

ON SYMMETRIC d -ARY TRIES: PROFILE, DEPTH AND HEIGHT

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Author(s): Ramin Kazemi

Abstract: Tries are fundamental to a number of algorithmic schemes, including radix-based searching and sorting, lossless text compression, dynamic hashing algorithms, communication protocols of the tree or stack type, distributed leader election, and so on. The profile of a trie is a parameter that represents the number of nodes with the same distance to the root. In this paper we obtain the mean and variance of the profile in symmetric d -ary tries. More precisely, we obtain the formulas (explicitly and asymptotically) over strings generated by an extended memoryless source. Also we discuss on the distance from the root to a randomly selected node (depth) and the length of the longest path from the root (height) of the such trees. The results for $d = 2$ reduce to the previous results on symmetric 2-ary tries.

Key words: d -ary tries, profile, depth, height, memoryless source.

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