

***k*-protected and balanced vertices in unlabeled rooted plane trees**

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We find a simple, closed form for the proportion of vertices which are k -protected in all unlabeled rooted plane trees of size n as n goes to infinity, as well as the proportion of all vertices which are k -protected of height k . We also find that, as n goes to infinity, the average rank of a random vertex in a tree of size n approaches 0.727649, and the average rank of the root of a tree of size n approaches 1.62297.

Keywords: enumeration, asymptotics, trees