Heap Birkhoff polytopes

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For each orientation c of a type A Dynkin quiver, we define a c-Birkhoff polytope Birk(H) and show that it is integrally equivalent to the order polytope for poset H, the heap of the c-sorting word of the longest element w0. A consequence of this result is that the volume of the c-Birkhoff polytope is the number of the longest chains in the type A c-Cambrian lattice. We will also discuss current work in type B and a generalization of our result to other Birkhoff subpolytopes Birk(H) corresponding to heaps H of other reduced words of an element in the symmetric group.