

Grammatical

- $G = (N, \Sigma, P, S)$

$N \cap \Sigma = \emptyset$

$\forall \alpha, \beta \in (N \cup \Sigma)^*$

$$\begin{aligned} \alpha \xrightarrow[G]{} \beta &\Leftrightarrow \exists \gamma, \delta \in (N \cup \Sigma)^*: \\ \alpha &= \gamma \alpha' \gamma' \quad \beta = \delta \beta' \delta' \\ (\alpha \xrightarrow[G]{} \beta) \in P &\Leftrightarrow \end{aligned}$$

$$L(G) = \{ w \in \Sigma^* \mid S \xrightarrow[G]{} w \}$$

- Chomsky's linearistic generalization

typ 3:

$$A \rightarrow wB \mid w \quad \text{wde } A, B \in N, w \in \Sigma^*$$

$$\begin{aligned} (\text{more reg. gr.}) \quad A &\rightarrow aB \quad (a \text{ prp. } S \rightarrow \epsilon) \\ (\text{less reg. gr.}) \quad A &\rightarrow Ba \quad (B \text{ prp. } S \rightarrow \epsilon) \end{aligned}$$

$$A \rightarrow \alpha \quad \alpha \in N, \alpha \in (N \cup \Sigma)^*$$

$$\alpha A \beta \rightarrow \alpha \xrightarrow[G]{} \beta \quad (\text{wde } \alpha, \beta \in (N \cup \Sigma)^*, \gamma \in (N \cup \Sigma)^*)$$

typ 1:

$$(\text{prp. } S \rightarrow \Sigma \text{ wde})$$

$$\begin{aligned} \text{allow. def. } \alpha &\rightarrow \beta \quad \alpha, \beta \in (N \cup \Sigma)^*, \text{ wde } |\alpha| \leq |\beta| \\ (\text{prp. } S \rightarrow \Sigma \text{ wde...}) & \end{aligned}$$

$$P \subseteq (N \cup \Sigma)^* N (N \cup \Sigma)^* \times (N \cup \Sigma)^*$$

$$\subseteq (N \cup \Sigma)^* \times (N \cup \Sigma)^*$$

typ 0:

- mohou existovať derivácie, kde je vedený z reťaze:

Napr. $G \rightarrow G \circ \text{prividly}$

$$\begin{array}{l} S \rightarrow A(B \\ A \rightarrow aA \cup a \\ B \rightarrow bB \end{array}$$

nezávisí odreduč. $S \Rightarrow B \Rightarrow bB \# bB \# bbbB \Rightarrow bbbB \dots$
To nazívame "je sy G ponadmožno definíciu".

$$L(G) = \{a^n \mid n \geq 1\}$$

- grammatica sa k "muze" a "probly" ťaží. Napr.
gr. G' s pravidlami $S \rightarrow A(B \cup B \rightarrow bB)$: $L(G') = \emptyset$

- Väčšia časť generátora následujúca gramatiky (zapisťe
množinu) ? Akéto typu je hľadávaná gramatika a
čo je ďalšie?

a) G_1 s prividielmi $S \rightarrow 181 \mid 050 \mid \epsilon$

$$L(G_1) = \{WW^R \mid W \in \{0,1\}^*\}$$

- typ grammik: 2

typ fingera: 2

k)

G_2

s pravidly

$S \rightarrow aSb | z$

$\Rightarrow aSb \Rightarrow$

$\Rightarrow aazbb \Rightarrow$

$\Rightarrow aaazbb \Rightarrow$

$\Rightarrow aaaabb \Rightarrow$

$- L(G_2) = \{ a^m b^n \mid m, n \geq 0 \} = a^* b^*$

$S \Rightarrow aSb \Rightarrow$

$\Rightarrow aazbb \Rightarrow$

$\Rightarrow aaazbb \Rightarrow$

$\Rightarrow aaaabb \Rightarrow$

- typ grammik: 2

typ fingera: 3

be minimal

s pravidly

$S \rightarrow aSb$

$B \rightarrow bB$

$\Rightarrow aSb \Rightarrow$

$\Rightarrow aazbb \Rightarrow$

$\Rightarrow aaazbb \Rightarrow$

$\Rightarrow aaaabb \Rightarrow$

- Zweistrukturige Red. grammikal. Sätze generative sintaktische

Mulvocny nad pravnenym - (ij) konsantem, 0,1 / operacnym + (* s obvyklou pravidlou a zadadem).

$G = (\{ E, T, F \}, \{ (j)^k, 0, 1, +, \cdot, C \}, P, E)$

$$P: E \rightarrow T+E+T$$

$$T \rightarrow F + T + F$$

$$T \rightarrow (E) | i | j | k | 0 | 1$$

- Sestroyte granulku tappa 3 flora generasi referne mod alcedon i 0,13 folere (zalagut subi) preet 0 i 1 -

$$- P: S \rightarrow E | 0A | 1B$$

$$A \rightarrow 0S | 1C$$

$$B \rightarrow 0C | 1S$$

$$C \rightarrow 0B | 1A$$

$$G = (\{S, A, B, C\}, \{0, 1\}, P, S)$$

- Sesprejde granulku, flora generasi jangk E $a^m b^m c^m$ | $m \geq 1$

$$P: S \rightarrow aSBC | abc$$

$$\begin{aligned} S &\Rightarrow aSBC \Rightarrow & S &\Rightarrow \dots \\ \Rightarrow aaSBCBC \Rightarrow & & \text{etc} \\ \Rightarrow aaaaBCBCBC \Rightarrow & & \Rightarrow \dots \\ \Rightarrow aaaabbCCBC \Rightarrow & & a^m b^m c^m \\ \Rightarrow aaaabbCCBC \Rightarrow & & \\ \Rightarrow aaaabbcc \Rightarrow & & \\ \Rightarrow aaaabbcc \Rightarrow & & \end{aligned}$$

$$\begin{aligned} CB &\rightarrow BC \\ BB &\rightarrow bb \\ BC &\rightarrow bc \\ CC &\rightarrow cc \end{aligned}$$

~~B~~
~~C~~

$$G = \{S, B, C\}, \{abc\} (P, S)$$

- Selbstreduktionsschritt ('dobra' generiert 'jiggi')

$$\{a^3b^n \mid n \geq 1\}$$

$$P: \quad S \rightarrow AS \mid AxX$$

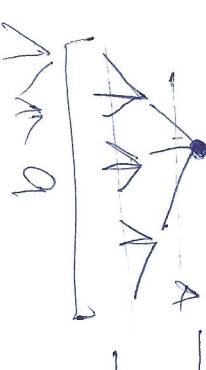
$$S \Rightarrow AS \Rightarrow$$

$$\Rightarrow AAS \Rightarrow$$

$$Aa \rightarrow aaaA$$

$$AX \rightarrow Xb \mid b$$

$$\Rightarrow AXaaAX \Rightarrow$$



$$G = \{S, AS, \{abc\}, P, S\}$$

$$\Rightarrow AaaAaaAX \Rightarrow$$

$$\Rightarrow$$

$$\Rightarrow Aaa aa Aaxb \Rightarrow$$

$$\Rightarrow aaa Aaaaa Aaxb \Rightarrow \dots$$

$$\dots \Rightarrow a^{27}b^3$$

Konkurrenz auf Formeln

$$- VA M = (Q, \Sigma, \delta, \delta_0, F)$$

$$q_0 \in Q, F \subseteq Q$$

$$\mathcal{T}: Q \times \Sigma \rightarrow 2^Q$$

$$\left\{ \begin{array}{l} \text{Def: } \forall q \in Q \forall a \in \Sigma: |\mathcal{T}(q, a)| \leq 1 \\ \mathcal{T}: Q \times \Sigma \rightarrow Q \end{array} \right.$$

$$\mathcal{T}: Q \times \Sigma \rightarrow Q$$

$$M \subseteq (Q \times \mathbb{Z}^*) \times (Q \times \mathbb{Z})$$

$$\forall q_1, q_2 \in Q \quad \forall w_1, w_2 \in \mathbb{Z}^*: \quad (q_1, w_1) \xrightarrow{M} (q_2, w_2) \Leftrightarrow$$

$$\exists a \in \mathbb{Z}: \quad \begin{array}{c} \text{---} \\ q_2 \in \delta(q_1, a) \wedge \\ q_F \in F \end{array}$$

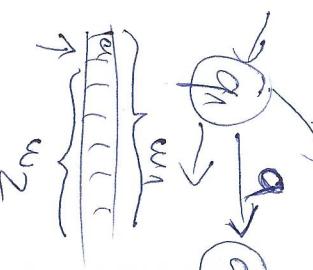
$$w_1 = a \cdot w_2$$

preceding
step
concurrent
step

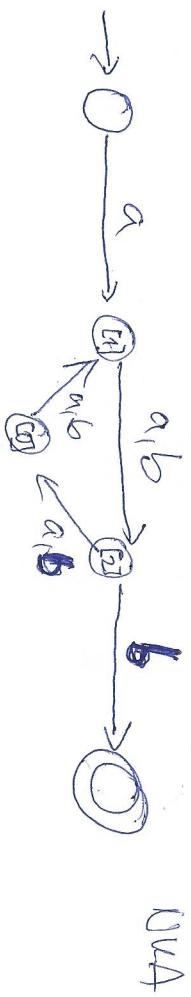
- popis uchodu - przejedź diagram - ukończmy koncową stan.



i z do sufor ukończmy koncową stan
a przejedź stan!



- Seslonek KA i Slony' minima' jazdy Sawlo esab, bęg* | |aub| = 3L
 $\begin{cases} k=0 \\ \dots \\ L \end{cases}$



NEBO

$$\rightarrow \circ \xrightarrow{a} [E_1] \xrightarrow{a,b} [E_2] \xrightarrow{b} \circ$$

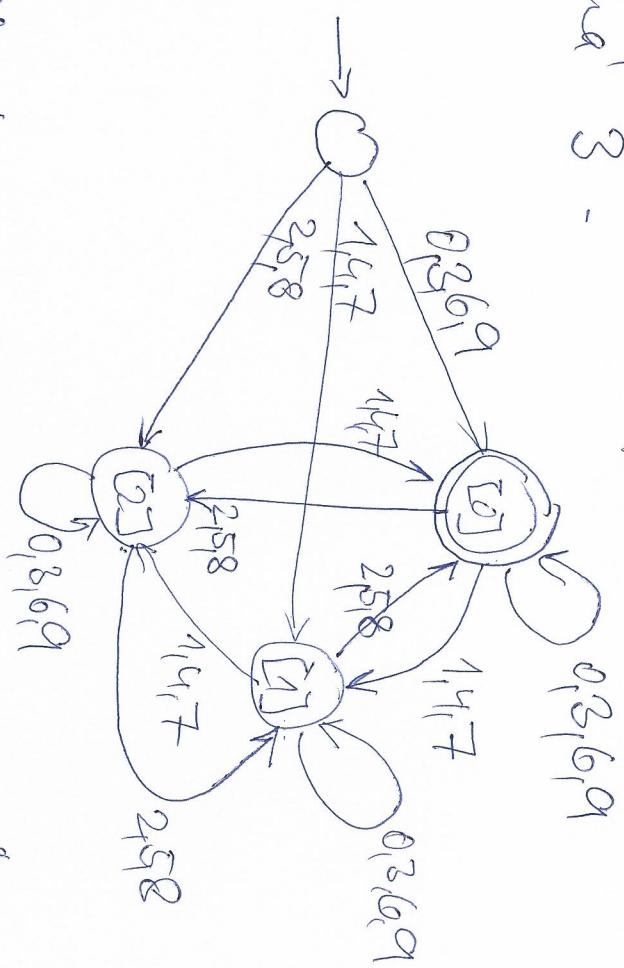
$$a,b$$

$$[E_1]$$

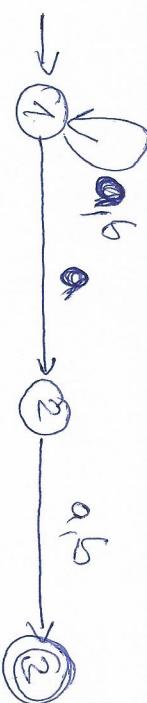
$$[E_2]$$

$$a,b$$

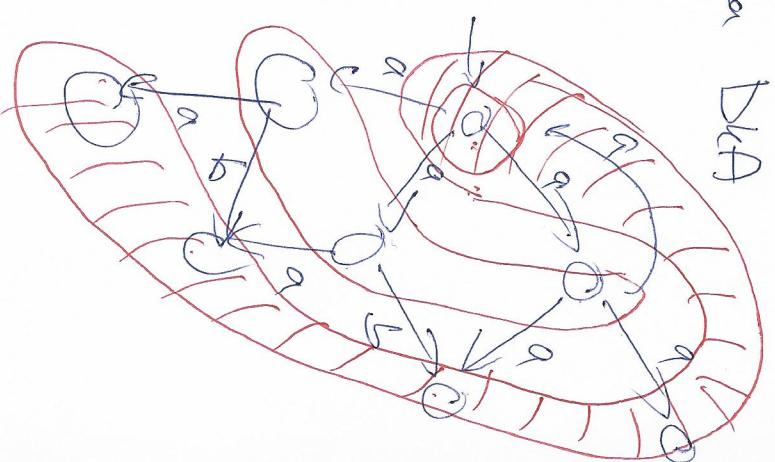
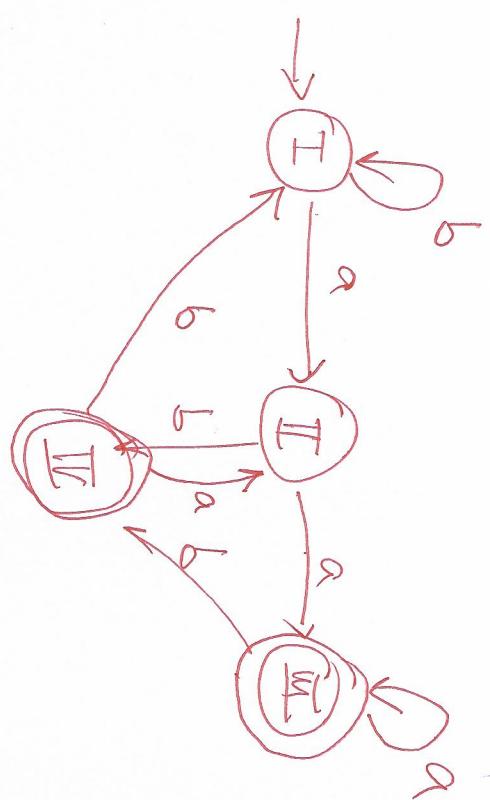
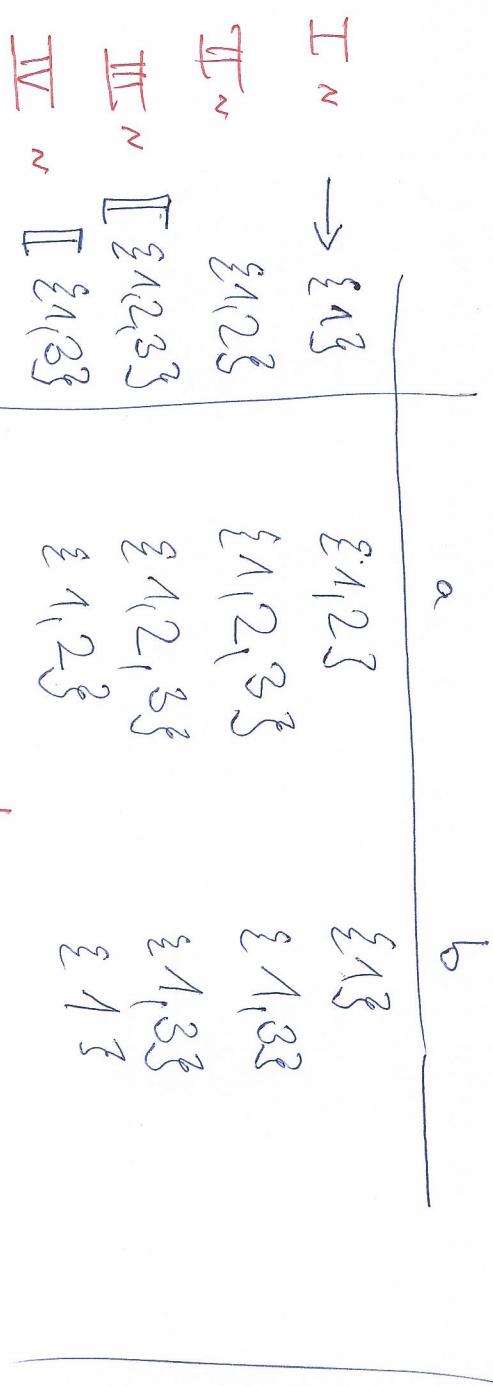
- Sestroyte FA nad $\Sigma = \{0, 1, 2, \dots, 9\}$ (tj. Σ^* má jen 10 symbolů).
Na výsledek měchna pravou částí (větší - už a
právě možnosti libovolného počtu násobků nuly) a
pozdeji dle zadání 3 -



- Sestrojte FA, který přijme jen ty řetězy $L = \{a, b\}^* \{a\} \{a, b\}^* \{a, b\}^*$
 $((a+b)^*)^* a ((a+b)^*)^*$



- Algoritmisch v̄rendelse n̄jst medel' NFA na DFA



- konstrukcje redukowanej ho DFA (minimalizace DFA)

- middeldelidane n̄jstho DFA

- velue le-mossaki Shostka nad

of Queso
cheesey

$$\exists c \in Q \times Q : f_{q_1 q_2 c Q} \cdot q_n \equiv_c q_2$$

def

$\exists x \in \mathbb{Z}^+ \exists y \in \mathbb{Q}^+ \exists z \in \mathbb{Z}^+$

WILSON

$$(q_1, w) \not\models (q_3, E) \wedge (q_2, w) \not\models (q_4, E) \wedge (q_3 \in F \wedge q_4 \notin F) \vee (q_3 \notin F \wedge q_4 \in F)$$

1

A hand-drawn diagram on a white background. It features a large, irregular oval shape. Inside this main oval, there are several smaller, roughly circular shapes, each containing a spiral pattern. A single red line extends from the top left towards the center of the oval. In the upper right quadrant, there is a small cluster of blue squiggly lines and a blue arrow pointing towards one of the smaller circles.

A vertical column of abstract hand-drawn symbols. At the top is a circle with a small loop on its right side. Below it is a stylized letter 'G' or a similar shape. A wavy line descends from the middle of the page, ending in a small circle. At the bottom is a large, irregular oval containing a smaller, roughly circular shape.

→ Wiederholung: Wiederholung der reduzierten prolongative weise
Lislang' sucht mehr Aussicht, z.B. reduzierte J..

- vedení DNA je některým způsobem využíváno.

- Cg brdgs -
III
e
III

	α	β
A	I II	II (A) III (B)
B	III IV	IV (B) I (A)

\Rightarrow tutto reduttibile finiti \Rightarrow B

possibile relazione \equiv^1 o equivalenza

bito.

$\{I\}, \{II\}, \{III\}, \{IV\}$.

Se solo $\{I\}, \{II\}, \{III\}, \{IV\}$

v' esist' anche $\{V\}$ - solo reduttibili.

-

mag' massedg' di A:



algoritmico
permette di vedere' anche.

1.

Züphrine - wie können myokinese frechend.

2.

Uglandige $\equiv \text{r} \equiv$

\equiv

a

b

	2 (I)	3 (II)	5
I	2 (I)	5 (IV)	
	2 (I)	2 (II)	
II	2 (I)	3 (II)	

5 (III) 5 (IV)

3. Uglandige $\equiv \text{r} \equiv$

a

\equiv

b

	2 (II)	3 (II)
I	2 (II)	3 (II)
	2 (II)	3 (II)

II

4 (I)

5 (III)

III

5 (IV)

5 (IV)

Uglandige $\equiv \text{r} \equiv$

$\equiv \text{r} \equiv$

4. Uglandige w'stely' aulead!

missing uglandig
polud'reu'
priadovin'
n'plj' skA

