Generalized Ważewski dendrites as projective Fraïssé limits

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In a recent preprint Włodzimierz J. Charatonik and Robert P. Roe investigated projective Fraïssé limits of trees with natural classes of maps inspired from continuum theory. Among other results they proved that the class of finite trees with monotone epimorphisms is a projective Fraïssé class and its projective Fraïssé limit is a prespace whose topological realization is the Ważewski dendrite W_3.

We introduce new types of maps between finite trees, called (weakly) coherent, and use them to realize many other generalized Ważewski dendrites as the topological realization of projective Fraïssé limits. In particular for all $P \subseteq \omega$ and all coinfinite $P \subseteq \omega + 1$ we construct a projective Fraïssé class whose limit has as topological realization the generalized Ważewski dendrite W_P.

By moving to the more general setting of Fraïssé categories and projection-embedding pairs developed by Wiesław Kubiś, we remove the coinfiniteness assumption on P and realize all generalized Ważewski dendrites as the topological realization of projective Fraïssé limits.