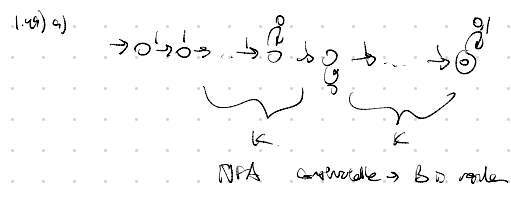


147) let $L = \Sigma^* = x_1 x_2 \dots x_k$ $k \geq 0$
 $x_i \in \Gamma^*$ an $x_i \neq x_j \forall i, j$
 $(\Gamma^*)^k$ is the reg. for this set of k
 $\bar{y} = \Sigma^* = x_1 x_2 \dots x_k$ $k \geq 0$ $x_i \in \Gamma^*$
 $x_i \neq x_j \forall i, j$
 $\bar{y} \wedge (\Gamma^*)^k = \Sigma^* \wedge (\Gamma^*)^k$ $\forall i, j \geq 1$

the log. of all reg. where $x_i \in \Sigma^*$ $i \geq 1$ $k \geq 0$
 where \bar{y} is log. of all reg. in form $(\Gamma^*)^k$
 all reg. of form $(\Gamma^*)^k$ are that is det. &
 after the \bar{y} is equal.
 \bar{y} is not reg. bc. union of 2 reg.
 log. is reg. reg. log. does not
 complement $\rightarrow \bar{y}$ is not reg.



9. $C = \{x_1, x_2, \dots, x_n\}$
 $x_i \in \Sigma^*$
 $x_i \neq x_j$

$\forall x_1, x_2, \dots, x_n$
 $x_i \neq x_j$
 $x_i \neq x_j \rightarrow \exists i, j \in \{1, 2, \dots, n\}$
 $x_i \neq x_j$

this x_1, x_2, \dots, x_n are not reg. k is in
 second \bar{y} of reg. pushing down first
 \bar{y} is reg. $\bar{y} \in \Sigma^*$ & the \bar{y} is not reg.
 $\bar{y} \in \Sigma^*$ \rightarrow not reg.

153) $ADD = \{x_1 x_2 \dots x_n \mid x_i \in \Sigma^*, x_i \neq x_j\}$
 $\bar{y} = \Sigma^*$
 $\bar{y} \in \Sigma^*$

$\bar{y} \in \Sigma^*$ $\bar{y} \neq \bar{y}$ so \bar{y} is not reg.
 are less 1 2 from on \bar{y} the addition of \bar{y} over
 w/ $\bar{y} \in \Sigma^*$ and $\bar{y} \in \Sigma^*$
 so ADD is not reg.