5.4b $\log_N(nN) = \log_N(n) + \log_N(N) = \log_N(n) + 1$.

5.4c Hint: what would the formulas be for finding the parent and the children of a node stored at index k?

5.4d Hint: the unique words are: a if is of peck peppers peter picked pickled piper the where

5.4e Hint: the unique words are: am are by i if on seashells seashore sells she shells so sure surely the

5.4f An N-ary tree has N explicit children, so a single node with the same child in N different locations defines N different trees, whereas a general tree will have just a single child.