$$U(2+2,\varepsilon_2) = \begin{pmatrix} Z_{22}[(a_{11},a_{12})] & Z_{22}[(a_{13},a_{14})]S_{22}[(a_{31},a_{32})] & Z_{22}[(a_{33},a_{34})] \end{pmatrix} = \begin{pmatrix} a_{11} & -a_{11} & a_{13} \\ -a_{13}a_{11} & -a_{11} & a_{13} \\ -a_{23}a_{31} & a_{32} & a_{33} \\ -a_{33}a_{32} & a_{33} & a_{33} \\ -a_{33} & & \end{pmatrix}.$$