Weak Separation Property for self-similar dendrites on the plane

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Let $G := \{S_{\mathbf{i}}, \mathbf{i} \in I^*\}$ a semigroup generated by maps $\{S_1, ..., S_m\}$, where $I^* := \{\mathbf{i} = (i_1, ..., i_n) : n \geq 0, i_1, ..., i_n \in \{1, ..., m\}\}$.

A family $\mathcal{S} = \{S_1, ..., S_m\}$ of contracing similitudes is said to have the Weak Separation Property (WSP) if the identity is an isolated point of $G^{-1}G$.

It was proved by C.Bandt and H.Rao in [1], any self-similar continuum in the plane which has finite intersection property, satisfies the Open Set Condition, which implies WSP.

We prove the following theorem:

Theorem 1. *Let $\mathcal{S}$ be a system of contracting similarities in a plane, whose attractor K is a dendrite. Then $\mathcal{S}$ has Weak Separation Property.*

References

[1] Ch. Bandt and H. Rao, *Topology and separation of self-similar fractals in the plane*, Nonlinearity 20 (2007), pp.1463-1474.