

Asymptotic enumeration of unary-binary tree-like structures with restrictions on the unary height

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We consider various classes of Motzkin trees as well as lambda-terms for which we derive asymptotic enumeration results. These classes are defined through restrictions concerning the unary nodes or abstractions, respectively. The enumeration is done by means of a generating function approach and singularity analysis. The generating functions are composed of nested square roots and exhibit unexpected phenomena in some of the cases.