

Riordan Paths and Derangements

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Abstract: Riordan paths are Motzkin paths without horizontal steps on the x -axis. We establish a correspondence between Riordan paths and $(321, 3\bar{1}42)$ -avoiding derangements. We also present a combinatorial proof of a recurrence relation for the Riordan numbers in the spirit of the Foata-Zeilberger proof of a recurrence relation on the Schröder numbers.

AMS Classification: 05A15, 05A19.

Keywords: Riordan number, Riordan path, $(321, 3\bar{1}42)$ -avoiding derangement.

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