HOCHSCHULE FURTWANGEN UNIVERSITY | HFU

Blatt 5

Automaten und formale Sprachen Praktikum

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1

$L(G) = \{ab, aba, abaa, abaaa, abaaaa, ...\}$

2

G	Zwischen	G'
$S \to aB$	$B \to Sa$	$B \to Sa$
$B \to bA$	$A \to Bb$	$A \to Bb$
$A \to aA$	$A \to Aa$	$A \to Aa$
$A \to \epsilon$	$X \to A$	
		$X \to Bb$
		$X \to Aa$
		$S \to \epsilon$

3

Als regulärer Ausdruck: $a * b+$
Dann ist $L(G) = \{b, ab, aab, aaab, bb, bbb, abb, abbb, aabb, ...\}$

4

Weil $S \to aa$ nur Terminale hat.
$P = \{S \to aB, B \to aC, C \to \epsilon, S \to Sab\}$

5

$P = \{S \to aA, S \to bA, A \to aB, A \to bB, B \to aC, B \to bC, C \to \epsilon, C \to aA, C \to bA\}$

6

6.1

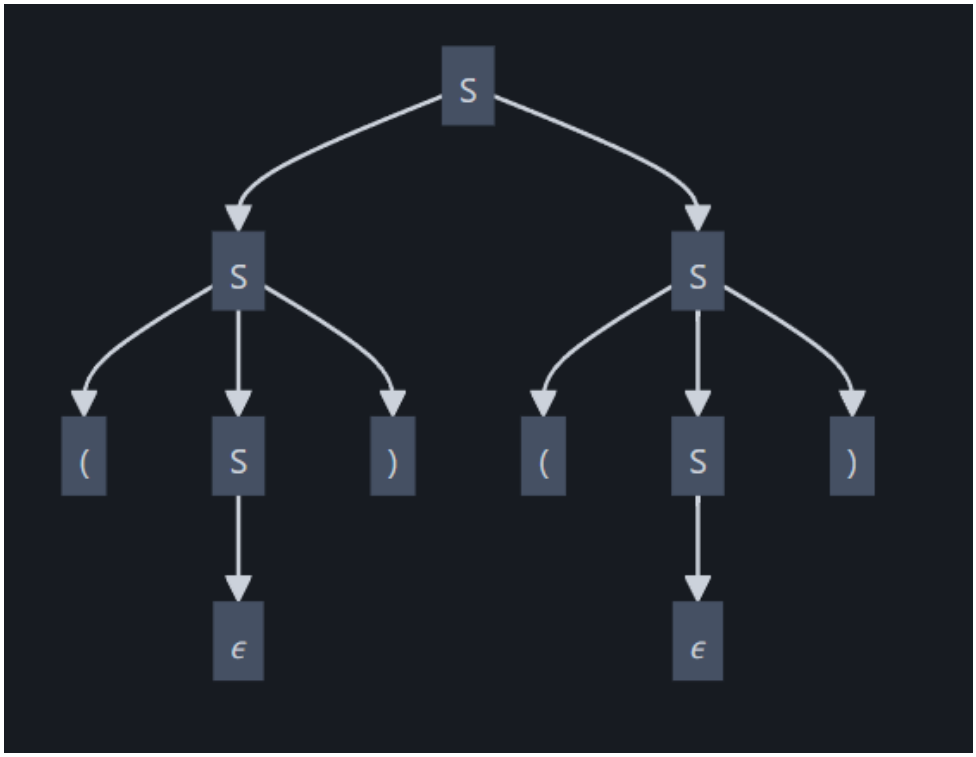
$P = \{S \to aA, A \to aB, A \to bB, B \to bB, B \to aC, C \to bB, C \to aC, C \to \epsilon\}$

6.2

$P = \{S \to aA, A \to bB, B \to aC, C \to aA, C \to \epsilon\}$

7

$P = \{S \to (S), S \to SS, S \to \epsilon\}$



8

$$
\begin{aligned}
P = \{ & \\
ex &::= (ex)|exopex|str|num, \\
op &::= +|-|*|/, \\
str &::= \{char\}, \\
num &::= 0|numA\{numB\}, \\
numA &::= 1|2|3|4|5|6|7|8|9, \\
numB &::= 0|numA, \\
char &::= a|b|c|d|e|f|g|h|i|j|k|l|m|n|o|p|q|r|s|t|u|v|w|x|y|z, \\
& \}
\end{aligned}
$$

9

9.1

- ba
- ab
- $baba$
- $abab$
- $abba$
- $baab$

9.2

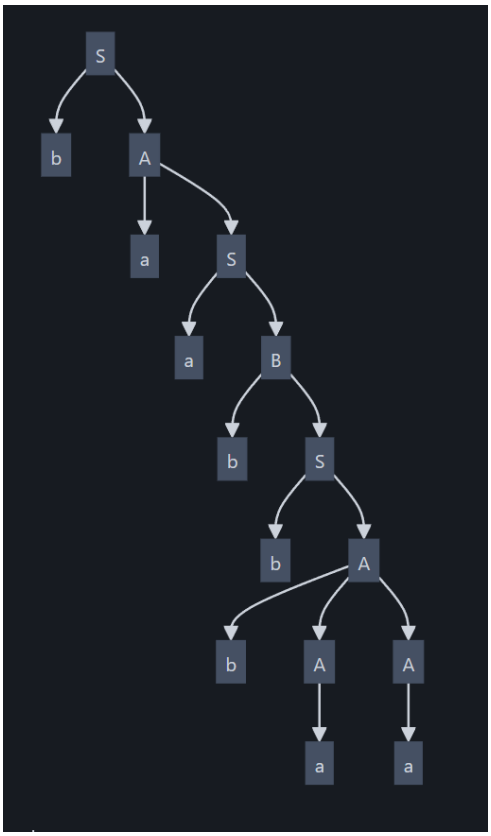


Abbildung 1: Automat baabbbaa

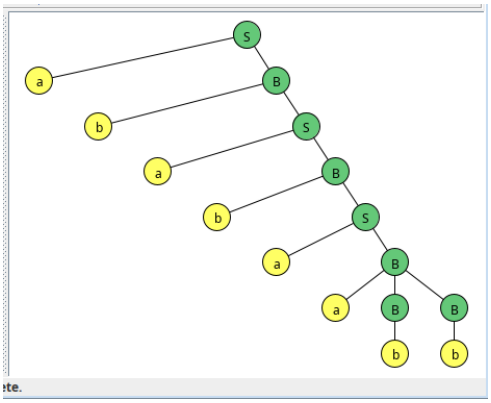


Abbildung 2: Automat ababaabb

9.3

$S \to bA$
$S \to aB$
$A \to a$
$A \to aS$
$A \to bAA$
$B \to b$
$B \to bS$
$B \to aBB$

S aB aaBB aabB aabaBB aababB aababb

S aB aaBB aaBb aabSb aabaBb aababb

9.4

Es erzeugt nur wörter mit gleich vielen a wie b.