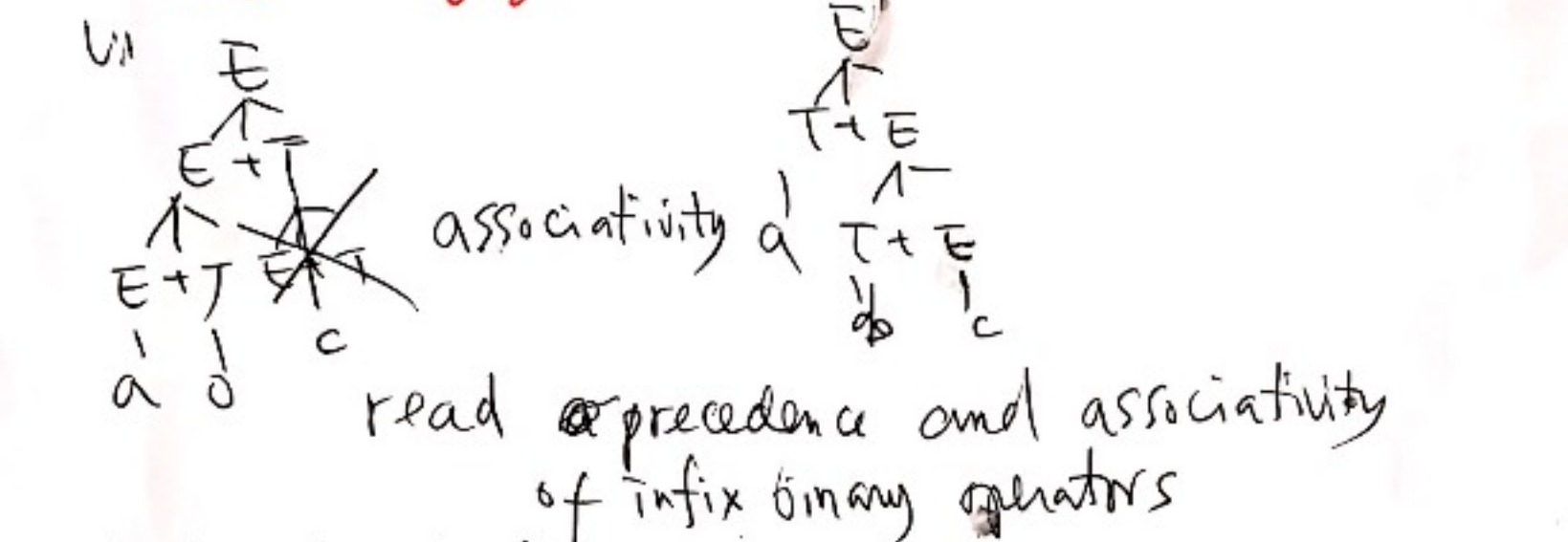
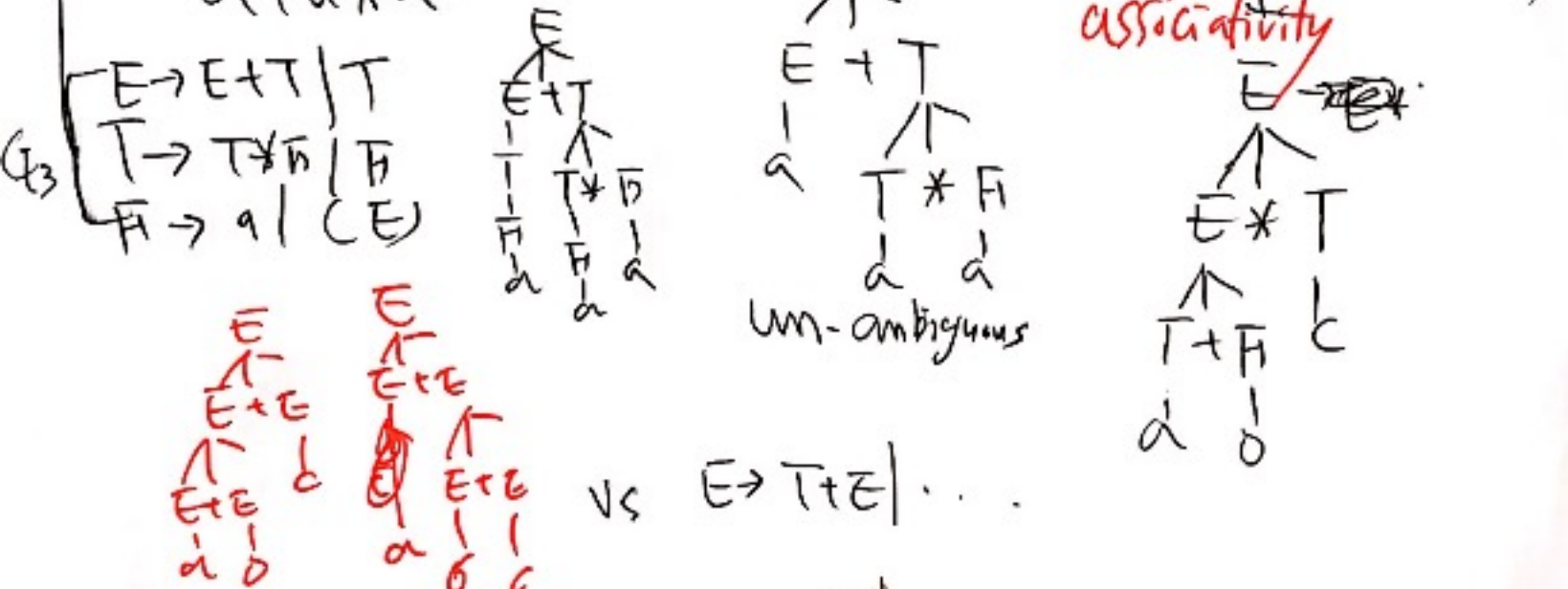


19/12 M/127 Context-free Grammar - 중간고사 - 10/17(키) 1:00
 FA, RG & Rewriting Systems. open book
 FA - RG. 비가역: 비유한 문장
 CFG: $A \rightarrow \alpha \in P \quad A \in N, \alpha \in (N \cup T)^*$
 RG: $A \rightarrow xB \text{ or } x \in P \quad A, B \in N, x \in T^*$
 FA: $B \in \delta(A, x) \quad \delta(A, x) = F$
 DFA: $Q \times T \rightarrow Q \rightarrow$
 NFA: $Q \times T \rightarrow 2^Q \rightarrow$
 ENFA: $Q \times T \cup \emptyset \rightarrow 2^Q \rightarrow A \rightarrow B$
 XFA: $Q \times T^* \rightarrow 2^Q \rightarrow A \rightarrow xB$
 FA: terminal string
 RG: terminal string
 CFG: (Q, T, P, q_0, F) (N, T, S, P)
 A → ε ∈ P
 모든 문장의 집합 (generating grammar; 생성문법)
 Lem 1 FA ⇒ RG (P3 TP 2-B) f. ∴ FA = RG
 Lem 2 RG ⇒ FA (P4)
 Σ-A examples of Context free grammar
 $L_a = \{0^n 1^n \mid n \geq 0\}$ → RL(X) ... Pumping lemma.
 R.G. CFG
 $A \rightarrow 0A1$
 $A_1 \rightarrow 0A_2 \mid 1B_n$
 $A_2 \rightarrow 0A_3 \mid 1B_{n-1}$
 $S \rightarrow 0S1 \mid 01$ (ambiguous)
 recursion basis (Chomsky)
 TP 16 p of Chap 5
 $N_1 \rightarrow N_1 + N_1 \mid N_1 \times N_1 \mid \frac{N_1}{N_2} \mid \frac{N_1}{N_2} - yacc$
 $N_2 \rightarrow a \dots 12$
 $N_3 \rightarrow a \dots 12101112 \dots 1? - lex$
 $a + b * c$

$E \rightarrow E+T \mid T \mid a \mid (E)$ — ambiguous
 $E \rightarrow E+T \mid T * F \mid a \mid (E)$ — unambiguous
 $T \rightarrow T * F \mid a \mid (E)$
 $F \rightarrow a \mid (E)$



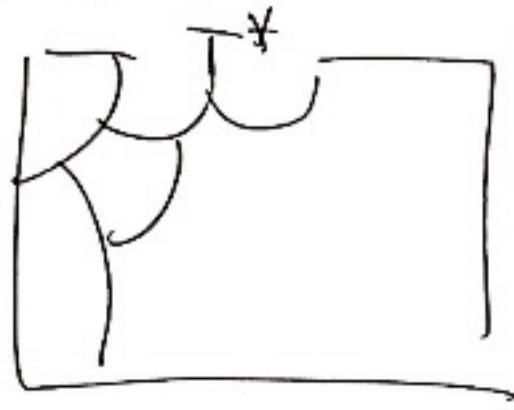
5-B Examples of CFG
 $G_1: S \rightarrow aSb \mid \epsilon$ $G_2: S \rightarrow aSb \mid ab$
 $G_3: S \rightarrow aSbb \mid \epsilon$ $L(G_3) = \{a^n b^{2n} \mid n \geq 0\}$ — Ex. 3.3
 Ex. 3.2 — ?
 Ex. 3.6 $a^n b^n$

Chap 6. Pushdown Automata = FFA + stack

3 Minimal-state DFA

state

3



Partition on T^*