

Tutorium 8

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8.1

G mit:

$$\begin{array}{lll}
 S & \rightarrow & aBb \quad |bDbb \quad |\epsilon \\
 A & \rightarrow & AEF \quad |\epsilon \\
 B & \rightarrow & AA \quad |a \\
 C & \rightarrow & aFb \\
 D & \rightarrow & B \\
 E & \rightarrow & B \quad |D \quad |ab \quad |\epsilon \\
 F & \rightarrow & Fa \quad |FE
 \end{array}$$

CNF1

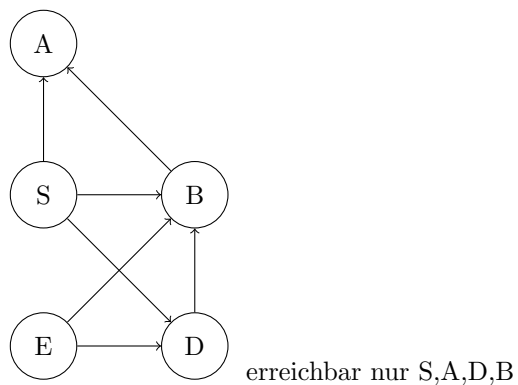
(i) Entfernen der Nicht erzeugenden Variablen

$$V_e = \{S, A, B, D, E\}$$

Daraus folgt G' :

$$\begin{array}{lll}
 S & \rightarrow & aBb \quad |bDbb \quad |\epsilon \\
 A & \rightarrow & \epsilon \\
 B & \rightarrow & AA \quad |a \\
 D & \rightarrow & B \\
 E & \rightarrow & B \quad |D \quad |ab \quad |\epsilon
 \end{array}$$

(ii) Erreichbarkeitsgraph



Daraus folgt G_1 :

$$\begin{array}{lll}
 S & \rightarrow & aBb \quad |bDbb \quad |\epsilon \\
 A & \rightarrow & \epsilon \\
 B & \rightarrow & AA \quad |a \\
 D & \rightarrow & B
 \end{array}$$

CNF2

$$\begin{array}{lll}
 S & \rightarrow & W_a Bb \quad |W_b D W_b W_b \quad |\epsilon \\
 A & \rightarrow & \epsilon \\
 B & \rightarrow & AA \quad |W_a \\
 D & \rightarrow & B
 \end{array}$$

CNF3

$$\begin{array}{llll}
S & \rightarrow & W_a B b & | W_b S_1 \quad | \epsilon \\
S_1 & \rightarrow & D S_2 & \\
S_2 & \rightarrow & W_b W_b & \\
A & \rightarrow & \epsilon & \\
B & \rightarrow & A A & | W_a \\
D & \rightarrow & B &
\end{array}$$

CNF4

$$V' = \{S, A, B, D\}$$

$$\begin{array}{llll}
S & \rightarrow & W_a B b & | W_b S_1 \\
S_1 & \rightarrow & D S_2 & \\
S_2 & \rightarrow & W_b W_b & \\
B & \rightarrow & W_a & \\
D & \rightarrow & B &
\end{array}$$

CNF5

$$U = \{(B, W_a), (D, B)\}$$

$$\begin{array}{llll}
S & \rightarrow & W_a B b & | W_b S_1 \\
S_1 & \rightarrow & D S_2 & \\
S_2 & \rightarrow & W_b W_b & \\
D & \rightarrow & W_a &
\end{array}$$

CNF6

$$\begin{array}{llll}
S' & \rightarrow & \epsilon & | S \\
S & \rightarrow & W_a B b & | W_b S_1 \\
S_1 & \rightarrow & D S_2 & \\
S_2 & \rightarrow & W_b W_b & \\
D & \rightarrow & W_a &
\end{array}$$

8.2**8.2.1****8.2.2****8.2.3****8.3****8.4**

G (mindestens ein b) mit:

$$\begin{array}{llll}
S & \rightarrow & T S & | b \\
T & \rightarrow & S T & | a
\end{array}$$

$G_{Greibach}$ mit:

$$\begin{array}{lcl} S & \rightarrow & aS \quad |bS' \quad |b \\ S' & \rightarrow & aS' \quad |bS' \quad |\epsilon \end{array}$$