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Self-avoiding walks in a square and the gerrymander sequence by Tony Guttmann

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Abstract. We give an improved algorithm for the enumeration of self-avoiding walks and polygons within an $N \times N$ square as well as SAWs crossing a square. We present some proofs of the expected asymptotic behaviour as the size N of the square grows, and then show how one can numerically estimate the parameters in the asymptotic expression. We then show how the improved algorithm can be adapted to count gerrymander sequences (OEIS A348456), and prove that the asymptotics of the gerrymander sequence is similar to that of SAWs crossing a square. This work has been done in collaboration with Iwan Jensen, and in part with Aleks Owczarek.