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The Height of Unlabelled Trees

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We consider the uniform distribution on unlabelled trees : two trees are considered equal if there is an automorphism from one to the other. In spite of their similarity with family of trees of Galton–Watson processes, to date there is no simple way to derive parameters of unlabelled rooted trees using only a probabilistic approach. We show that the combinatorial and analytic techniques yield a more tractable route to asymptotics of distances, and the height in particular. We also derive typical parameters of unrooted trees. The estimates of the height have been used by Marckert and Miermont in their proof that properly rescaled unlabelled trees converge to the Brownian CRT.

This is joint work with P. Flajolet.