

Meeting: 1004, Bowling Green, Kentucky, SS 14A, Special Session on Geometric Topology and Group Theory

1004-20-132 **Michael L. Mihalik*** (mihalik@math.vanderbilt.edu), Department of Mathematics,
Vanderbilt University, Nashville, TN 37240, and **Steven Tschantz**, Department of Mathematics,
Vanderbilt University, Nashville, TN 37240. *JSJ Decompositions of Coxeter Groups.*

A Coxeter group W , has presentation $\langle S : (st)^{m(st)} = 1 \rangle$ where for all $s, t \in S$, $m(s, t) \in \{1, 2, \dots, \infty\}$, $m(s, t) = m(t, s)$, and $m(s, t) = 1$ iff $s = t$. The presentation diagram $\Gamma(W, S)$ has vertex set S and an edge labeled $m(a, b)$ between vertices $a \neq b$ if $m(a, b) \neq \infty$. If $C \subset S$ separates vertices of Γ , then W splits as an amalgamated product accordingly. I.e. if A is C union the vertices of some components of $\Gamma - C$ and B is C union the vertices of the remaining components, then W decomposes as $A *_C B$. This generalizes to graph of groups decompositions called *visual* decompositions.

A JSJ decomposition of a 1-ended group W , is a graph of groups decomposition such that: each edge group is 2-ended (virtually infinite cyclic), for every 2-ended splitting subgroup T of W , some conjugate of T is a subgroup of a vertex group of the decomposition, and then there are additional conditions on the vertex groups.

We give a visual description of the unique JSJ decomposition of an arbitrary Coxeter group. We also discuss our progress in extending these results to more general types of JSJ decompositions (those with edge groups containing no free group of rank 2). (Received January 21, 2005)