Feb 12

- Design context-free grammar for the following languages

- $\Sigma = \{a, b\}$

Ex1. $A = \{w \mid$ the length of w is even$\}$

Ex2. $B = \{w \mid w$ starts and ends with the same symbol$\}$.

Ex3. $C = \{w \mid w$ contains twice as many a's as b's$\}$

a···a···b, a···b···a, b···a···a

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Ex1. $A = \{w \mid$ the length of w is even$\}$

$S \to aSa \mid aSb \mid bSb \mid bSa \mid \varepsilon$

Ex2. $B = \{w \mid w$ starts and ends with the same symbol$\}$

$$\begin{cases} S \to aTa \mid bTb \mid a \mid b \mid \varepsilon \\ T \to aT \mid bT \mid \varepsilon \end{cases}$$

Ex3. $C = \{w \mid w$ contains twice as many a's as b's$\}$

sth like: $S \to SaSaSbS \mid SaSbSaS \mid SbSaSaS \mid \varepsilon$

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regular grammar: $S \to a$, $S \to bT$