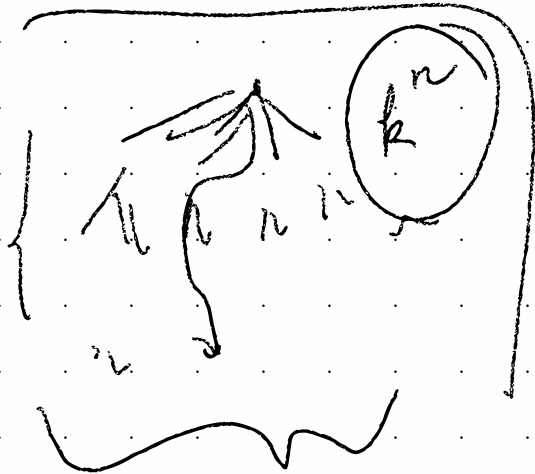
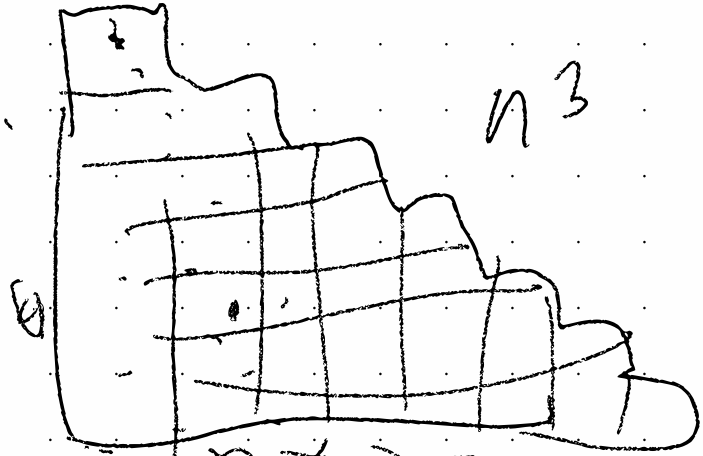


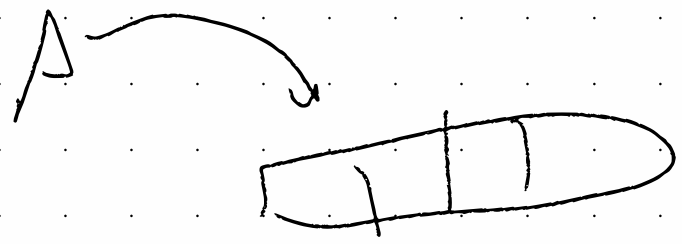
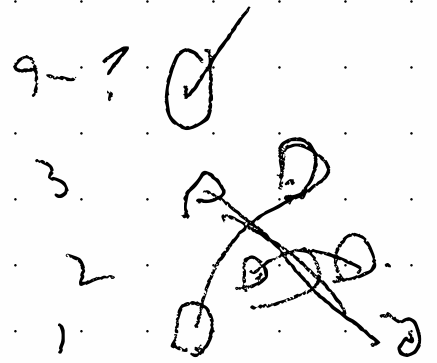
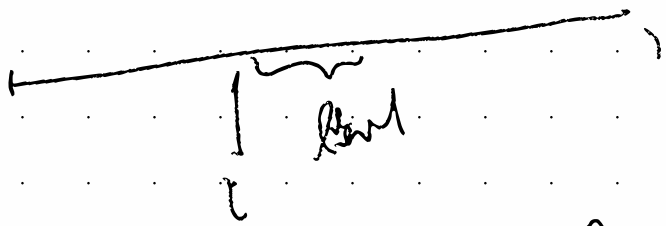
Cyk Alk Summ

Algorithm for membership in

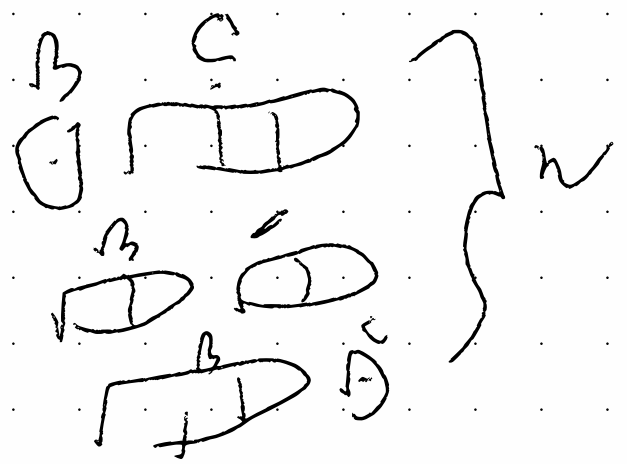
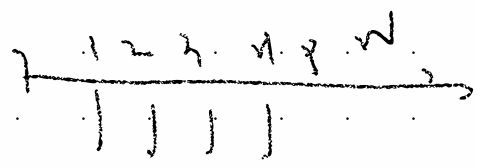
a CFL,



$O(n^2)$ $h_3 ('G')$



A → bc



justified Chomsky Normal Form.

NON-CFL

$\{a^i b^i c^i\}$

\leftrightarrow not CFL

$a^i b^i c^i$

$\begin{matrix} -a \\ -b \\ -c \end{matrix}$

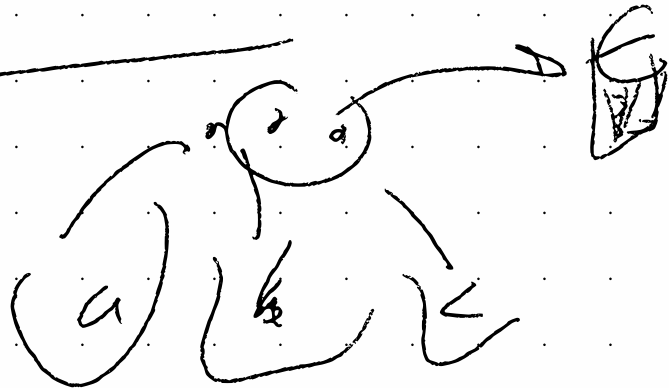
$a^i b^i$

$a^i b^j c^k$

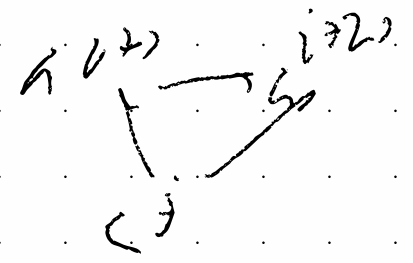
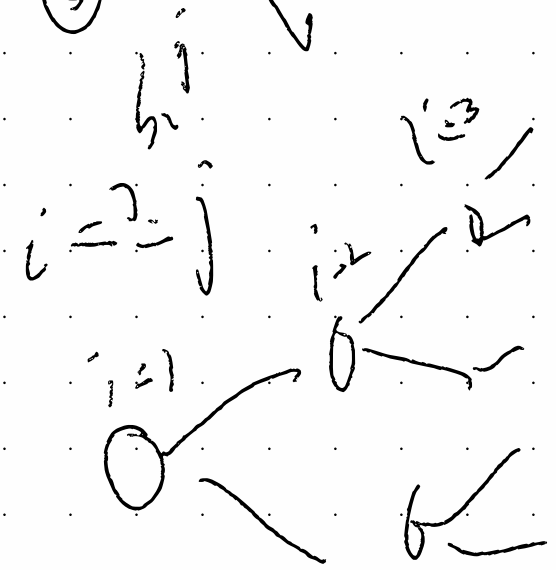
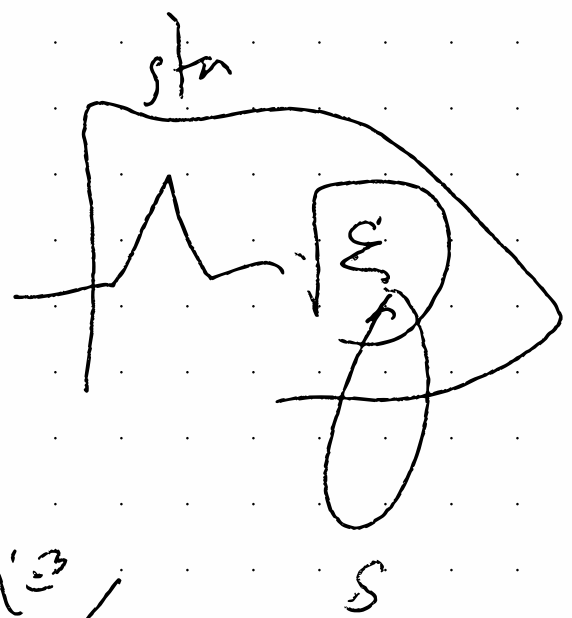
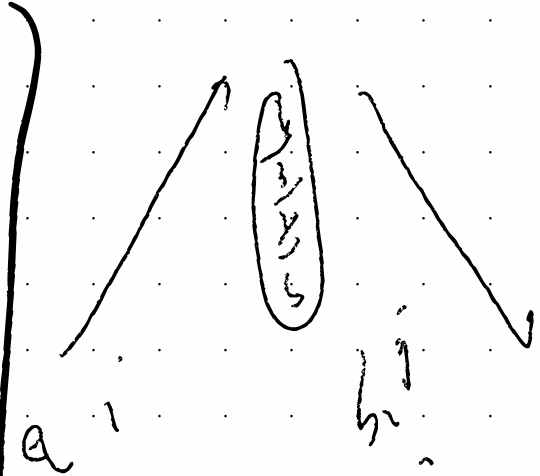
$a^i b^j$

$a^i b^j$
 $a^i b^j$
 $a^i b^j$

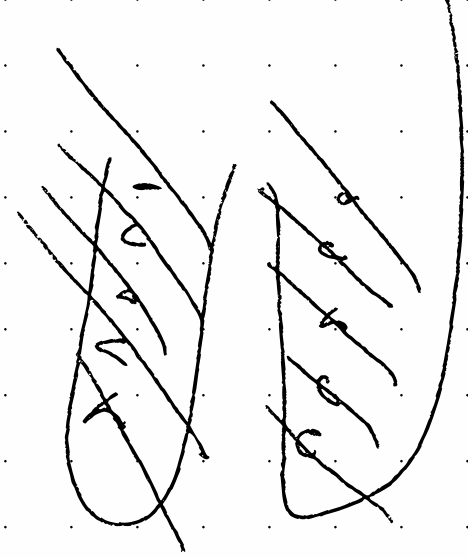
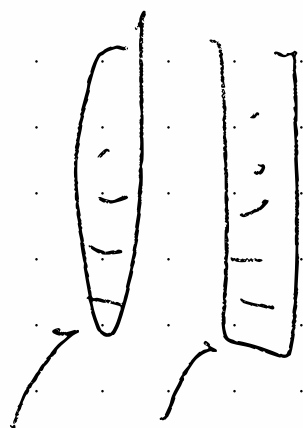
$a^i b^j c^k$ $i=j$ or $i=k$



POSSIBLE SOLUTION



ZP

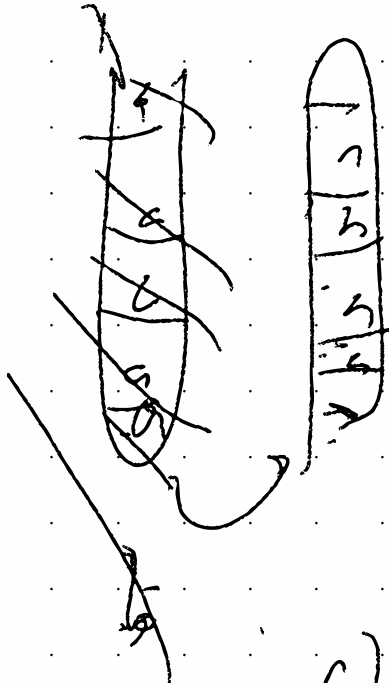
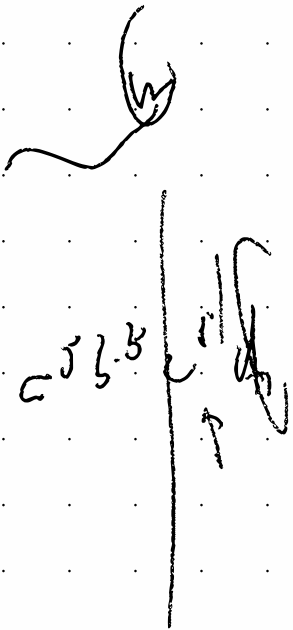


a' b' c'

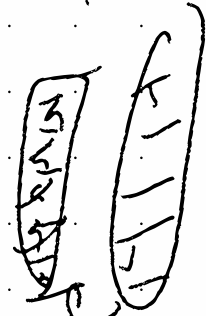
a' b' c' d'

a, b, d₂ — d₁ d₂

2 Ströke!



c' b' c' d' e' f'



2 Stacks solve the problem generally



ZS Koch PDA \rightarrow TM

