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Non-Contiguous Pattern Avoidance in Binary Trees

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Non-Contiguous Pattern Avoidance in Binary Trees

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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.

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