1157-03-441 **Sylvia Carlisle*** (carlisle@rose-hulman.edu) and **C. Ward Henson**. *Endpoints in $\mathbb{R}$-trees.* Preliminary report.

An $\mathbb{R}$-tree is a metric space such that between any two points there is a unique geodesic segment. An $\mathbb{R}$-tree is richly branching if the set of points with at least 3 branches of a non-trivial length is dense. We consider bounded, pointed $\mathbb{R}$-trees as metric structures in an appropriate continuous signature. The theory $\mathrm{rb}\mathbb{R}\mathrm{T}_r$ of "richly branching" pointed $\mathbb{R}$-trees with radius r is the model companion of the theory of $\mathbb{R}$-trees of radius at most r. We take a model M of $\mathrm{rb}\mathbb{R}\mathrm{T}_r$ and consider the space of points at distance r from the basepoint. We show that the theory of such spaces and the theory of richly branching $\mathbb{R}$-trees are bi-interpretable, and outline results about the topology of spaces of endpoints in $\mathbb{R}$-trees. This is joint work with C. Ward Henson. (Received February 03, 2020)