(c) If y_t is ordered first, then our matrix B will be:

$$B = \begin{bmatrix} 1 & 0 \\ -0{,}2 & 1 \end{bmatrix} \text{ and the inverse } \longrightarrow B^{-1} = \begin{bmatrix} 1 & 0 \\ 0{,}2 & 1 \end{bmatrix}$$

Let's recalculate the reduced form parameters:

$$B^{-1}\Gamma_0 = A_0 \quad \text{and} \quad B^{-1}\Gamma_1 = A_1$$

$$\Gamma_1 = \begin{bmatrix} 0{,}3 & 0{,}3 \\ 0{,}1 & 0{,}4 \end{bmatrix} \qquad \Gamma_0 = \begin{bmatrix} 0{,}1 \\ -0{,}2 \end{bmatrix}$$

$$A_0 = \begin{bmatrix} 1 & 0 \\ 0{,}2 & 1 \end{bmatrix} \begin{bmatrix} 0{,}1 \\ -0{,}2 \end{bmatrix} = \begin{bmatrix} 0{,}1 \\ -0{,}18 \end{bmatrix}$$

$$A_1 = \begin{bmatrix} 1 & 0 \\ 0{,}2 & 1 \end{bmatrix} \begin{bmatrix} 0{,}3 & 0{,}3 \\ 0{,}1 & 0{,}4 \end{bmatrix} = \begin{bmatrix} 0{,}3 & 0{,}3 \\ 0{,}16 & 0{,}46 \end{bmatrix}$$

Now, let's calculate the responses of Y_t and Y_{t+1} to a shock in z_t:

let's note that:

$$\begin{bmatrix} 1 & 0 \\ 0{,}2 & 1 \end{bmatrix} \begin{bmatrix} \varepsilon_{yt} \\ \varepsilon_{zt} \end{bmatrix} = \begin{bmatrix} e_{1t} \\ e_{2t} \end{bmatrix} \Leftrightarrow \begin{bmatrix} \varepsilon_{yt} \\ 0{,}2\varepsilon_{yt} + \varepsilon_{zt} \end{bmatrix} = \begin{bmatrix} e_{1t} \\ e_{2t} \end{bmatrix}$$

Now we can interpret e_{1t} directly.

- we also know that with cholesky decomposition, $\boxed{L = B^{-1}}$

MA representation of the model:

$$x_t = \mu + L\varepsilon_t + A_1 L \varepsilon_{t-1} + A_1^2 L \varepsilon_{t-2} + \dots$$

$$\frac{\partial x_t}{\partial \varepsilon_t} = \begin{bmatrix} \frac{\partial y_t}{\partial \varepsilon_{y_t}} & \frac{\partial y_t}{\partial \varepsilon_{z_t}} \\ \frac{\partial z_t}{\partial \varepsilon_{y_t}} & \frac{\partial z_t}{\partial \varepsilon_{z_t}} \end{bmatrix} = L = \begin{bmatrix} 1 & 0 \\ 0,2 & 1 \end{bmatrix}$$

(at impact)

Hence, $\frac{\partial y_t}{\partial \varepsilon_{z_t}} = 0$

we were already expecting this result as this comes from the restriction we have imposed.

At impact, a shock in ~~y_t~~ z_t doesn't affect y_t.

For the first step:

$$\frac{\partial x_{t+1}}{\partial \varepsilon_t} = \begin{bmatrix} \frac{\partial y_{t+1}}{\partial \varepsilon_{y_t}} & \frac{\partial y_{t+1}}{\partial \varepsilon_{z_t}} \\ \frac{\partial z_{t+1}}{\partial \varepsilon_{y_t}} & \frac{\partial z_{t+1}}{\partial \varepsilon_{z_t}} \end{bmatrix} = A_1 L$$

$$\begin{bmatrix} 0,3 & 0,3 \\ 0,16 & 0,46 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ 0,2 & 1 \end{bmatrix} = \begin{bmatrix} 0,36 & 0,3 \\ 0,252 & 0,46 \end{bmatrix}$$

$\frac{\partial y_{t+1}}{\partial \varepsilon_{z_t}} = 0,3$ A one standard deviation ~~in~~ shock in z_t will lead to ~~y_{t} 0,3 more~~ an increase of 0,3 units in y_{t+1}.

This makes sense once that, although z_t, contemporaneously doesn't affect y_t, the past ~~p~~ values of the variable do impact.