

THE MOMENTS OF THE PROFILE IN RANDOM BINARY DIGITAL TREES

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Abstract: The purpose of this paper is to provide a precise analysis of the t -th moment of the profile in random binary digital trees. We assume that the n input strings are independent and follow a (binary) Bernoulli model. In tries, the main difference with the previous analysis is that we have to deal with an inhomogeneous part in the proper functional equation satisfied by the t -th moment and in digital search trees with an inhomogeneous part in a proper functional-differential equation. We show that t -th moment of the profile ($t \geq 2$) is asymptotically of the same order as the expected value ($t = 1$). These results are derived by methods of analytic combinatorics.

Key words: Digital trees, Tries, Digital search trees, Profile, The t -th moment.

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