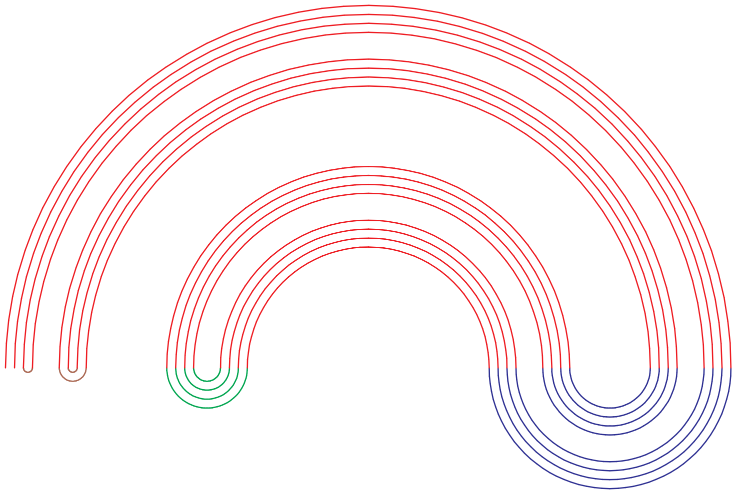

Figure 14.1.6: (A) Buckethandle

Let $A = \{(x, 0) \in \mathbb{R}^2 : 0 \leq x \leq 1\}$;
for each $n = 1, 2, \cdots$ and each $k = 1, \cdots, 2^{n-1}$, let

$$B_{n,k} = \left\{ (x, y) \in \mathbb{R}^2 : \left(x - \frac{2k-1}{2^n} \right)^2 + y^2 = 4^{-n} \text{and} y \geq 0 \right\};$$

for each $n = 0, 1, \cdots$ and each $k = 1, \cdots, 3^n$, let

$$C_{n,k} = \left\{ (x, y) \in \mathbb{R}^2 : \left(x - \frac{2k-1}{2 \cdot 3^n} \right)^2 + y^2 = \frac{1}{4} \cdot 9^{-n} \text{and} y \leq 0 \right\};$$

let

$$X = A \cup \left[\bigcup_{n=1}^{\infty} \left(\bigcup_{k=1}^{2^{n-1}} B_{n,k} \right) \right] \cup \left[\bigcup_{n=0}^{\infty} \left(\bigcup_{k=1}^{3^n} C_{n,k} \right) \right]$$

1) X is an example of an hlc continuum which is not regular.
2) X is the union of two regular continua.
See Nadler 10.59, p.193.

14.1.10 Boxes Continuum

Boxes Continuum is a nice continuum.
Let $A = \{(x, 2^{-n+1}) \in \mathbb{R}^2 : 0 \leq x \leq 1\}$;
for each $n = 0, 1, 2, \cdots$ and each $m = 0, \cdots, 2^{n+1}$, let