

and evaluated at $t=0$. The general term in the sum is

$$\det \begin{bmatrix} 1 & & & & 0 \\ 0 & 1 & & & \\ & & \ddots & & \\ 0 & a_{i1} & a_{i2} & \dots & a_{in} \\ & & & & 1 \end{bmatrix}$$

Expanding along the i th row we have

$$a_{i1} \det \begin{bmatrix} 1 & 0 & 0 & \dots & 0 \\ 0 & 1 & & & \\ & & \ddots & & \\ 0 & & & & 1 \end{bmatrix} + \dots + a_{in} \det \begin{bmatrix} 1 & 0 & 0 & \dots & 0 \\ 0 & 1 & & & \\ & & \ddots & & \\ 0 & & & & 1 \end{bmatrix}$$

where i is $(n-1) \times (n-1)$ order

$$+ a_{i2} \det \begin{bmatrix} 1 & 0 & 0 & \dots & 0 \\ 0 & 0 & 1 & & \\ & & \ddots & & \\ 0 & & & & 1 \end{bmatrix}$$

$$+ \dots + a_{in} \det \begin{bmatrix} 1 & & & & 0 \\ & 1 & & & \\ & & \ddots & & \\ 0 & & & & 1 \end{bmatrix}$$

Each matrix except the i th has a row of zeros. Determinant is 0.