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Miriam H. Lamb* (1ambm@uwosh.edu), Department Of Mathematics, University of Wisconsin Oshkosh, Oshkosh, WI 54901. *Killing-Coxeter Diagrams in the Root Lattice.*

At each weight in the root lattice, a Killing-Coxeter diagram is a coordinatized Cayley graph of the Weyl group with root lattice coordinates. The coordinates themselves are affinely obtained and always trivially calculable. It is also the Hasse diagram of the so-called weak order on W . Its secondary edge labels are positive dual roots. To each Weyl element we assign a difference set to it so that the weak order translates to containment of these difference sets. The nature of these sets is to arithmetize the usual geometric description of the length function. (Received September 20, 2007)