| s | 11101 |
| e | 1111 |
| h | 010 |
| a | 011 |
| t | 00 |
| “ ” | 10 |

ASCII encoding requires $22 \times 7 = 154$ bits

Huffman encoding requires 71 bits

Huffman encoding only takes up $(71 / 154) = 46.1\%$ of the space

So we have achieved $100 - 46.1 = 53.9\%$ compression