

1 Subword complexes, Brick polytopes and brick polyhedra

There are powerful techniques to describe the Tamari lattice and the associahedron in terms of subword complexes and brick polytopes in the context of Coxeter groups, which in turn are also related to cluster complexes and generalized associahedra arising in the theory of cluster algebras. This project concerns learning about these topics [1, 3, 4, 2].

References

- [1] Cesar Ceballos, Jean-Philippe Labbé, and Christian Stump. Subword complexes, cluster complexes, and generalized multi-associahedra. *J. Algebraic Combin.*, 39(1):17–51, 2014.
- [2] Dennis Jahn and Christian Stump. Bruhat intervals, subword complexes and brick polyhedra for finite Coxeter groups. *Math. Z.*, 304(2):Paper No. 24, 32, 2023.
- [3] Vincent Pilaud and Francisco Santos. The brick polytope of a sorting network. *European J. Combin.*, 33(4):632–662, 2012.
- [4] Vincent Pilaud and Christian Stump. Brick polytopes of spherical subword complexes and generalized associahedra. *Adv. Math.*, 276:1–61, 2015.