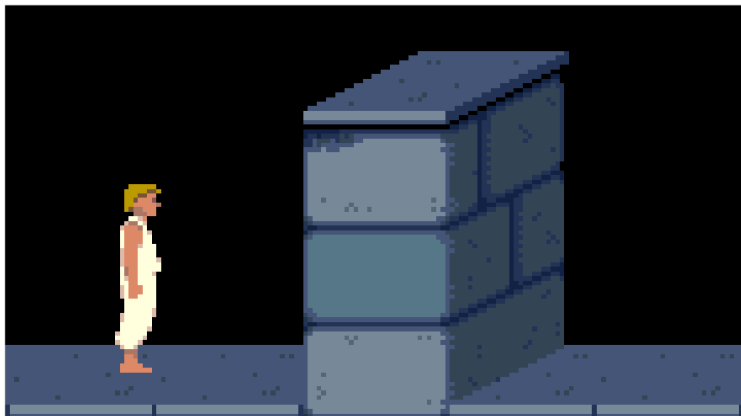


# Ťažké hry II.

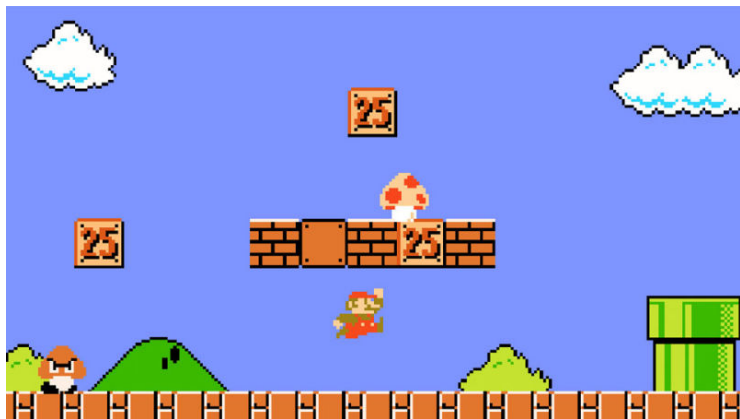
kuko

11.3.2021

Pokročilá teória zložitosti









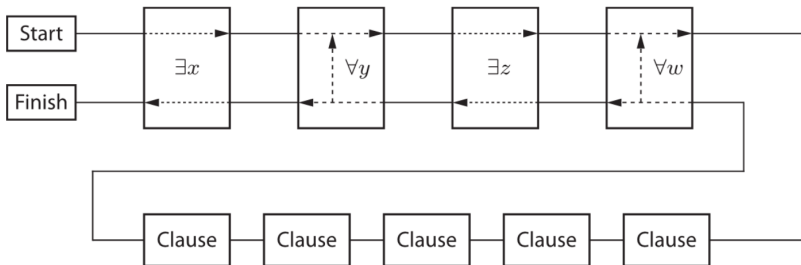
## Metaveta

*Ľubovoľná plošinovka, kde sú*

- *dvere a „nášľapné plošiny“*

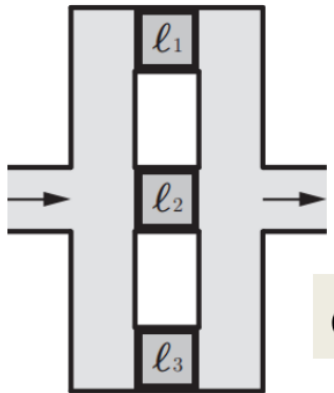
*je PSPACE-ťažká.*

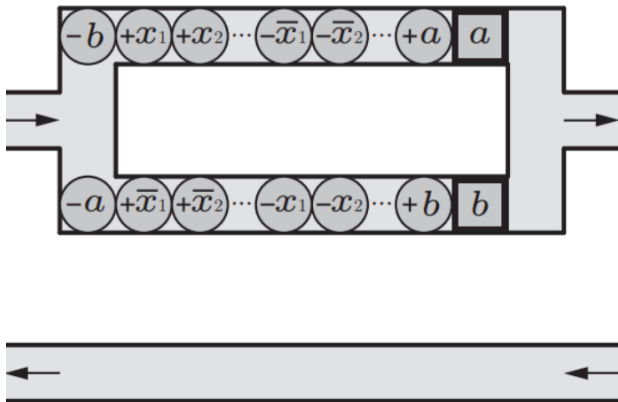
*Dokonca už len zistiť, či sa dá dôjsť do cieľa je PSPACE-ťažké.*

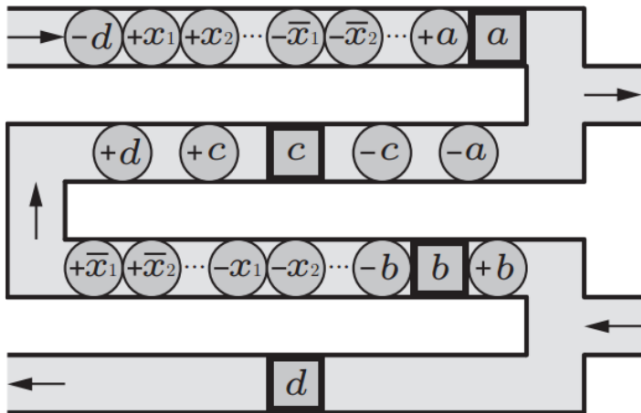


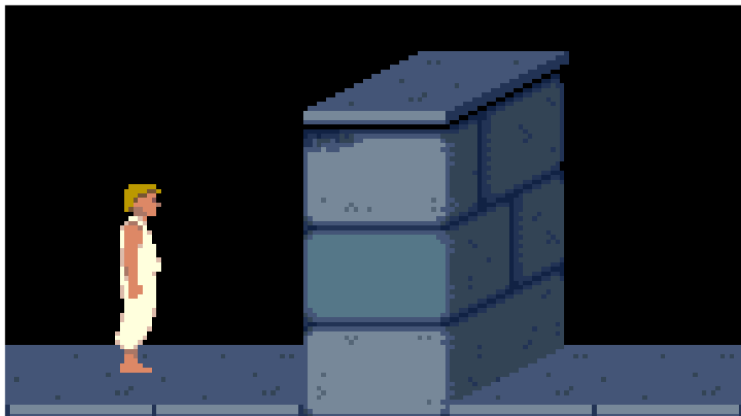


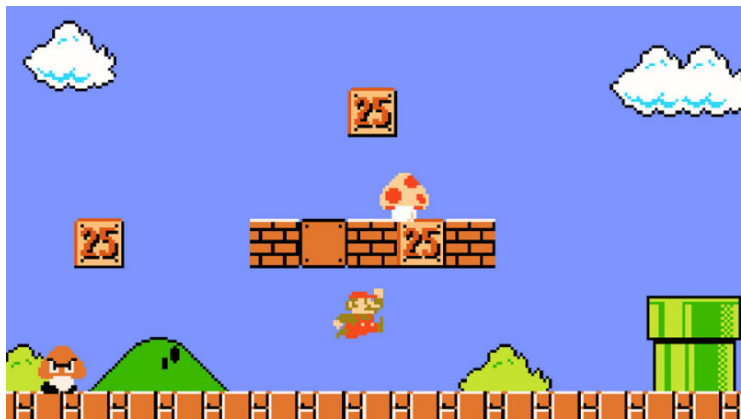


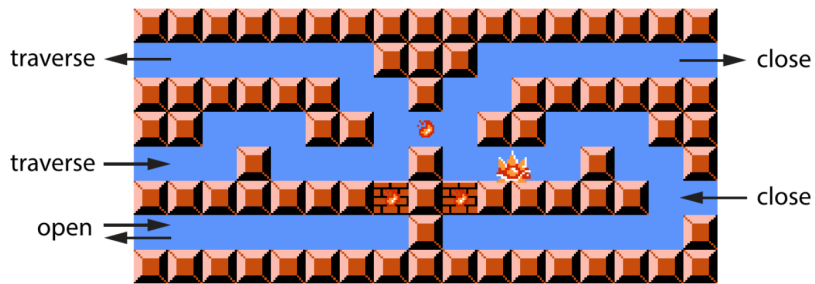


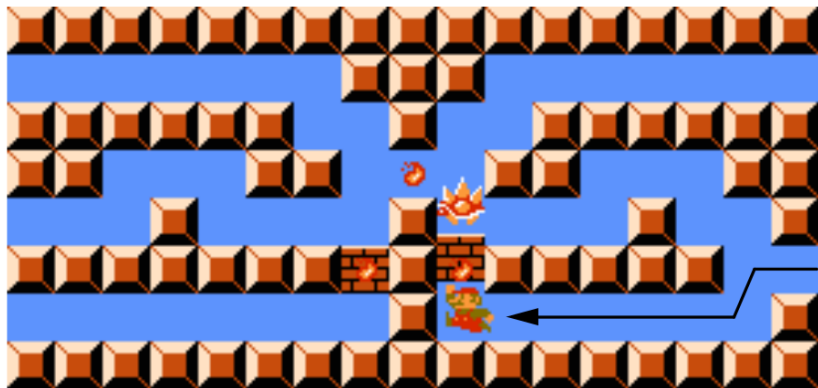


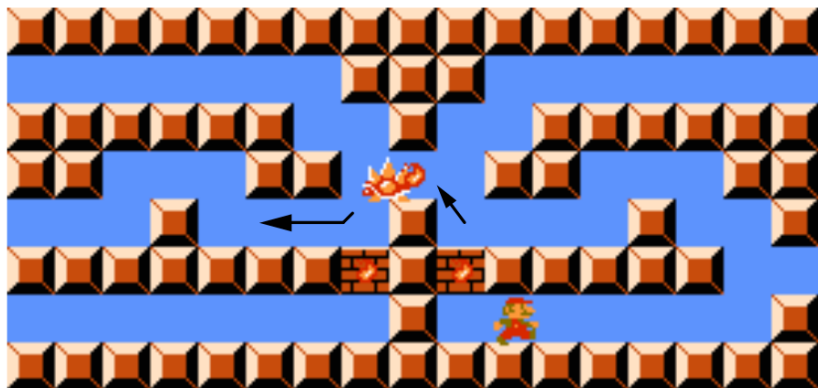




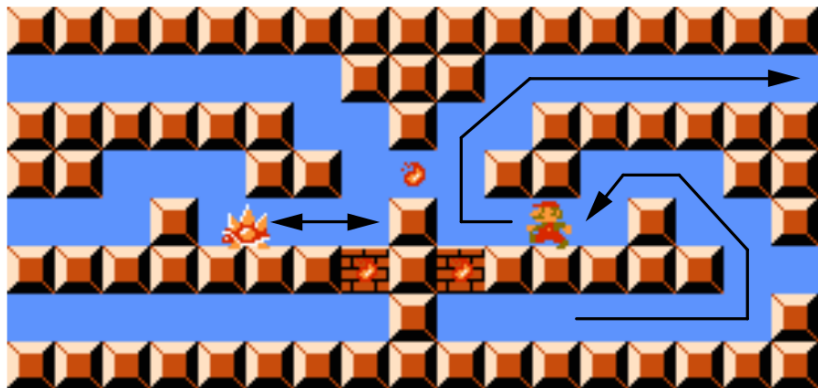












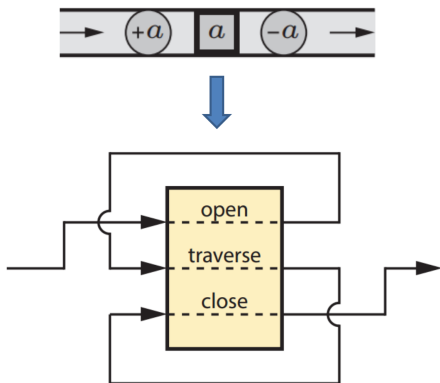
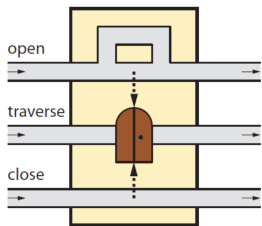
## Metaveta

*Ľubovoľná plošinovka, kde sú*

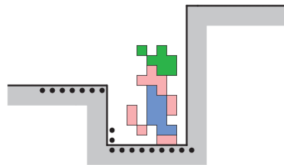
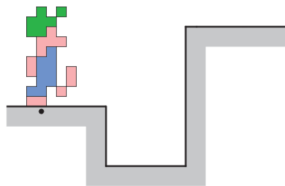
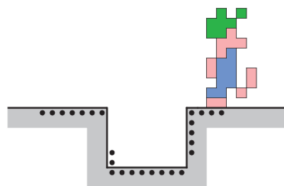
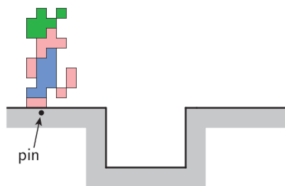
- *dvere*
- *cesty, kde môžeme otvoriť dvere*
- *cesty, kde musíme zavrieť dvere*
- *kríženie ciest*

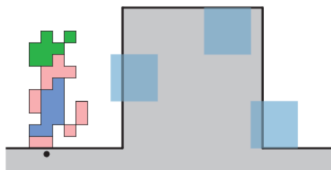
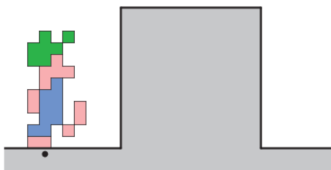
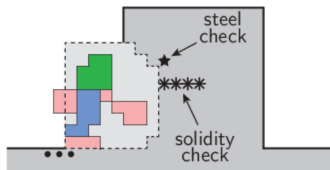
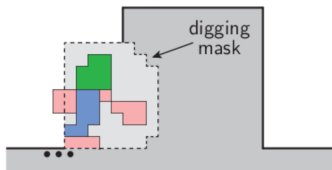
*je PSPACE-ťažká.*

*Dokonca už len zistiť, či sa dá dôjsť do cieľa je PSPACE-ťažké.*



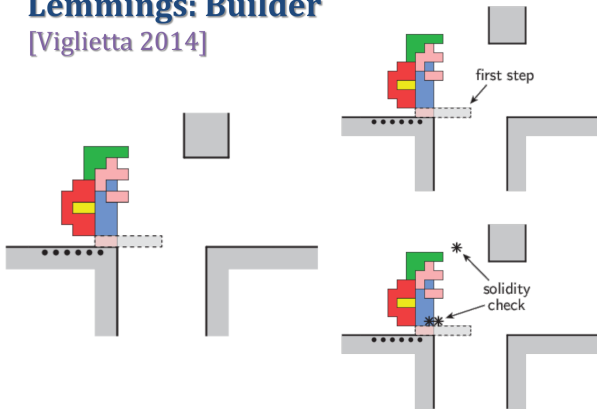


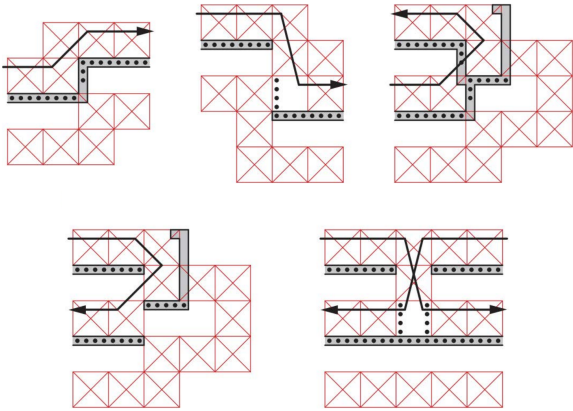




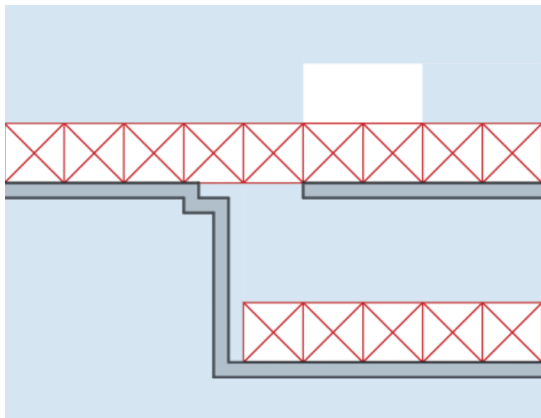
# Lemmings: Builder

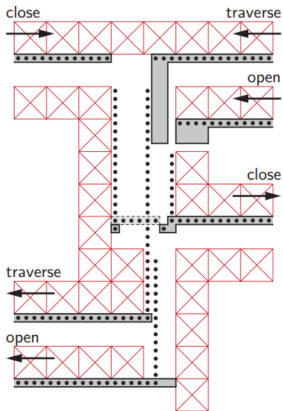
[Viglietta 2014]







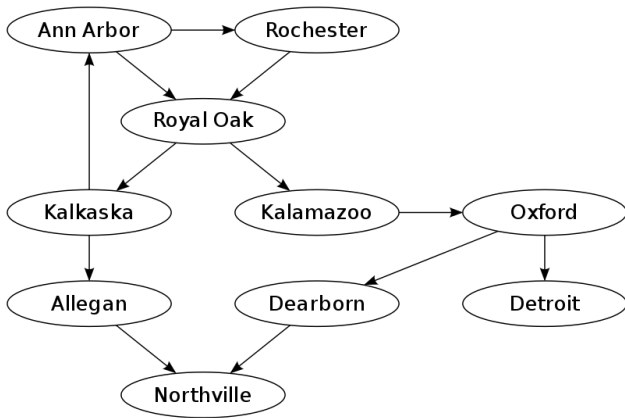


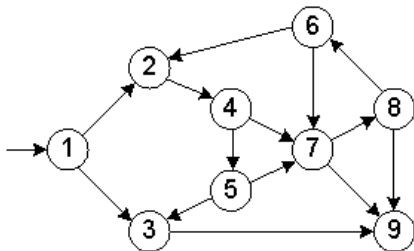


## Hry 2 hráčů

QBF:

$$\exists x_1 \forall y_1 \exists x_2 \forall y_2 \cdots \exists x_n : \phi$$



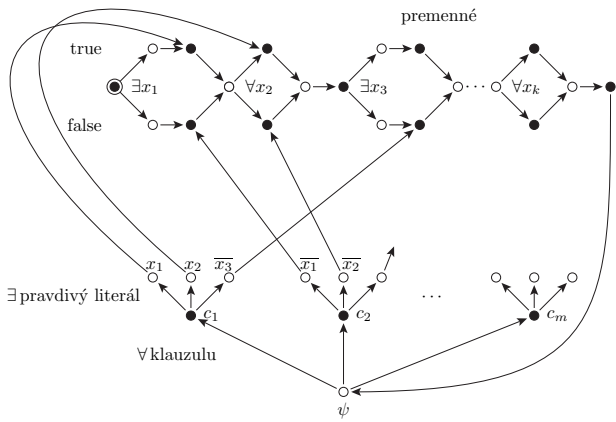


## Veta

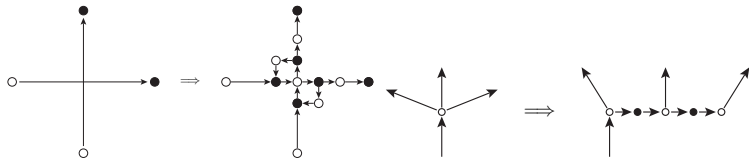
*Geografia je PSPACE-úplná.*

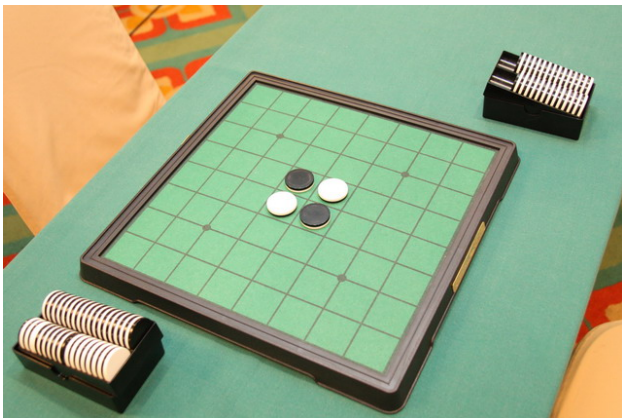
■ **Dôkaz.** Redukcia QBF  $\rightarrow$  GEOGRAFIA.

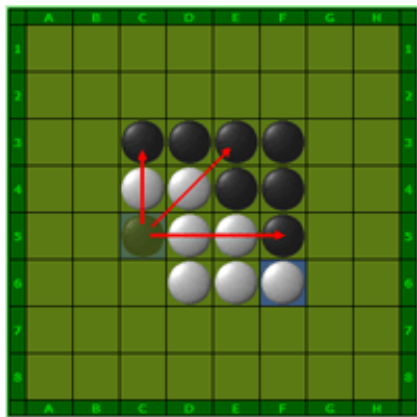


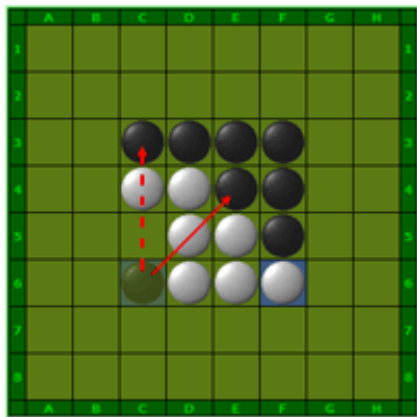


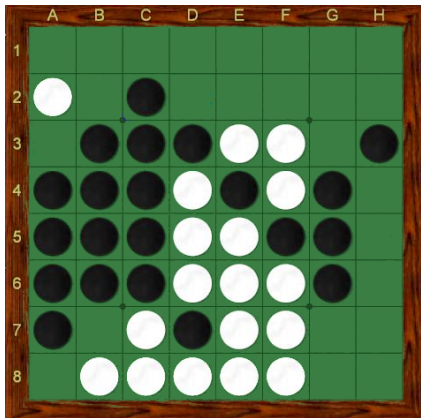












## Veta

*Hra reversi je PSPACE-úplná.*

■ **Dôkaz.** Redukcia GEOGRAFIA  $\rightarrow$  REVERSI.



