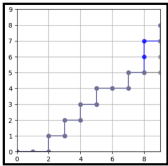


Input

Output

Lattice paths



“The lattice path pair is a cover in the *Lagrange partial order*”

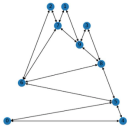
Weaving patterns

1	2	3	4	5
1	2	3	4	6
1	2	3	5	6
1	2	4	5	6
1	3	4	5	6
2	3	4	5	6



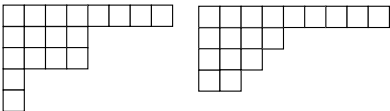
“This matrix is a weaving pattern”

Cluster algebra quivers



“This corresponds to mutation equivalence class  $D_{10}$ ”

$S_n$  Characters



“The character  $\chi_{(8,4,4,1,1)}^{(9,4,3,2)}$  is 0”

KL polynomials

$x = (1\ 3\ 2\ 4\ 5\ 7\ 6\ 8),\ w = (3\ 4\ 1\ 2\ 7\ 8\ 5\ 6)$



“In  $P_{x,w}(q)$  the coefficient on  $q^2$  is 1”

RSK

1	2	4	8
3	5		
6	7		

1	2	3	6
4	7		
5	8		



“The permutation is  $(1\ 6\ 7\ 3\ 2\ 8\ 5\ 4)$ ”

Grassmannian cluster algebras

2	3	4	7
3	5	6	8
6	9	11	12



“This semistandard Young tableaux indexes a cluster algebra”

Schubert structure constants

$\sigma = (1\ 2\ 4\ 3),\ \nu = (1\ 4\ 3\ 2),$   
 $\mu = (1\ 5\ 3\ 2\ 4)$



“The structure constant  $c_{\sigma,\nu}^{\mu}$  on  $S_{\mu}$  in  $S_{\sigma} \star S_{\nu}$  is 1”

mHeight function

$\sigma = (6\ 7\ 5\ 4\ 2\ 1\ 3)$



“The mHeight function is 2”