

$G = (\{S, A, B, C\}, \{a, b\}, R, S)$ mit $R := \{S \rightarrow AB|BC, A \rightarrow BA|a, B \rightarrow CC|b, C \rightarrow AB|a\}$

$w = baaaa \in L(G) ?$

		b	a	a	a
		1	2	3	4
b	1	$\{B\}$			
a	2	$\{A, S\}$	$\{A, C\}$		
a	3	\emptyset	$\{B\}$	$\{A, C\}$	
a	4	$\{S, A, C\}$	$\{S, A, C\}$	$\{B\}$	$\{A, C\}$

$V_{11} = \{V \mid V \rightarrow b \in R\} = \{B\}$

$V_{22} = \{V \mid V \rightarrow a \in R\} = \{A, C\}$

$V_{33} = V_{44} = \{A, C\}$

$V_{12} = V_{11} * V_{22} = \{B\} * \{A, C\} = \{V \mid V \rightarrow BA \in R \text{ or } V \rightarrow BC \in R\} = \{A, S\}$

$V_{23} = V_{22} * V_{33} = \{A, C\} * \{A, C\} = \{V \mid V \rightarrow AA \in R \text{ or } V \rightarrow AC \in R \text{ or } V \rightarrow CA \in R \text{ or } V \rightarrow CC \in R\} = \{B\}$

$V_{34} = V_{33} * V_{44} = \{A, C\} * \{A, C\} = \{B\}$

$V_{13} = V_{11} * V_{23} \cup V_{12} * V_{33} = \{B\} * \{B\} \cup \{A, S\} * \{A, C\} =$

$= \{V \mid V \rightarrow BB \in R\} \cup \{V \mid V \rightarrow AA \in R \text{ or } V \rightarrow AC \in R \text{ or } V \rightarrow SA \in R \text{ or } V \rightarrow SC \in R\}$

$= \emptyset \cup \emptyset = \emptyset$

$V_{24} = V_{22} * V_{34} \cup V_{23} * V_{44} = \{A, C\} * \{B\} \cup \{B\} * \{A, C\} =$

$= \{V \mid V \rightarrow AB \in R \text{ or } V \rightarrow CB \in R\} \cup \{V \mid V \rightarrow BA \in R \text{ or } V \rightarrow BC \in R\}$

$= \{S, C\} \cup \{A, S\} = \{S, A, C\}$

$V_{14} = V_{11} * V_{24} \cup V_{12} * V_{34} \cup V_{13} * V_{44} = \{B\} * \{S, A, C\} \cup \{A, S\} * \{B\} \cup \emptyset * \{A, C\}$

$= \{V \mid V \rightarrow BS \in R \text{ or } V \rightarrow BA \in R \text{ or } V \rightarrow BC \in R\} \cup$

$\{V \mid V \rightarrow AB \in R \text{ or } V \rightarrow SB \in R\} \cup \emptyset$

$= \{A, S\} \cup \{S, C\} = \{S, A, C\}$

$S \in V_{14} \Rightarrow w = baaaa \in L(G)$