

Coordinate Transformations and State-Space Models

$$\begin{array}{ccc} \dot{x} = Ax + Bu & \xrightarrow{T} & \dot{\bar{x}} = \bar{A}\bar{x} + \bar{B}u \\ y = Cx & & y = \bar{C}\bar{x} \end{array}$$

where

$$\bar{A} = TAT^{-1}, \quad \bar{B} = TB, \quad \bar{C} = CT^{-1}$$

What happens to

- ▶ the transfer function?
- ▶ the controllability matrix?