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Michael Dairyko

Samantha Tyner

Casey Wynn

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Non-Contiguous Pattern Avoidance in Binary Trees

Authors: Michael Dairyko, Samantha Tyner, and Casey Wynn

Affiliation: Mathematics

We consider the enumeration of binary trees avoiding non-contiguous binary tree patterns. We begin by modifying a known algorithm that counts binary trees avoiding a single contiguous tree pattern. Next, we use this algorithm to prove several theorems about the generating function whose n th coefficient gives the number of n -leaf trees avoiding a pattern. In addition, we investigate and structurally explain the recurrences that arise from these generating functions. Finally, we examine the enumeration of binary trees avoiding multiple tree patterns.

Information about the Authors:

Faculty Sponsor: Lara Pudwell

Student Contact: msd02009@mymail.pomona.edu

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