1171-05-188 **Max Hlavacek***, magda-hlavacek@berkeley.edu, and **Liam Solus**. *Subdivisions of Shellable Complexes.*

In geometric, algebraic, and topological combinatorics, we often study the unimodality of combinatorial generating polynomials, which in turn follows when the polynomial is (real) stable, a property often deduced via the theory of interlacing polynomials. Motivated by a conjecture of Brenti and Welker on the real-rootedness of the -polynomial of the barycentric subdivision of the boundary complex of a convex polytope, we introduce a framework for proving real-rootedness of -polynomials for subdivisions of polytopal complexes by relating interlacing polynomials to shellability via the existence of so-called stable shellings. We show that any shellable cubical, or simplicial, complex admitting a stable shelling has barycentric and edgewise (when well-defined) subdivisions with real-rooted -polynomials. Such shellings are shown to exist for well-studied families of cubical polytopes, giving a positive answer to the conjecture of Brenti and Welker in these cases. The framework of stable shellings is also applied to answer to a conjecture of Mohammadi and Welker on edgewise subdivisions in the case of shellable simplicial complexes (Received August 10, 2021)