

Correction

Exercice 1

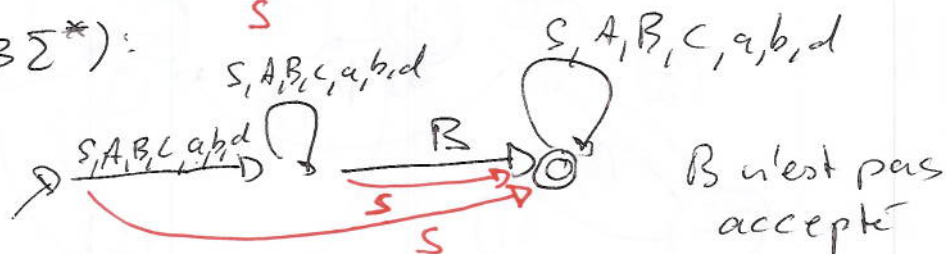
— Le langage est infini ssi il existe un $X \in V$
 avec $X \in \text{pre}^*(\Sigma^* X \Sigma^+)$
 ou $X \in \text{pre}^*(\Sigma^+ X \Sigma^*)$

— On calcule $\text{pre}^*(\Sigma^* S \Sigma^+) = \Sigma^* S \Sigma^+ \neq S$
 $\text{pre}^*(\Sigma^+ S \Sigma^*) = \Sigma^+ S \Sigma^* \neq S$

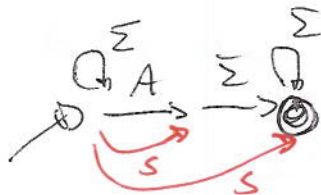
$\text{pre}^*(\Sigma^* B \Sigma^+)$:



$\text{pre}^*(\Sigma^+ B \Sigma^*)$:

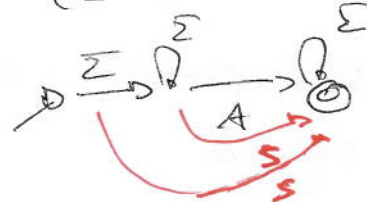


si $\text{pre}^*(\Sigma^* A \Sigma^+)$:



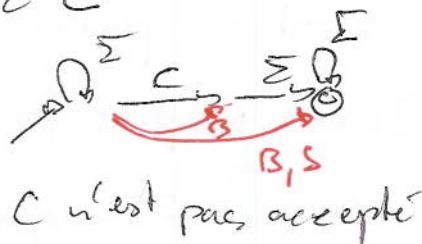
A n'est pas accepte

$\text{pre}^*(\Sigma^+ A \Sigma^*)$:



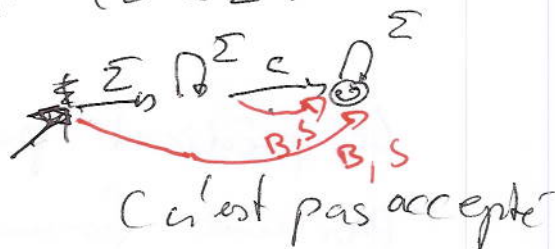
A n'est pas accepte

$\text{pre}^*(\Sigma^* C \Sigma^+)$:



C n'est pas accepte

$\text{pre}^*(\Sigma^+ C \Sigma^*)$:



C n'est pas accepte

Donc, $L(a)$ n'est pas infini