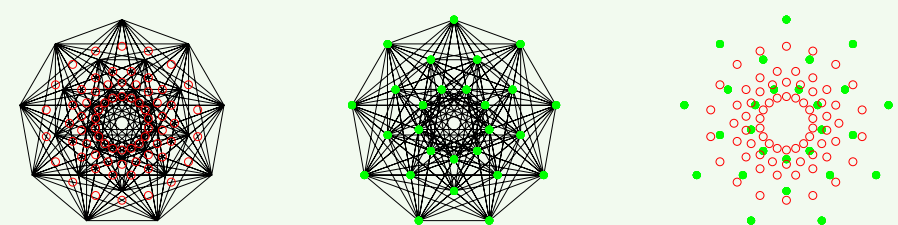
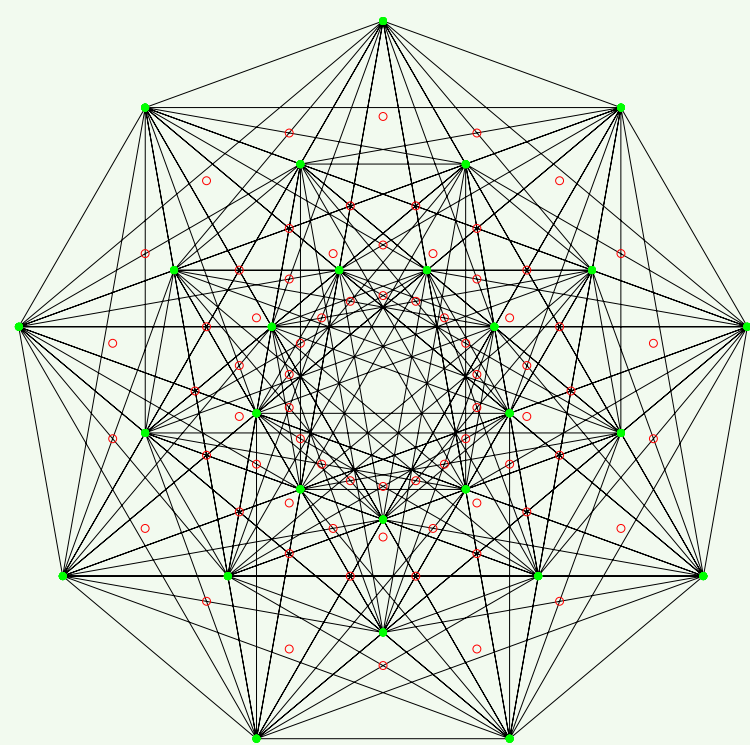




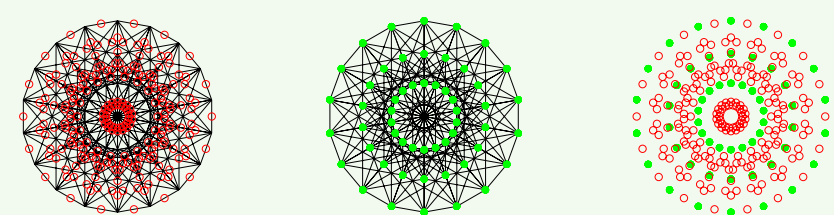
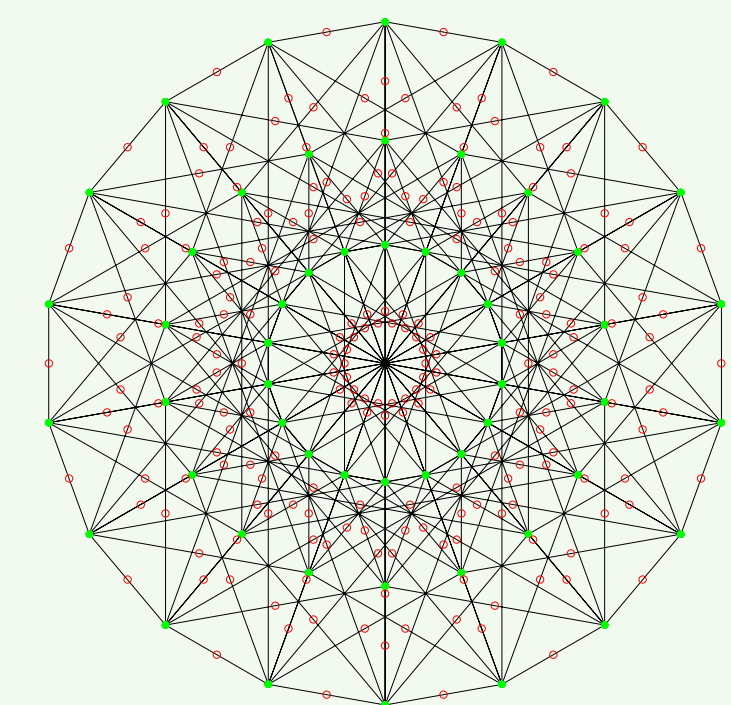
Algebraic combinatorics and symbolic computation

Dedicated to Alain Lascoux

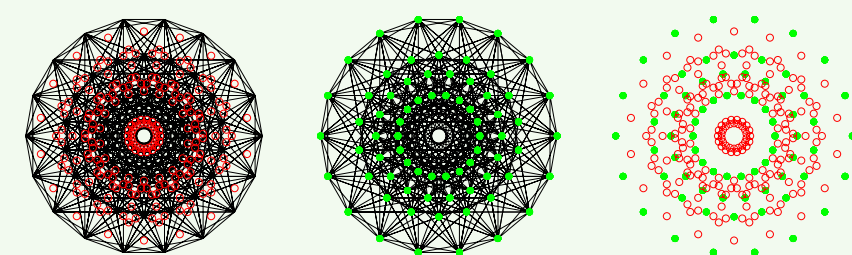
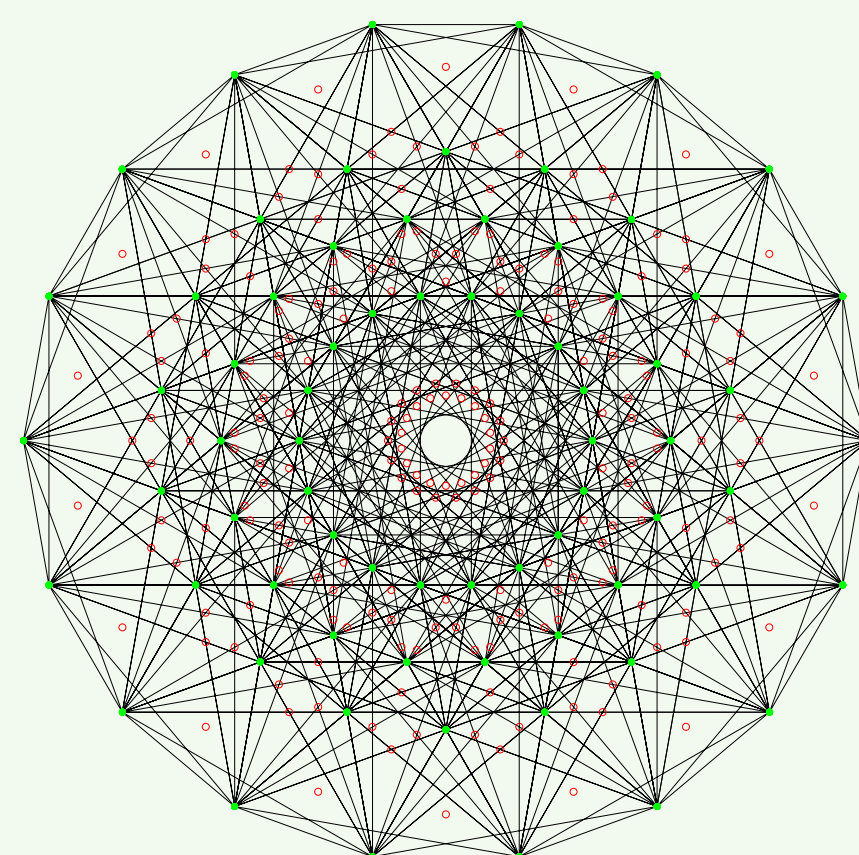
Hessien polyhedron



Polyhedron $2\{4\}3\{3\}3$



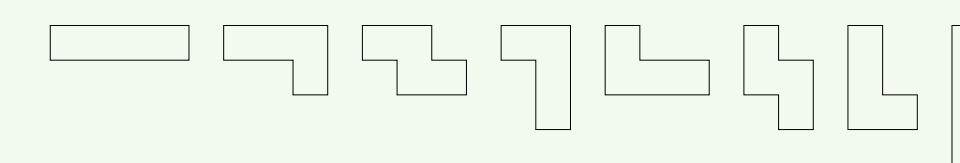
Polyhedron $3\{3\}3\{4\}2$



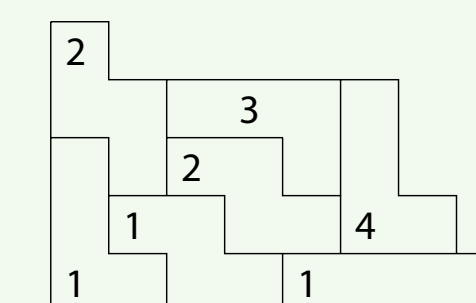
- Interface between discrete mathematics and computer science (solving mathematical problems by computing research $\leftrightarrow$ finding new algorithms).
- Symbolic computation software: Maple/ACE, MuPAD/Combinat, Sage/Combinat.
- Permutations, partitions, tableaux, symmetric functions: combinatorics of classical groups, representation theory, invariant theory, quantum groups, Hecke algebras, Schubert polynomials, Hopf algebras.
- Applications: statistical physics, quantum information, communications, ...

Ribbons tableaux

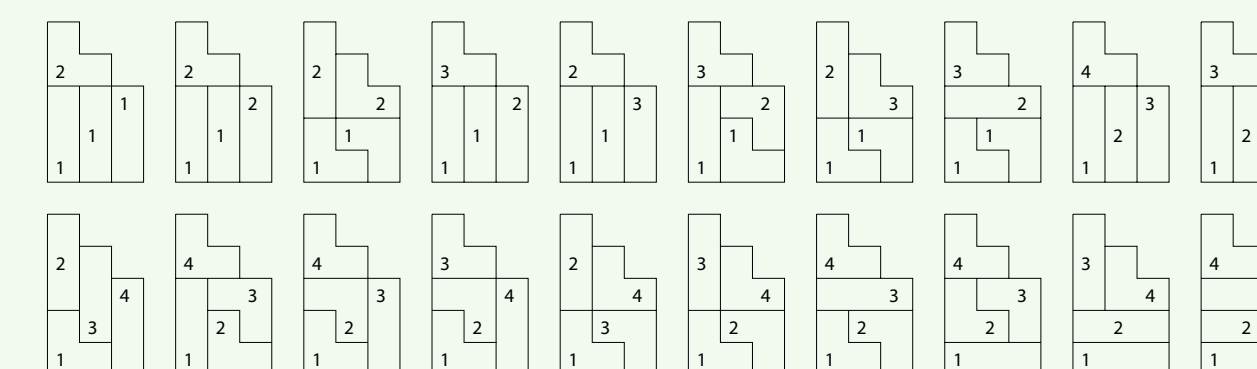
All $(2^3 = 8)$ 4-ribbons



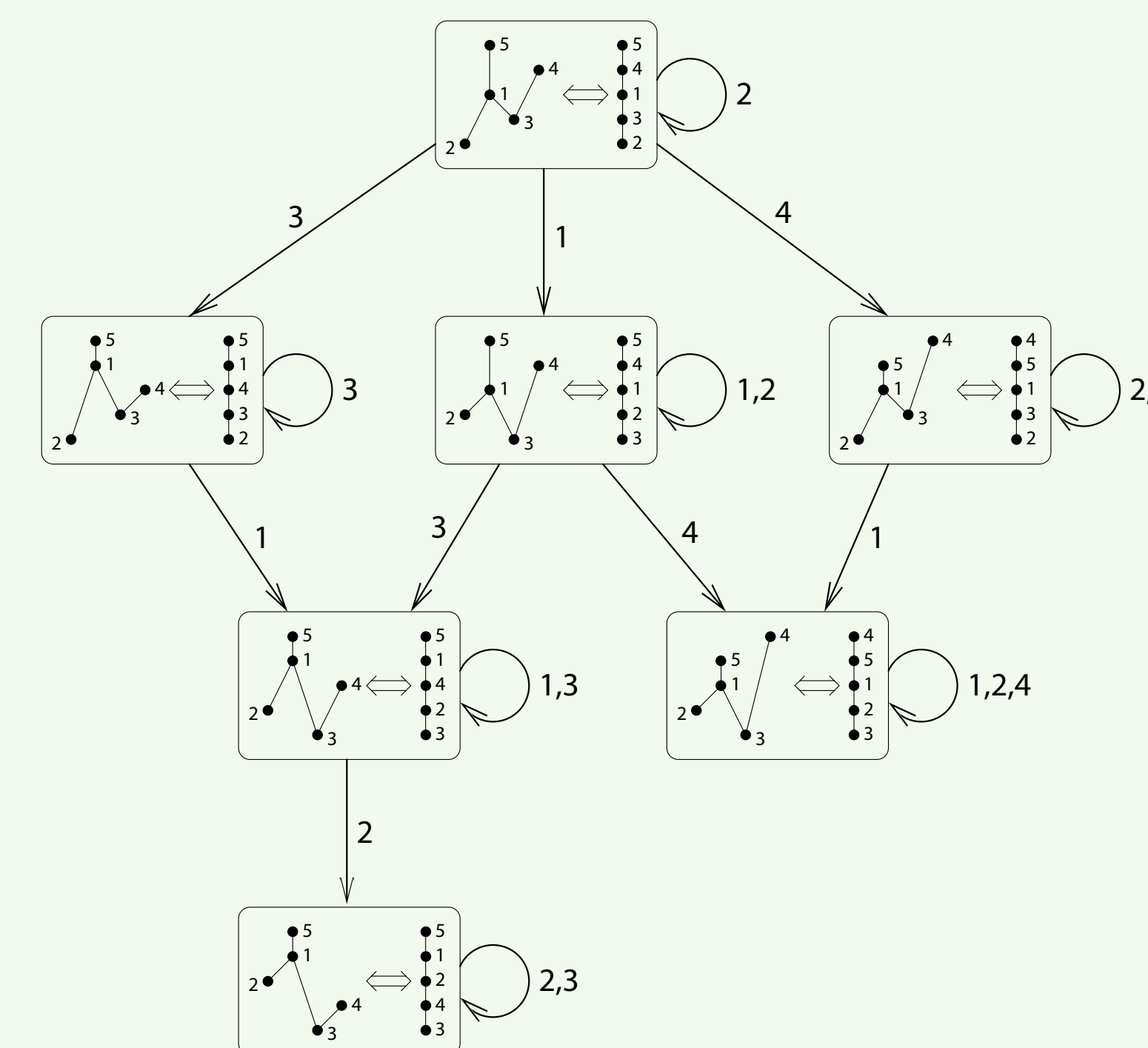
A ribbon tableau of shape (87661) and weight (3211)



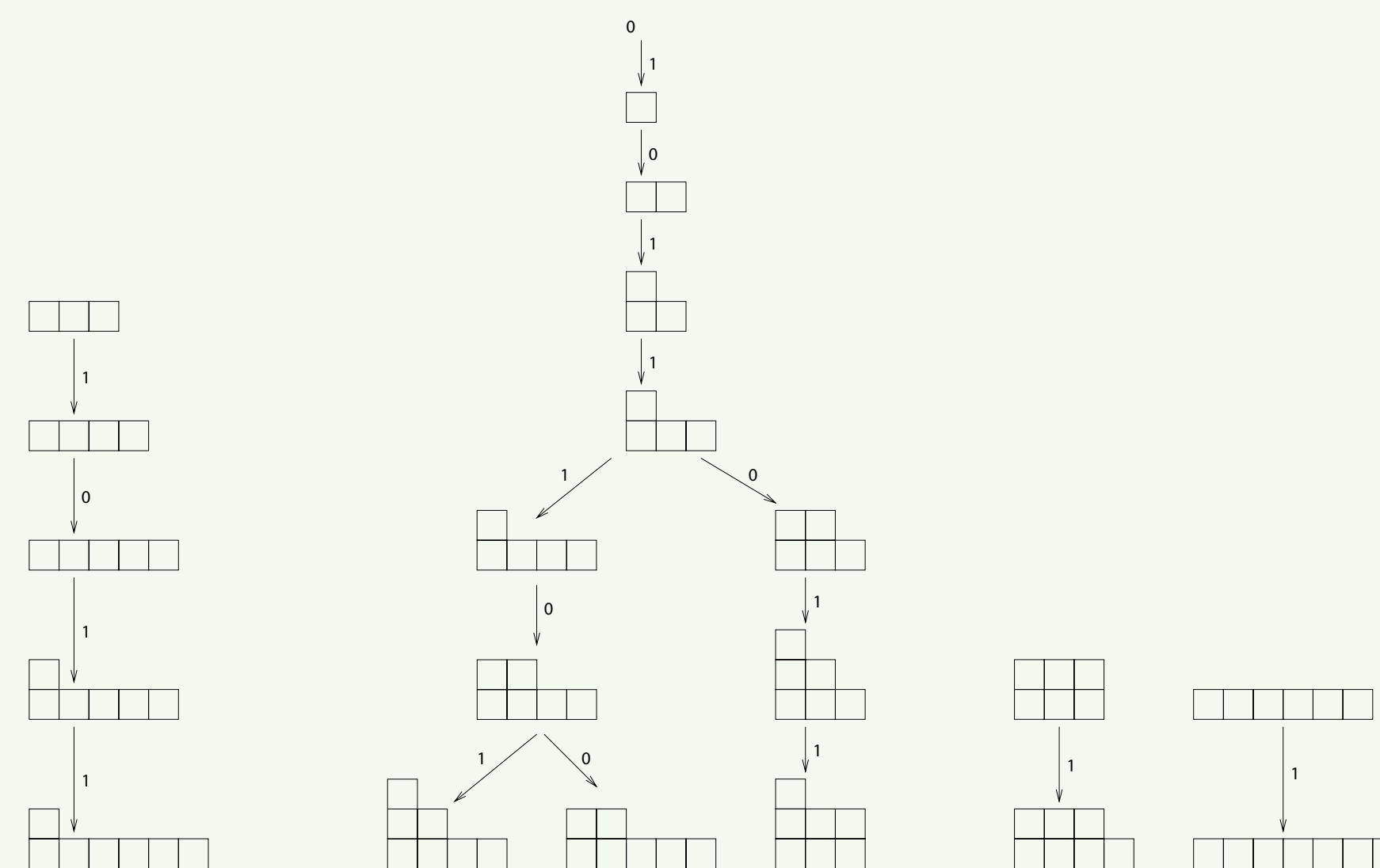
All 3-ribbon tableaux of shape (33321) and dominant weight



A representation of $H_5(0)$



Crystal graph of $\mathcal{F}_q$ of $A_2^{(2)}$



Contact: Jean-Yves.Thibon@univ-mlv.fr