

We take the reduction rules RR for  $x_{ij}$ 's from Yamane page 509:

$$(I) \quad \begin{array}{c} i = m < j < n, \\ \underline{i \quad j} \\ \underline{m \quad n} \end{array} \quad (II) \quad \begin{array}{c} i < m < n < j, \\ \underline{i \quad j} \\ \underline{m \quad n} \end{array} \quad (III) \quad \begin{array}{c} i < m < j = n, \\ \underline{i \quad j} \\ \underline{m \quad n} \end{array}$$

$$(IV) \quad \begin{array}{c} i < m < j < n, \\ \underline{i \quad j} \end{array} \quad (V) \quad \begin{array}{c} i < j = m < n, \\ \underline{i \quad j} \end{array} \quad (VI) \quad \begin{array}{c} i < j < m < n, \\ \underline{i \quad j} \end{array}$$

$$\begin{aligned} q^{-2} e_{ij} e_{mn} - e_{mn} e_{ij} &= 0 & \begin{array}{c} \underline{m \quad n} \\ \underline{m \quad n} \end{array} \\ [e_{ij}, e_{mn}] &= 0 \\ [e_{ij}, e_{mn}] &= (q^2 - q^{-2}) e_{in} e_{mj} \\ q^2 e_{ij} e_{mn} - e_{mn} e_{ij} &= q e_{in} \end{aligned}$$

$$\begin{aligned} &\text{if } ((i, j), (m, n)) \in C_{(I)} \cup C_{(III)}. \\ &\text{if } ((i, j), (m, n)) \in C_{(II)} \cup C_{(VI)}. \\ &\text{if } ((i, j), (m, n)) \in C_{(IV)}. \\ &\text{if } ((i, j), (m, n)) \in C_{(V)}. \end{aligned}$$