7. The groups of autohomeomorphisms of M_n^{2n+1} and M_n^{n+1} are Polish and one-dimensional (see [Oversteegen et al. 1994, Corollary 6] and Property 2).

   The group is totally disconnected for M_n^{2n+1} (see [Brechner 1966, Theorem 1.3] for $n = 1$ and its natural extension for any n).

8. The Polish group of autohomeomorphisms of M_n^m is at most one-dimensional [Oversteegen et al. 1994].

9. The group of autohomeomorphisms of M_n^{2n+1} is simple (see [Chigogidze et al. 1995, Theorem 3.2.4]).

10. Every autohomeomorphism of M_n^{2n+1} is a composition of two homeomorphisms, each of which is the identity on some nonempty open set [Sakai 1994].

11. For each $t \in [n, 2n+1]$, there is a copy of $M_n^{2n+1} \subset \mathbb{R}^{2n+1}$ with the Hausdorff dimension t [Chigogidze et al. 1995, Theorem 4.2.6].

12. Every Z-set in M_n^{2n+1} is the fixed point set of some autohomeomorphisms of M_n^{2n+1} [Sakai 1997].

13. Any C^{n-1} and LC^{n-1}-continuum is the image of M_n^{2n+1} under a UV^{n-1}-map [Bestvina 1988, Theorem 5.1.8, p. 95].

14. If a Polish space X contains a topological copy M of M_n^{2n+1} or M_n^{n+1}, then the space of all copies of M in X with the Hausdorff metric is not a $G_{\delta\sigma}$-set [Krupski XXXXb].

1.4.2 Sierpiński carpet

The *Sierpiński universal plane curve* or the *Sierpiński carpet* [Sierpiński 1916] M_1^2 is a well known fractal obtained as the set remaining when one begins with the unit square I^2 and applies the operation of dividing it into 9 congruent squares and deleting the interior of the central one, then repeats this operation on each of the surviving 8 squares, and so on. See Figure A.

1. M_1^2 is universal in the class of all at most one-dimensional subsets of the plane (equivalently, of all boundary subsets of the plane) [Sierpiński 1916], [Sierpiński 1922].

2. The following statements are equivalent:

   (a) X is homeomorphic to M_1^2;

   (b) X is a locally connected plane curve that contains no local cut points;

   (c) X is a continuum embeddable in the plane in such a way that $\mathbb{R}^2 \setminus X$ has infinitely many components $C_1, C_2, \ldots$ such that $diam_i \to 0$, $\operatorname{bd} C_i \cap \operatorname{bd} C_j = \emptyset$ for $i \neq j$, $\operatorname{bd} C_i$ is a simple closed curve for each i and $\bigcup_{i=1}^{\infty} \operatorname{bd} C_i$ is dense in X [Whyburn 1958].