

A27.) KFGs über $\Sigma = \{A, \dots, Z\}$

a.) Palindrome ungerader Länge

$$G = (N, \Sigma, P, S_1) \text{ mit } N = \{S_1\}$$

$$S_1 \rightarrow A S_1 A \mid B S_1 B \mid \dots \mid Z S_1 Z \mid A \mid B \mid \dots \mid Z$$

b.) Palindrome ungerader Länge

$$G = (N, \Sigma, P, S_1) \text{ mit } N = \{S_1\}$$

$$S_1 \rightarrow A S_1 A \mid B S_1 B \mid \dots \mid Z S_1 Z \mid \epsilon$$

A28.)
a.) Markierungsalgorithmus

$$\underline{S} \rightarrow \underline{A} \underline{C} \mid \underline{D} \underline{A} \mid \underline{B} \underline{C}$$

$$\underline{A} \rightarrow \underline{A} \underline{b} \underline{C} \mid \underline{B} \underline{a} \underline{A} \mid \underline{A} \underline{a} \underline{D}$$

$$\underline{B} \rightarrow \underline{A} \mid \underline{b} \underline{a} \mid \underline{D} \underline{C}$$

$$\underline{C} \rightarrow \underline{a} \underline{D} \underline{b} \underline{A} \underline{a} \mid \underline{B} \underline{a} \underline{D}$$

$$\underline{D} \rightarrow \underline{a} \underline{B} \mid \underline{C} \underline{D}$$

$$\text{Wort: } w = b a b a a a b a \in L(G)$$

$$\underline{S} \vdash \underline{B} \underline{C} \vdash \cancel{b a C} \vdash b a \underline{B} \underline{a} \underline{D}$$

$$\vdash b a b a a \underline{D} \vdash b a b a a a \underline{B} \vdash b a b a a a b a$$

b.) $S \vdash T X a \vdash X b X a \vdash a b X a \vdash a b X Y a$
 Unk. Abl.: $\vdash a b c Y a \vdash a b c a a$

rech. Abl.:

$$S \vdash T X a \vdash T X Y a \vdash T X a a \vdash T c a a$$

$$\vdash \cancel{X} b c a a \vdash a b c a a$$

A29.)

$$S \mapsto (BA)^*$$

$$A \mapsto a(aa)^* B B^*$$

$$B \mapsto bc$$

zu G äqu. Gramm. G' in "üblicher" Form:

$$G': S \rightarrow \epsilon | BAS$$

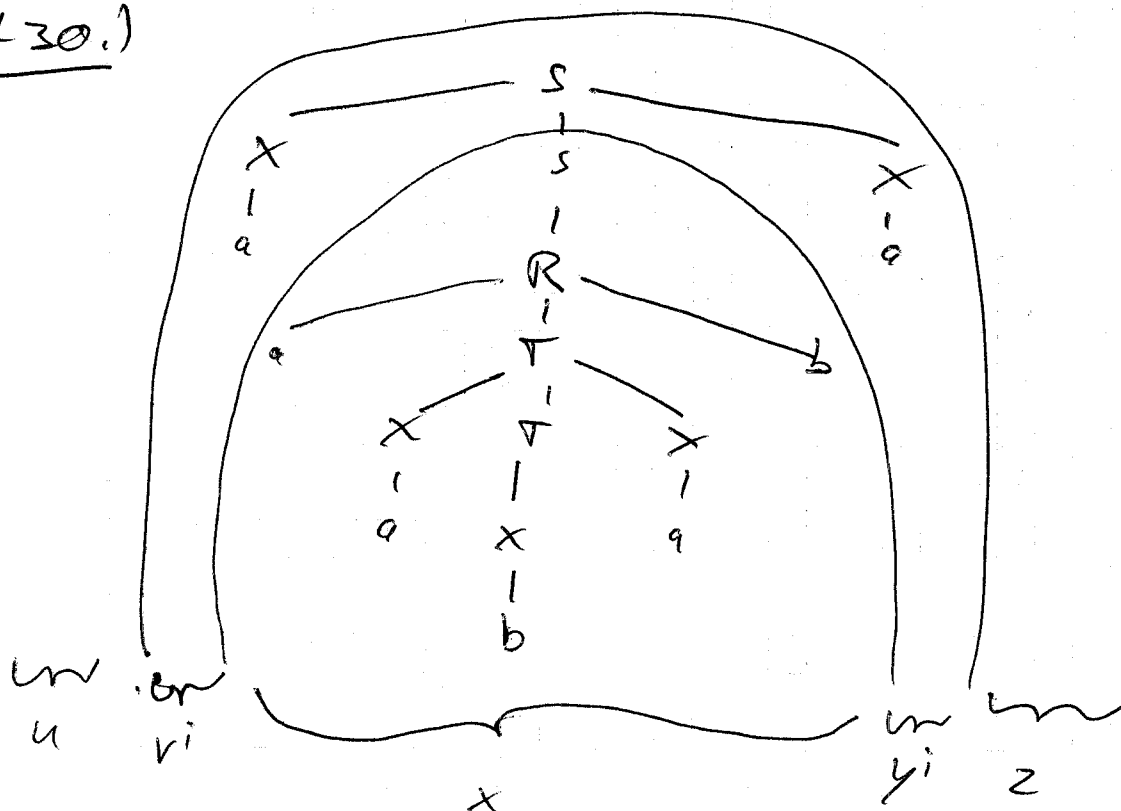
$$A \rightarrow aCD$$

$$B \rightarrow bc$$

$$C \rightarrow \epsilon | aac$$

$$D \rightarrow B | BD$$

A30.)



1. Zerlegung: $u \underbrace{v}_{x} \underbrace{a^i a^j b^k}_{y} z$

unendliche Familie:

$$a^i a^j b^k a^i \in L(G) \quad \forall i, j, k \geq 0$$