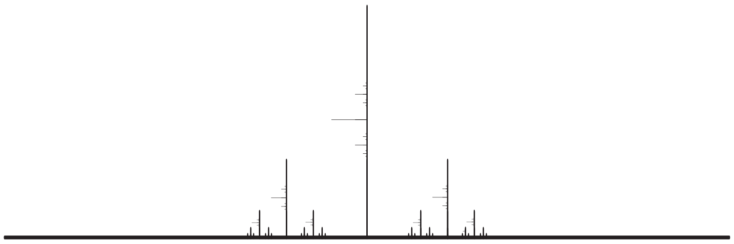

Figure 1.3.12: (A) dendrite L_0

line segment denoted by L_1. Divide L_1 into three equal subsegments and in the middle of them, M, locate a thrice diminished copy of the Cantor ternary set C. At the midpoint of each contiguous interval K to C (i.e., a component K of $M \setminus C$) we erect perpendicularly to L_1 a straight line segment whose length equals length of K. Denote by L_2 the union of L_1 and of all erected segments (there are countably many of them, and their lengths tend to zero). We perform the same construction on each of the added segments: divide such a segment into three equal parts, locate in the middle part M a copy of the Cantor set C properly diminished, at the midpoint of any component K of $M \setminus C$ construct a perpendicular to K segment as long as K is, and denote by L_3 the union of L_2 and of all attached segments. Continuing in this manner we get a sequence of dendrites $L_1 \subset L_2 \subset L_3 \subset \ldots$. Finally we put

$$L_0 = \mathrm{cl}\,(\bigcup\{L_i : i \in \mathbb{N}\})$$

and call it a *dendrite* L_0 . See Figure A.

The Omiljanowski dendrite L_0 has the following properties, [Charatonik 1991, Example 6.9, p. 182].

1. All ramification points of L_0 are of order 3.
2. The set $R(L_0)$ of all ramification points of L_0 is discrete (thus nowhere dense).
3. The set of all end points of L_0 is nowhere dense.
4. For each maximal arc A in L_0 the closure of the set $A \cap R(L_0)$ contains a homeomorphic copy of the Cantor set.
5. L_0 is monotonely equivalent to the dendrite D_3.
6. The following conditions are equivalent for a dendrite X (see [Charatonik 1991, Theorem 6.14, p. 185] and [Charatonik et al. 1994, Theorem 5.35, p. 17]; compare [Charatonik et al. 1998, Theorem 2.20, p. 238]):
   (a) X is monotonely equivalent to D_3;