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Rylee Alanza Lyman*, rylee.lyman@rutgers.edu. *CTs for free products*. Preliminary report.

The fundamental group of a finite graph of groups with trivial edge groups is a free product. We are interested in the subgroup of outer automorphisms of such a free product that permutes the conjugacy classes of the vertex groups. We show that in particular cases of interest, such as where vertex groups are themselves finite free products of finite and cyclic groups, given such an outer automorphism, after passing to a positive power, the outer automorphism is represented by a particularly nice kind of relative train track map called a CT. CTs were first introduced by Feighn and Handel for outer automorphisms of free groups. We develop the theory of attracting laminations for and principal automorphisms of free products. We prove that outer automorphisms of free groups satisfy an index inequality reminiscent of a result of Gaboriau, Jaeger, Levitt and Lustig and sharpening a result of Martino. (Received January 17, 2022)