yields $SG(y/\lambda)$ as

$$\begin{bmatrix} 2y_1/\lambda & 0 & 3y_3^2/\lambda^2 & 0 \\ 0 & 2y_2/\lambda & 0 & 3y_4^2/\lambda^2 \\ 0 & 0 & 3y_3^2/\lambda^2 & 3y_4^2/\lambda^2 \end{bmatrix}$$

and CLDR holds with this S and $\alpha = (1, 1, 2)$.

The next example demonstrates that the CLDR property may not hold for some $G(y)$ even with $q = p$.

Example 4.2. *Consider*

$$G(y) = \begin{bmatrix} y_1 & 0 \\ (c + y_2)^2 & y_1(c + y_2) \end{bmatrix}$$

with $c \neq 0$. *Then* $\bar{\alpha} = 2$. *Consider an arbitrary* 2×2 *matrix* $S = (s_{ij})_{1 \leq i,j \leq 2}$.

Three possibilities could arise for $\bar{\alpha} = 2$ *if CLDR were to hold so that* $\bar{a} = \alpha_1 + \alpha_2$.

First, $\alpha_1 = \alpha_2 = 1$, *then*

$$\lim_{\lambda \to \infty} \begin{bmatrix} \lambda & 0 \\ 0 & \lambda \end{bmatrix} SG(y/\lambda)$$

does not exist, except if $s_{12} = s_{22} = 0$, *which is precluded for non-singular matrix* S.