The square lattice shuffle, correction

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1 A correction

Theorem 3.6 in [1] contains an error in the stated bound. As is argued above the theorem, the statistical distance to the uniform distribution decreases by a factor

\[ O\left(\frac{m}{\log m}^{-1/2}\right) = O\left(\left(\log n\right)^{1/2}n^{-1/4}\right) \]

for every two iterations. This implies that the bound obtained for Theorem 3.6 should read

\[ O\left(n^{1-\left\lfloor t - \frac{1}{2}\right\rfloor^{1/2}}\left(\log n\right)^{\frac{1}{2}\left\lfloor t - \frac{1}{2}\right\rfloor}\right). \]

I am grateful to Justin Holmgren for pointing out this correction.

References