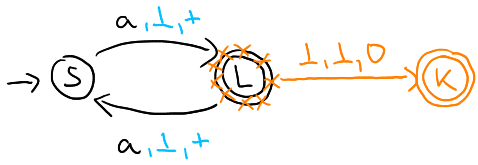


(TS)  $(Q, \Sigma, G, \delta, q_0, B, F)$

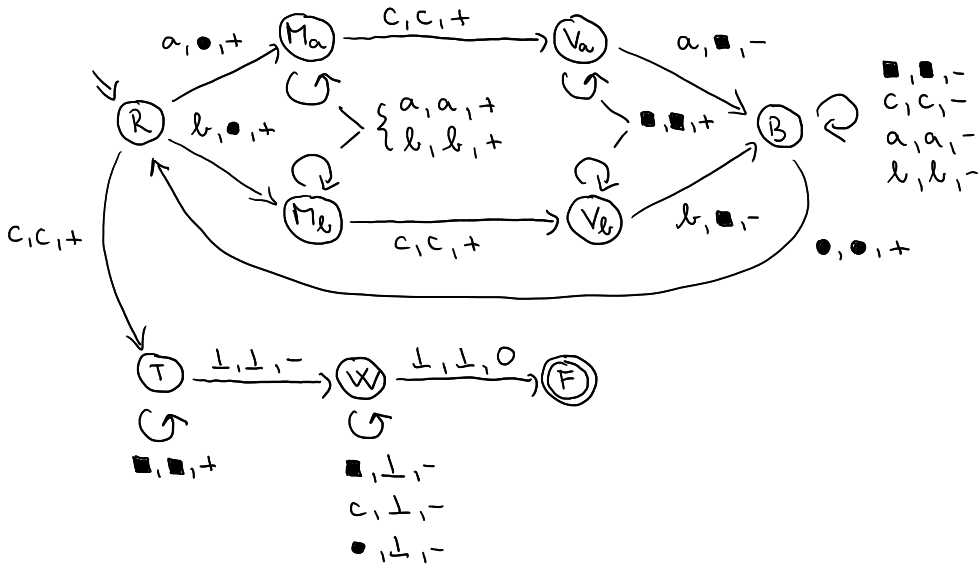
$$\hookrightarrow \delta: (Q, F) \times G \rightarrow \mathcal{P}(Q \times G \times \{-, 0, +\})$$

(1)  $a^i : i = 2k+1$



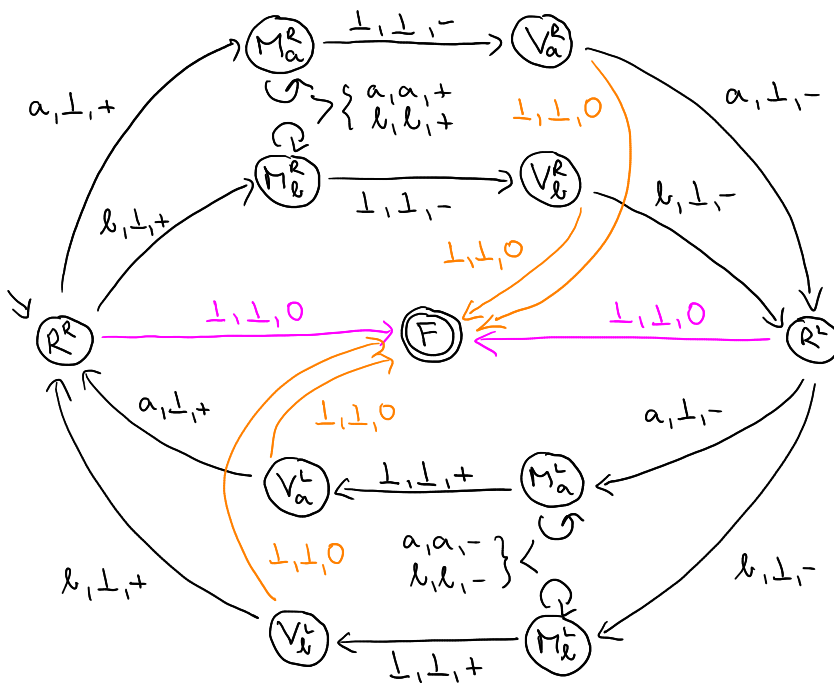
(2)  $ncn$

$\dots \perp \bullet \bullet b a c \blacksquare \blacksquare b a \perp \dots$   
 $\uparrow$



(3)

$\dots \perp \perp a b a \perp \perp \dots$   
 $\uparrow$



P

NP

POLYNOMIÁLNÍ REDUKCE

$L_1, \Sigma_1$      $L_2, \Sigma_2$

$L_1 \rightsquigarrow L_2$

$x \in \Sigma_1^* \xrightarrow{f} f(x) \in \Sigma_2^*$

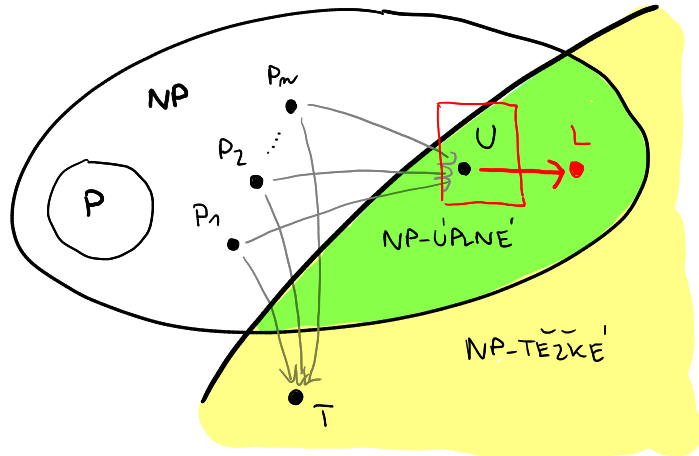
$x \in L_1 \Leftrightarrow f(x) \in L_2$

$L_1 \propto L_2$

NP-TĚŽKÝ

NP-ÚPLNÝ

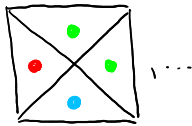
NP-TĚŽKÝ  
ENP



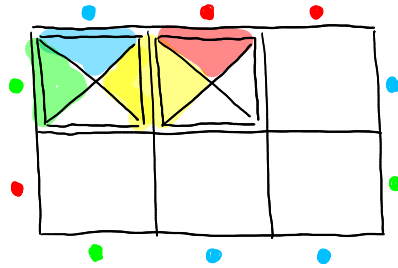
KACHL

B  $\bullet \dots \bullet$

K



S



KACHL JE NP-ÚPLNÝ

a) NP-TĚŽKÝ ...  
b) ENP ✓

R ∈ NP

$M = (Q, \Sigma, \delta, q_0, \perp, F)$  NTS

$x \in \Sigma^* \quad n(|x|)$

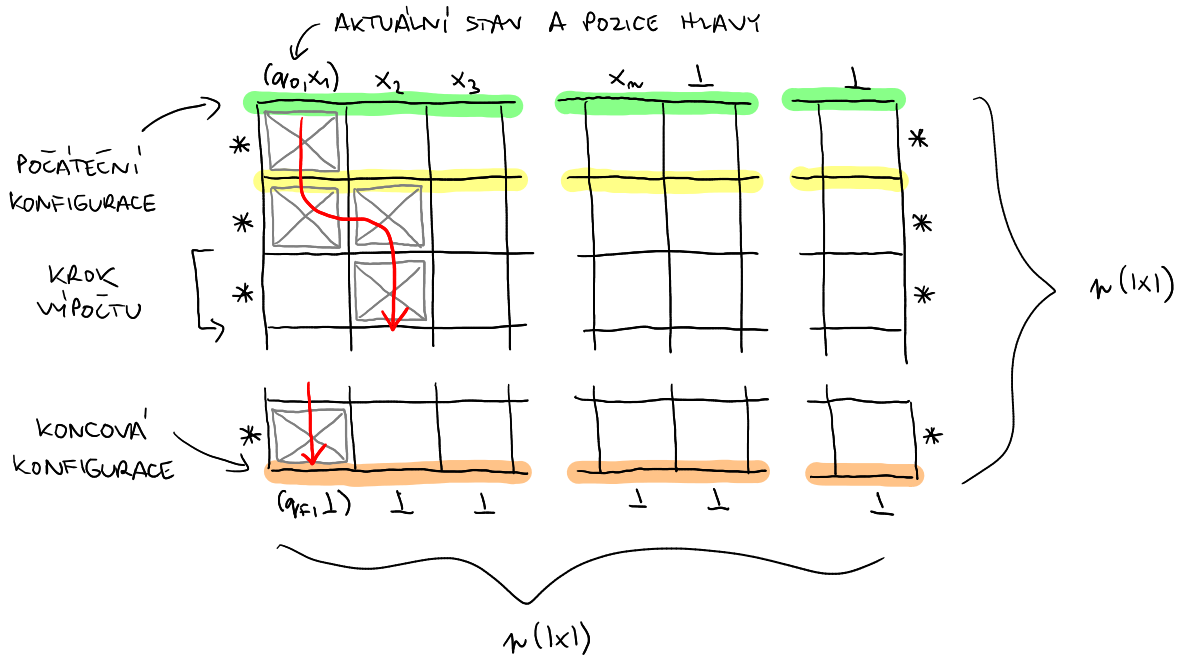
PŘEDPOKLADY

1 KONCOVÝ STAV  $q_f$   
JEDNOSMĚRNĚ MEXKOMEČNÁ PAŠKA  
HLAVA KONČÍ NA POČÍTEČNÍ POZICI

$R \stackrel{?}{\propto} \text{KACHL}$

$x = x_1 x_2 \dots x_m \in \Sigma^* \rightsquigarrow (B, K, S)$

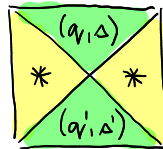
# SIT



## KACHLÍKY

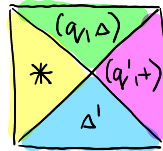
### PŘECHODY NA MÍSTĚ

$$\forall q \in Q \quad \forall \Delta \in G \quad \forall (q', \Delta', 0) \in \delta(q, \Delta)$$

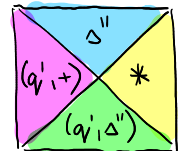


### PŘECHODY V PRAVO

$$\forall q \in Q \quad \forall \Delta \in G \quad \forall (q', \Delta', +) \in \delta(q, \Delta)$$

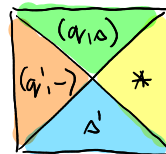


$$\forall q' \in Q \quad \forall \Delta'' \in G$$

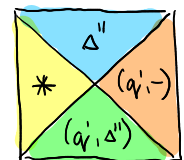


### PŘECHODY VLEVO

$$\forall q \in Q \quad \forall \Delta \in G \quad \forall (q', \Delta', -) \in \delta(q, \Delta)$$

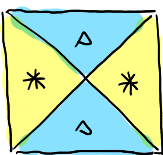


$$\forall q' \in Q \quad \forall \Delta'' \in G$$

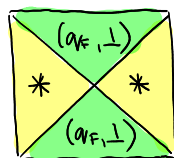


### PŘEPISOVACÍ

$$\forall \Delta \in G$$



### UKONČOVACÍ



## BARVY

- \Delta  $\forall \Delta \in G$
- (q, \Delta)  $\forall q \in Q \quad \forall \Delta \in G$
- \*
- (q, +)  $\forall q \in Q$
- (q, -)  $\forall q \in Q$