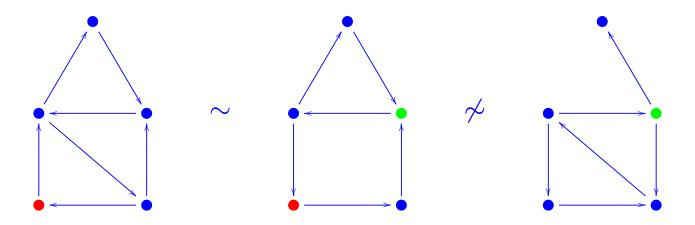
# Mutation classes of quivers with constant number of arrows and derived equivalences

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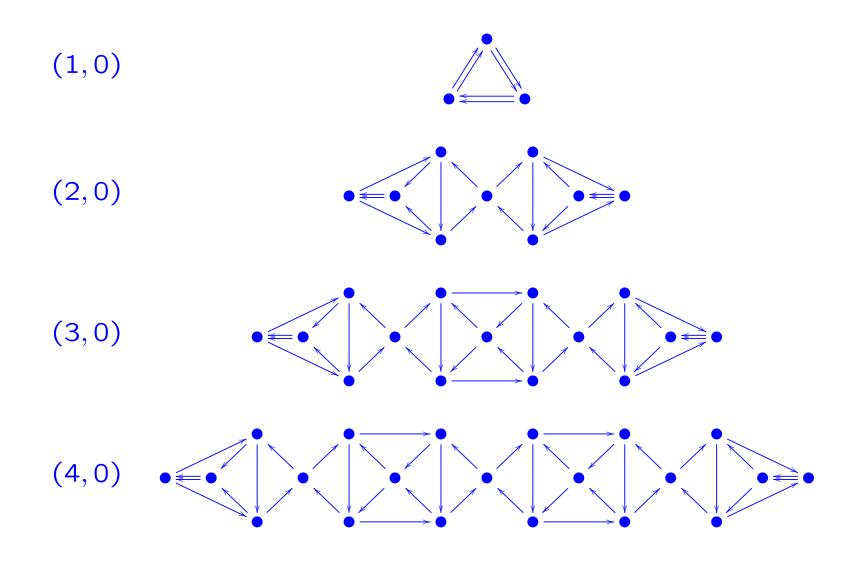
http://www.math.uni-bonn.de/people/sefil/

#### Example – number of arrows vs. derived equivalence

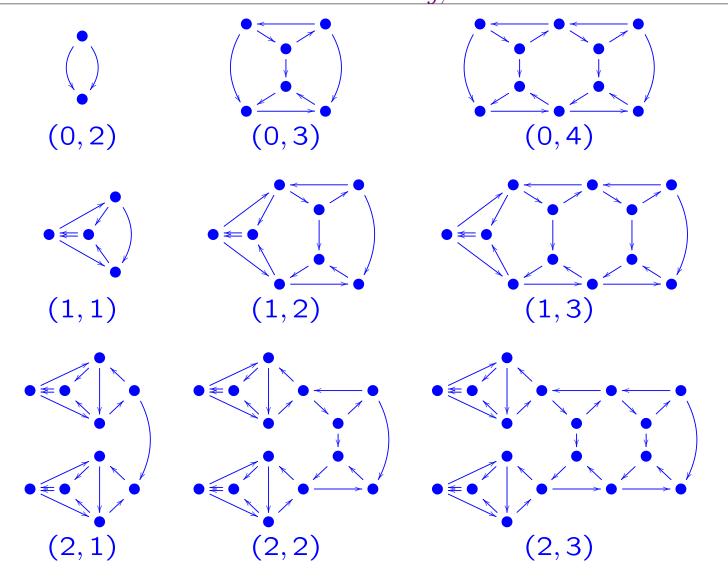


The Jacobian algebras are cluster-tilted of Dynkin type  $D_5$ .

## Representative quivers in $Q_{g,0}$ for g = 1, 2, 3, 4



# Representative quivers for some $\mathcal{Q}_{g,b}$ $(b \geq 1)$



1		$i \longrightarrow k$	$\mu_k^-$	$\mu_k^+$	i — $k$	$\frac{i}{k}$
2a	$\frac{i}{k}$	$i \Longrightarrow k$	$\mu_k^-$	$\mu_k^+$	$i \rightleftharpoons k$	$\frac{i}{k}$
2b	$\frac{i_1}{k}$	$i_1$ $i_2$ $k$	$\mu_{\overline{k}}^-$	$\mu_k^+$	$i_1$ $k$ $i_2$	$\frac{i_1}{k}$
2c	$j \left  \frac{i}{k} \right $	$i \ k \ a_{ji} \geq 1$	none	$\mu_k^-, \mu_k^+$	$i$ $j$ $a_{ij} = 0$	$j \left  \begin{array}{c} i \\ k \end{array} \right $

3a	$j \left  \frac{i}{k} \right $	$i$ $j$ $k$ $a_{ji} = 1$	$\mu_k^-$	$\mu_k^+$	$i$ $j$ $k$ $a_{ij} = 1$	$j \left  \frac{i}{k} \right $
3 <i>b</i>	$j \left  \frac{i_1}{k} \right $	$ \begin{vmatrix} i_1 \\ k \\ a_{ji_1} \ge 1 \\ a_{ji_2} = 0 \end{vmatrix} $	$\mu_k^-$	$\mu_k^+$	$i_1$ $j = 0$ $a_{i_1j} = 0$ $a_{i_2j} \ge 1$	$j \left  \frac{i_1}{k} \right $

### Neighborhoods of k, valency 4 (all sides are arcs)

4a	$j\left \frac{i}{k}\right $	i $k$	$i \atop j \atop k$	$\begin{vmatrix} i \\ j \\ k \end{vmatrix} j$
4 <i>b</i>	$j\left \frac{i_1}{k}\right $ $i_2$	$ \begin{array}{c} i_1 \\ \downarrow \\ j \\ \downarrow \\ a_{ji_1} = a_{ji_2} = 1 \end{array} $	$i_1$ $j = k$ $a_{i_1j} = a_{i_2j} = 1$	$\begin{vmatrix} i_1 \\ j & k \\ \vdots \\ i_2 \end{vmatrix}$
4 <i>c</i>	$j_1 \left  \frac{i_1}{k} \right  \cdot \frac{i_2}{i_2} \cdot \frac{i_1}{i_2}$	$ \begin{vmatrix} i_1 & j_2 \\ j_1 & k \\ a_{j_1i_1}, a_{j_2i_2} \ge 1 \\ a_{j_1i_2} = a_{j_2i_1} = 0 \end{vmatrix} $	$ \begin{array}{c c}  i_1 & j_2 \\  k & \\  i_2 & \\  a_{i_1j_2}, a_{i_2j_1} \ge 1 \\  a_{i_1j_1} = a_{i_2j_2} = 0 \end{array} $	$\frac{i_1}{j_1} \cdot \frac{i_2}{i_2}$

Both  $\mu_k^-$  and  $\mu_k^+$  are always defined.

## Some exceptional quivers

