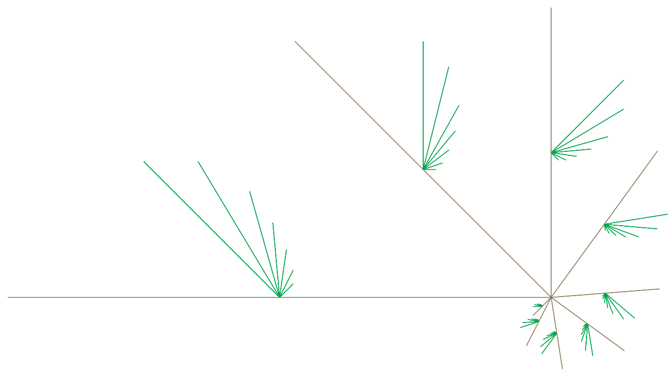

Figure 13.3.1: (A) construction of the Ważewski's Universal Dendrite

13.3 Dendrites

Dendrites are beautiful

13.3.1 Ważewski's Universal Dendrite

The *Ważewski's Universal Dendrite* is well known continuum which serves as the universal element in the class of all dendrites. We start with a Locally Connected Fan F_ω. Denote $D_1 = F_\omega$. Now we attach sufficiently small copies of F_ω to all midpoints of all maximal free arcs in D_1 and obtain a dendrite D_2. Continuing in this fashion, we obtain the sequence of dendrites $\{D_n\}$ and the Ważewski's Universal Dendrite $\mathbf{D}$ is the closure of their union. For details see [65, p.181-185].

13.3.2 Universal Dendrite D_3

The *Universal Dendrite* D_3 is obtained by the same procedure as the Ważewski's Universal Dendrite just instead of locally connected fans we use simple triods.

We start with a simple triod T. Denote $T_1 = T$. Now we attach sufficiently small copies of T (with one end point as the attaching point) to all midpoints of all maximal free arcs in T_1 and obtain a dendrite T_2. Continuing in this fashion, we obtain the sequence of dendrites $\{T_n\}$ and the Universal Dendrite $\mathbb{D}_3$ is the closure of their union.

The Universal Dendrite $\mathbf{D_3}$ is homogeneous with respect to the monotone mappings. For details see [38, p.362].

13.3.3 Universal Dendrite D_4

The *Universal Dendrite* D_4 is a dendtrite with ramification points of order 4.