1027-16-145 **Mark Kleiner*** (mkleiner@syr.edu), Department of Mathematics, Syracuse University, Syracuse, NY 13244-1150. *Gabriel's Theorem on Quivers, Bernstein-Gelfand-Ponomarev's Reflection Functors, and Reduced Words in the Weyl Group.*

According to Gabriel's theorem, a quiver is of finite representation type if and only if its underlying graph is of Dynkin ADE type. In this case, the indecomposable representations are parametrized by their dimension vectors, which correspond to the positive roots of the corresponding root system. Bernstein, Gelfand and Ponomarev gave a proof of the theorem involving so-called reflection functors corresponding to the simple reflections in the root system at vertices that are sinks in the quiver. We analyze the properties of such reflection functors for an arbitrary quiver without loops or oriented cycles. A monomial of reflection functors is (+)-admissible provided that it can be applied (i.e. as each functor is applied, the relevant vertex is a sink in the quiver). We show that there is a strong connection between such admissible sequences, reduced expressions in the corresponding Weyl group, and preprojective representations of the quiver, thus generalizing Bernstein-Gelfand-Ponomarev's analysis to a much wider situation. A consequence is an application to the theory of Weyl groups: a characterization of when such a Weyl group is infinite in terms of the powers of a Coxeter element. The talk is based on joint work with Allen Pelley and Helene Tyler. (Received February 24, 2007)