1048-05-202   **John R. Stembridge***, Department of Mathematics, University of Michigan, Ann Arbor, MI 48109-1043. *Admissible W-Graphs and Commuting Cartan Matrices.* Preliminary report.

A W-graph is a weighted directed graph that encodes certain actions of a Coxeter group W or the associated Iwahori-Hecke algebra $H(W)$. It is admissible if it is bipartite and has nonnegative integer edge weights that satisfy a simple symmetry condition. Of particular interest are the admissible W-graphs and $W \times W$-graphs that encode the one-sided and two-sided actions of the standard generators on the Kazhdan-Lusztig basis of $H(W)$, as well as the strongly connected components of these graphs—the latter are the so-called Kazhdan-Lusztig cells.

In this talk, we will report on further progress toward the classification of admissible W-graphs. In particular, we plan to describe the classification of all admissible $W_1 \times W_2$-cells, where W_1 and W_2 both have rank two. This amounts to classifying pairs of simply-laced Cartan matrices of the same rank that commute and satisfy a simple bipartition condition. It turns out that there are 5 infinite families of such Cartan pairs (up to isomorphism), as well as 8 exceptional pairs whose ranks range from 12 to 32. (Received February 08, 2009)

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