

$$\textcircled{2} \quad m_2 = 1, \quad m_1 = m_3 = m_4 = 0$$

$$C_{0100} \left(z_2 - \frac{z_1 z_4}{z_3} \right)$$

$$\textcircled{3} \quad m_3 = 1, \quad m_1 = m_2 = m_4 = 0$$

$$C_{0010} \frac{1}{z_3}$$

$$\textcircled{4} \quad m_4 = 1, \quad m_1 = m_2 = m_3 = 0$$

$$C_{0001} \frac{z_4}{z_3}$$

$$\Rightarrow g_1 = C_{1000} \left(-\frac{z_1}{z_3} \right) + C_{0100} \left(z_2 - \frac{z_1 z_4}{z_3} \right) + C_{0010} \frac{1}{z_3} + C_{0001} \frac{z_4}{z_3} + C_{0000}$$

$$\Rightarrow f_1 - \frac{z_1}{z_3} f_2$$

$$= a_{0100} z_2 - \frac{z_1}{z_3} b_{0001} z_4 + a_{1000} z_1 - \frac{z_1}{z_3} b_{0010} z_3 - \frac{z_1}{z_3} b_{0000} + a_{0000}$$

$$\Rightarrow \left\{ \begin{array}{l} a_{0100} = b_{0001} = C_{0100} \\ -b_{0000} = -C_{1000} \\ a_{1000} = b_{0010} \\ C_{0010} = 0 = C_{0001} \end{array} \right. \quad a_{0000} = C_{0000}$$

$$\Rightarrow f_1 = a_{1000} z_1 + a_{0000} + a_{0100} z_2$$

$$f_2 = b_{0000} + b_{0001} z_4 + b_{0010} z_3$$

$$\Rightarrow \text{By } \textcircled{*}, \quad \begin{array}{l} f_1 = a + b z_1 + c z_2 \\ f_2 = d + b z_3 + c z_4 \end{array}$$