

Branching Decompositions of Necklaces

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Abstract: This work originates from a combinatorial understanding of a branching property of MSS (Metropolis-Stein-Stein) sequences in symbolic dynamics. It is known that MSS sequences are in one-to-one correspondence with equivalence classes of primitive necklaces on two colors under the exchange of colors. We present a branching property of primitive self-complementary necklaces, leading to a combinatorial explanation of an analogous property of MSS sequences. The branching property of necklaces may have further applications to the combinatorial understanding of discrete dynamic systems and the theory of chaos.

AMS Classification: 05A05, 68R15.

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