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Rearrangements of Fractals and CAT(0) Cube Complexes.

The Vicsek box fractal is a plane fractal that can be obtained from a simple geometric construction involving squares. In this talk, we will describe a remarkable group of piecewise-similar homeomorphisms of the Vicsek fractal. This group contains Thompson's group F and shares many of its properties. Following the methods of Farley, we will construct a locally finite CAT(0) cube complex on which this group acts properly by isometries. By analyzing the descending links of the complex, we will show that this group has type F_∞ . Finally, we will discuss how this example can be generalized to a large class of Thompson-like groups acting on fractal spaces. (Received September 21, 2015)