Frieze vectors and unitary friezes

The identity frieze for the type $\mathbb{A}_3$ quiver $Q = 1 \to 2 \leftarrow 3$

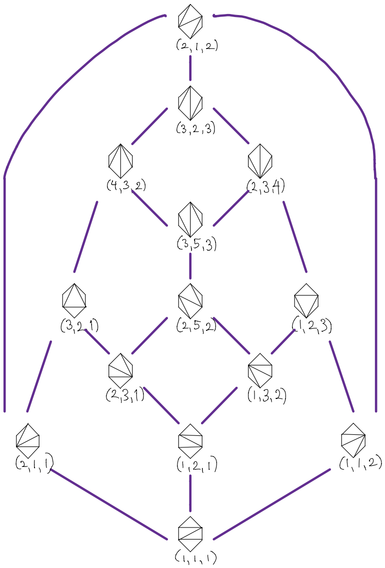
1		1		1		1	
	x_3		$\frac{x_1x_3+1+x_2}{x_2x_3}$		$\frac{x_2+1}{x_1}$		x_1
x_2		$\frac{x_1x_3+1}{x_2}$		$\frac{x_2^2+2x_2+1+x_1x_3}{x_1x_2x_3}$		x_2	
	x_1		$\frac{x_1x_3+1+x_2}{x_1x_2}$		$\frac{x_2+1}{x_3}$		x_3
1		1		1		1	

Positive integral friezes

Setting $x_1{=}x_2{=}x_3{=}1$ produces a Conway – Coxeter frieze pattern

1		1		1		1	
	1		3		2		1
1		2		5		1	
	1		3		2		1
1		1		1		1	

- The above frieze corresponds to the frieze vector $(1, 1, 1)$ relative to $Q = 1 \to 2 \leftarrow 3$.
- Given any type $\mathbb{A}_3$ quiver, there are 14 integer frieze vectors (whose values depend on the quiver).



Frieze vectors relative to $Q = 1 \to 2 \leftarrow 3$

Frieze vectors and unitary friezes

Up to symmetry, there are exactly 2 positive friezes of type $\widetilde{\mathbb{A}}_{1,2}$.

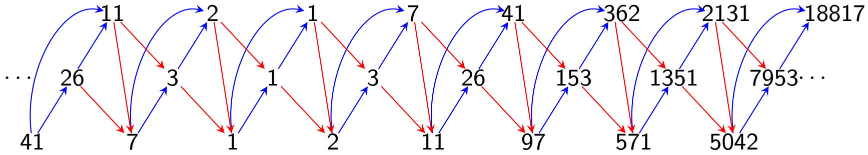


Figure: An $\widetilde{\mathbb{A}}_{1,2}$ frieze obtained by specializing the cluster variables of an acyclic seed to 1. The two peripheral arcs have frieze values 2 and 3.

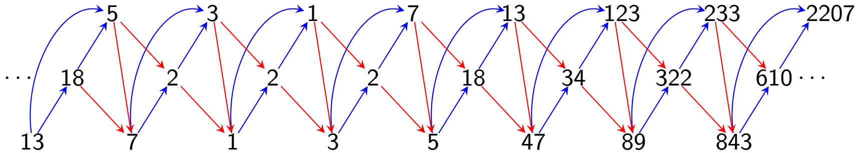


Figure: An $\widetilde{\mathbb{A}}_{1,2}$ frieze obtained by specializing the cluster variables of a non-acyclic seed to 1. The two peripheral arcs have frieze values 1 and 5.