1158-05-80   **Sami Assaf*** (`shassaf@usc.edu`). *The Coxeter graph of a permutation as a ranked poset.*

Tits considered the graph whose vertices are labeled by reduced words with an edge between two words when they are related by a single Coxeter relation. We consider an inversion statistic on reduced words, analogous to Coxeter length for permutations, such that this graph becomes a ranked poset with unique maximal element. As an application, we recover old and obtain new bounds for the diameter of the graph. (Received February 21, 2020)