

## **Cutting and resewing pillow cases**

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I will discuss the dynamics of a fairly simple piecewise isometry of a square pillowcase. We cut the pillowcase along two horizontal edges we obtain a cylinder, which we can rotate and then sew back together. We can then do the same in the vertical direction. The composition of these two cutting and resewing operations yields a piecewise isometry of the pillowcase with interesting dynamics. We will describe how in some cases the collection of aperiodic points forms a fractal curve, and the dynamics on this curve is topologically conjugate to a rotation (modulo concerns related to discontinuities). Properties of this map such as the existence of this curve depend on the interaction of the even continued fraction expansions of the two rotation parameters.