

$$g = 3$$

$$M_1 \sim M_2, M_2 \sim M_3$$

Diagonal

$$\begin{array}{ccc} M_1 & M_2 & M_3 \\ \hline 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array} \quad \begin{array}{l} \leftarrow \\ \leftarrow \\ \leftarrow \end{array}$$

$$M_1 \sim M_3$$

$$\left[M_1 \sim \frac{(M_2 + M_3)}{2} \right]$$

$$\begin{array}{ccc} M_1 & M_2 & M_3 \\ \hline 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array} \quad \begin{array}{l} \leftarrow \\ \leftarrow \\ \leftarrow \end{array}$$

$$D = \begin{pmatrix} 1 & & \\ & 1 & \\ & & 1 \end{pmatrix}$$