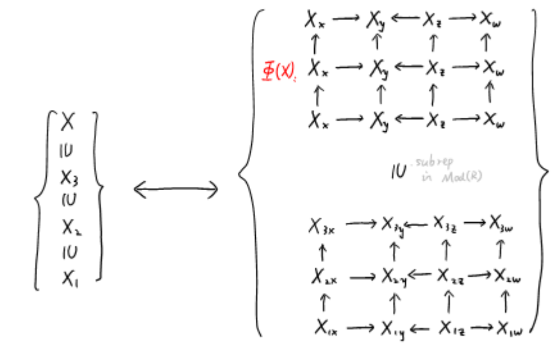
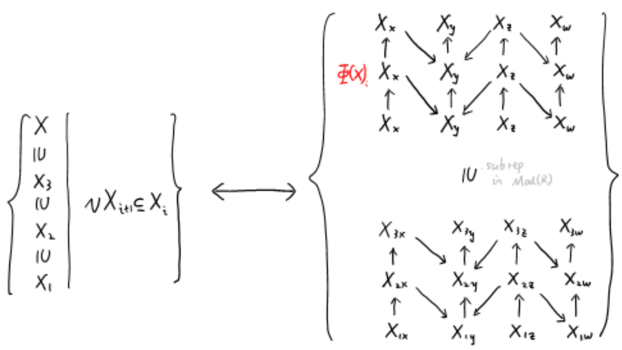
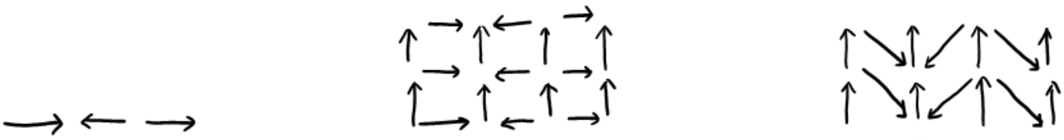


$Flag_3(X) \longleftrightarrow Gr(\Phi(X))$

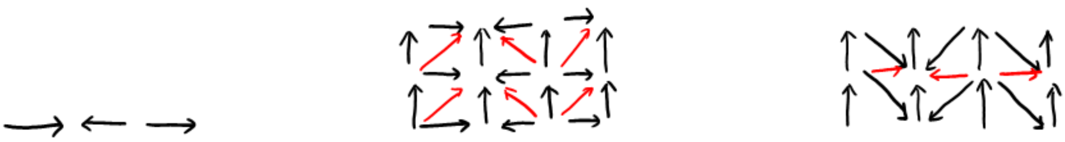


$Flag_{3,str}(X) \longleftrightarrow Gr(\Phi(X))$



Q $\quad Q_3$ $\quad Q_{3,str}$

$R = KQ_d / \ldots$ or $KQ_{d,str} / \ldots$ $\quad d \geq 2$



Q $\quad Q_3$ $\quad Q_{3,str}$

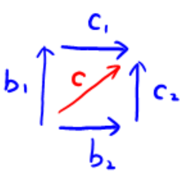
→ is the virtual arrow

$$\begin{array}{ccccccccc}
\eta \in Ext^1(\Phi(S), \Phi(X)) & 0 \to & \Phi(X) & \to & \Phi(Y) & \xrightarrow{\pi} & \Phi(S) & \to 0 \\
\downarrow & & \| & & \uparrow & & \uparrow & \\
Ext^1(W, \Phi(X)) & 0 \to & \Phi(X) & \to & \pi^{-1}(W) & \to & W & \to 0 \\
\downarrow & & \downarrow & & \downarrow & & \| & \\
\bar{\eta} \in Ext^1(W, \Phi(X)/V) & 0 \to & \Phi(X)/V & \to & \pi^{-1}(W)/V & \to & W & \to 0
\end{array}$$

$$0 \to \bigoplus_{c \in Q_2} Re_{t(c)} \otimes_k e_{s(c)} T \to \bigoplus_{b \in Q_1} Re_{t(b)} \otimes_k e_{s(b)} T \to \bigoplus_{i \in Q_0} Re_i \otimes_k e_i T \to T \to 0$$

$= c_1 b_1$

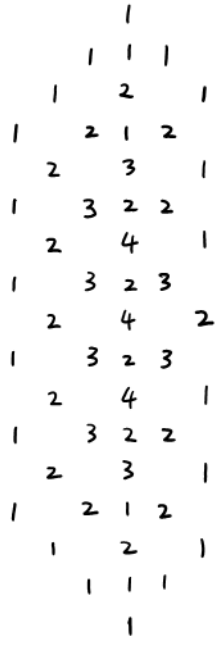
$= c_2 b_2$



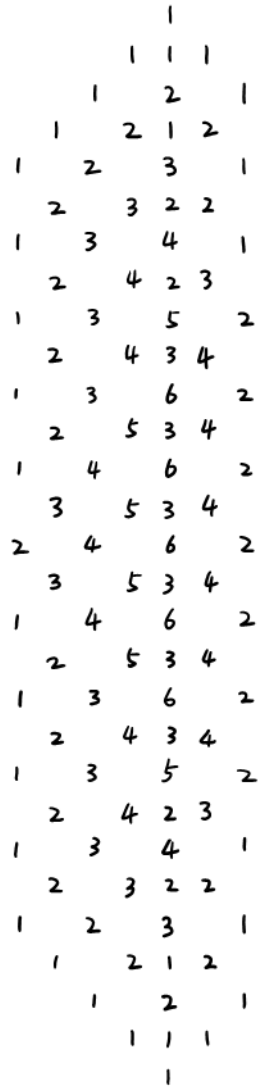
$r \otimes x \longmapsto r c_1 \otimes x + r \otimes b_1 x - r c_1 \otimes x - r \otimes b_2 x$ $\qquad r \otimes x \longmapsto rx$

$r \otimes x \longmapsto rb \otimes x - r \otimes bx$

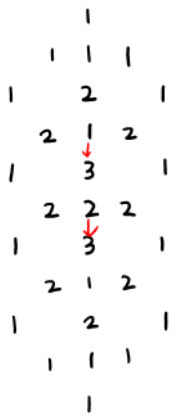
E_6



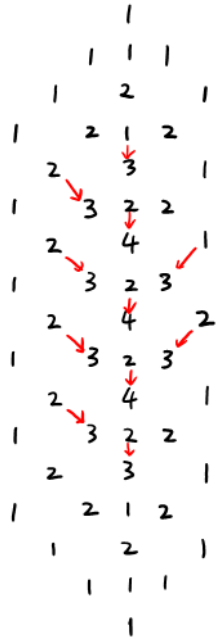
E_7



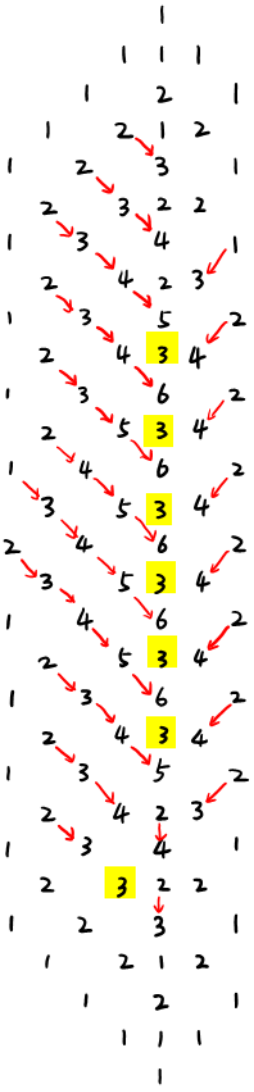
E_8



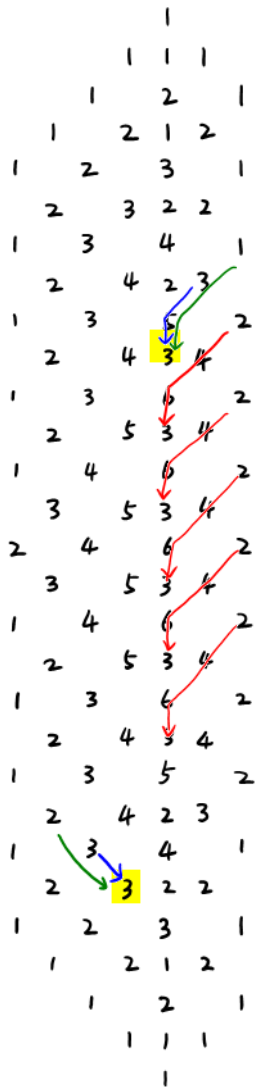
E_6



E_7



E_8, easy situation



E_8, some exceptions

blue & green are two different possibilities.

$[M,N]$ / $[M,N]'$ (N \ M)	X	Y	S
X	$\begin{matrix}1\\0\end{matrix}$	$\begin{matrix}1\\0\end{matrix}$	$\begin{matrix}0\\0\end{matrix}$
Y	$\begin{matrix}0\\0\end{matrix}$	$\begin{matrix}1\\0\end{matrix}$	$\begin{matrix}1\\0\end{matrix}$
S	$\begin{matrix}0\\1\end{matrix}$	$\begin{matrix}0\\0\end{matrix}$	$\begin{matrix}1\\0\end{matrix}$

$$
\begin{array}{cccccccccc}
\eta \in Ext'(\bar{\Phi}(S),\bar{\Phi}(X)) & & 0 & \longrightarrow & \Phi(X) & \longrightarrow & \Phi(Y) & \xrightarrow{\pi} & \Phi(S) & \longrightarrow & 0 \\
\downarrow & & & & \| & & \uparrow & & \uparrow & & \\
Ext'(W,\bar{\Phi}(X)) & & 0 & \longrightarrow & \Phi(X) & \longrightarrow & \pi^{-1}(W) & \longrightarrow & W & \longrightarrow & 0 \\
\downarrow & & & & \downarrow & & \downarrow & & \| & & \\
\bar{\eta} \in Ext'(W,\bar{\Phi}(X)/_V) & & 0 & \longrightarrow & \Phi(X)/_V & \xrightarrow{\iota} & \pi^{-1}(W)/_V & \underset{\theta}{\overset{\pi'}{\rightleftarrows}} & W & \longrightarrow & 0
\end{array}
$$