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Thomas McConville* (thomasmcconvillea@gmail.com). *A poset of reduced words for the longest element.*

A Coxeter group is a group with a particular kind of presentation. A remarkable property of such a group is that any two minimum length expressions (reduced words) for the same element are connected by a sequence of elementary moves. We consider turning the graph of reduced words of the longest element into the Hasse diagram of a poset. This can be done by orienting the graph to "point away from" a particular reduced word r_0 . However, not all choices of r_0 are of equal value. We show that for a particular choice of r_0 in types A and B, the poset is bounded and its proper part is homotopy equivalent to a sphere. Our proof uses Rambau's Suspension Lemma. Furthermore, we conjecture that every interval is either contractible or homotopy equivalent to a sphere. (Received September 03, 2016)