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Daniel Berlyne* (dberlyne@gradcenter.cuny.edu) and **Jacob Russell**. *Hierarchical hyperbolicity of graph products*.

Direct products and free products are two of the simplest ways of combining groups, yet they still give rise to interesting geometry. Direct products of the integers are commonly realised as lattice points in Euclidean space, while free products of the integers exhibit hyperbolic geometry. Combining free and direct products of the integers gives rise to right-angled Artin groups, which have geometry with both Euclidean and hyperbolic behaviour; they are “hierarchically hyperbolic”, a tool developed by Behrstock, Hagen, and Sisto to describe the geometry of a space in terms of its projections to various associated hyperbolic spaces.

We show that Behrstock, Hagen, and Sisto’s result for right-angled Artin groups can be generalised to any graph product of hierarchically hyperbolic groups. That is, if the copies of the integers in a right-angled Artin group are replaced with hierarchically hyperbolic groups, then the resulting group is still hierarchically hyperbolic. We construct this geometry explicitly, answering two questions of Behrstock, Hagen, and Sisto. (Received August 06, 2020)