Toeplitz quotient C*-algebras and ratio-limits for random walks

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Abstract. We showcase some newly emerging connections between the theory of random walks and operator algebras, obtained by associating concrete algebras of operators to random walks. The C*-algebras we obtain give rise to new and interesting notions of ratio limit space and boundary, which are computed by appealing to various works on the asymptotic behavior of transition probabilities for random walks. Our results are leveraged to shed light on a question of Viselter on symmetry-unique quotients of Toeplitz C*-algebras of subproduct systems arising from random walks.

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