Cesty v grafu a součin matic

3 uzly

	1	2	3
1	d_{11}	d_{12}	d_{13}
2	d_{21}	d_{22}	d_{23}
3	d_{31}	d_{32}	d_{33}

– jedno krokové

$$d_{11},\ d_{22},\ d_{33}$$

– dvou krokové

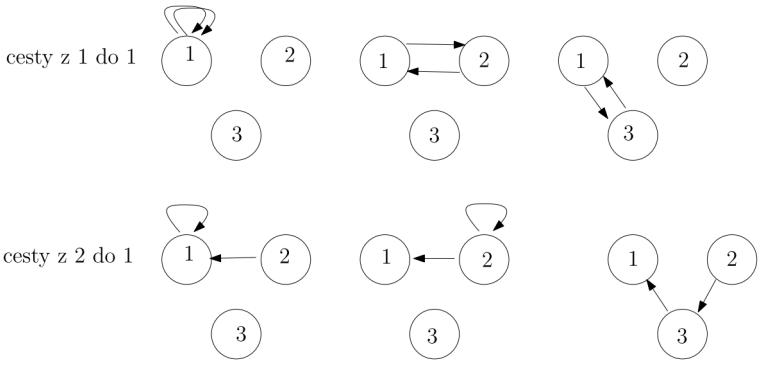
1-1-1 $d_{11}d_{11}\cdots$

1-2-1 $d_{12}d_{21}\cdots$

součin

$$\begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix} \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix} =$$

$$= \begin{bmatrix} d_{11}d_{11} + d_{12}d_{21} + d_{13}d_{31} & \bullet & \bullet \\ d_{21}d_{11} + d_{22}d_{21} + d_{23}d_{31} & \bullet & \bullet \\ d_{31}d_{11} + d_{32}d_{21} + d_{33}d_{31} & \bullet & \bullet \end{bmatrix}$$



a tak dále

– tří krokové

Př. 2. řádek, 1. sloupec - cesty z 2 do 1

$$\begin{bmatrix} \\ d_{21}, d_{22}, d_{23} \\ \\ \end{bmatrix} \begin{bmatrix} d_{11}d_{11} + d_{12}d_{21} + d_{13}d_{31} \\ d_{21}d_{11} + d_{22}d_{21} + d_{23}d_{31} \\ d_{31}d_{11} + d_{32}d_{21} + d_{33}d_{31} \end{bmatrix}$$

$$d_{21}\left(d_{11}d_{11} + d_{12}d_{21} + d_{13}d_{31}\right) + d_{22}\left(d_{21}d_{11} + d_{22}d_{21} + d_{23}d_{31}\right) + d_{23}\left(d_{31}d_{11} + d_{32}d_{21} + d_{33}d_{31}\right) =$$

$$= d_{21}d_{11}d_{11} + d_{21}d_{12}d_{21} + d_{21}d_{13}d_{31} + d_{22}d_{21}d_{11} + d_{22}d_{23}d_{31} + d_{23}d_{31}d_{11} + d_{23}d_{32}d_{21} + d_{23}d_{33}d_{31}$$

Problém: Jak ze součinu matic vyčíst cykly