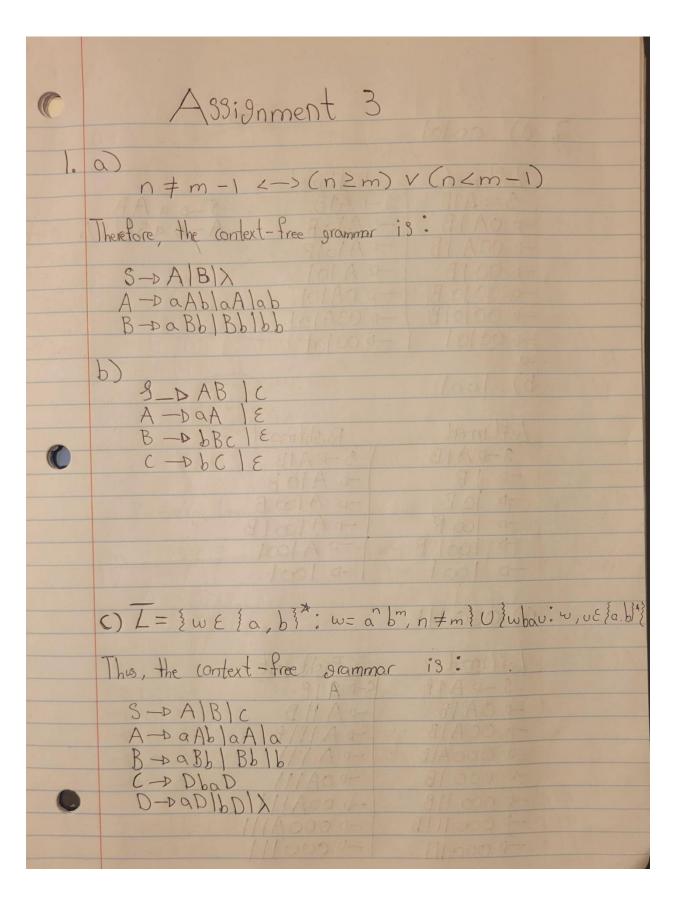
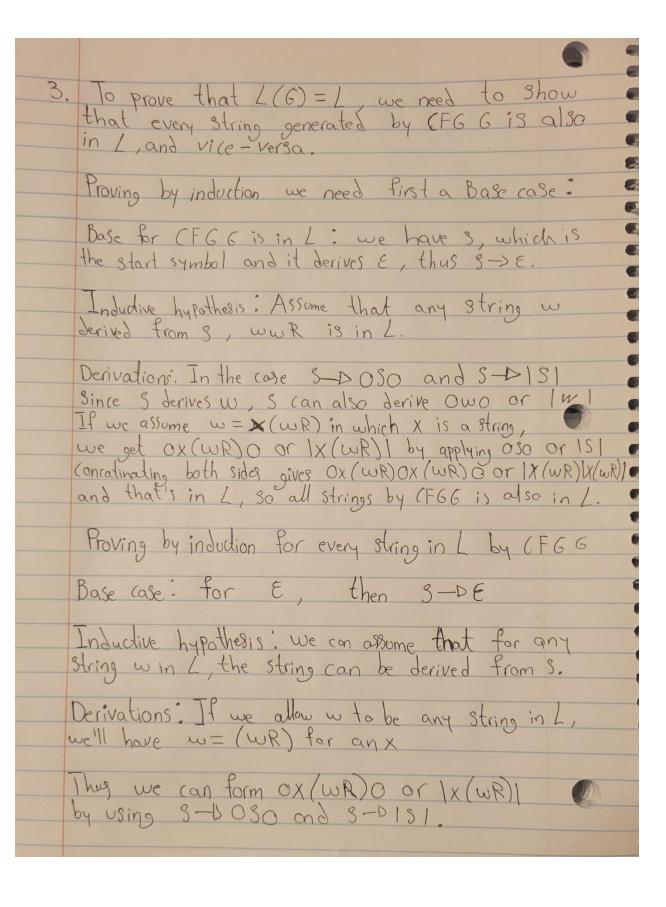
COMP335 Assignment 3 2024-03-25 Alawadi Mustafa



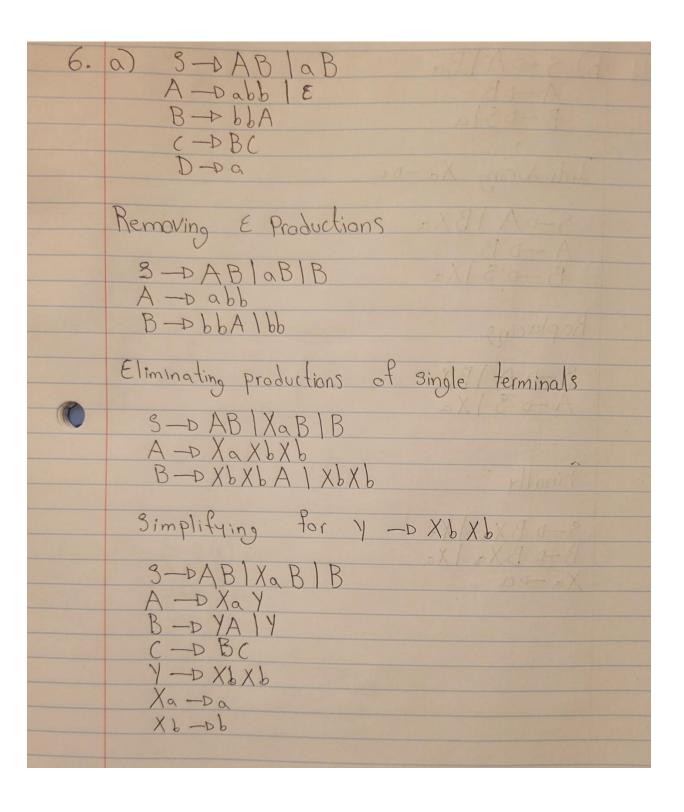
2	a) 00 101 Left most Rightmost S-DA1B 3-DA1B D 0A 1B -DA 10 B D 00 1B -DA 10 1B D 00 10 B -D 0A 10 1 D 00 10 B -D 00 A 10 1 D 00 10 B -D 00 A 10 1 D 00 10 B -D 00 A 10 1 B) 1001
	Left most 3-DAIB 3-DAIB DAIB DAIB DAIB DAIOB DAIOB DAIOB DAIOB DAIOOI DAIOOI DAIOOI
	C) 000 111 Left most S-DA1B -DOA1B -DOA1B -DOOA1B -DOOA1B -DOOO1B -DOOO1B -DOOOA11 -DOOO11B -DOOOA11 -DOOO111 -DOOO111 -DOOO111 -DOOO111



Ц.	a) The grammar is indeed ambiguous since the string aaba can be formed by a different leftmost derivations.
	S => 88 => 888 => a 88 => a ab 8 => a aba 8 => 88 => a 8 => a 88 => a ab 8 => a ab a
	An unambiguous example is: 3-DSalsablalab
	b) The grammar is indeed ambiguous as the string a has a leftmost derivations:
	$S=>ABA=> \alpha ABA=> \alpha \epsilon BA=> \alpha \epsilon \epsilon A=> \alpha \epsilon \epsilon \epsilon = \alpha$ $S=>ABA=> \epsilon BA=> \epsilon \epsilon A=> \epsilon \epsilon \alpha=\alpha$
	An unambiguas version is: S-DABA AB BA A B A A-DaA a B-DbB b
	can be formed by two leftmost derivations.
	S=> aSb=> aaaSbb=> aaaebb=aaabb S=> aaSb=>aaaSbb=> aaaebb=aaabb
	An unambiguous version com be:
	3-DA/E A-DaAb B ab B-DaaBb aab

5. a) States: 90, 91, 92, 93
3 tarting state: 90
final state: 93
Alphabet: {a,b}
Stack: {20} (90, E, 20) - P(91, 20) (91, a, 20) - D(91, a20) (91, a, a) - D(91, aa) (91, b, b) - D(92, E) (92, b, a) - D(93, E) (92, E, 20) - D(93, 20)b) States: 90, 91, 92 Storting states: 90 Alphabet: {a, b, c} Stalls: {20} (90, E, 20) - D(91, 20) (91, 9, 20) - D(91, 920) (91, 9, 9) - D(91, 920) (91, 6, 9) - D(91, 8) (91, 6, 9) - D(92, E) (92, E, 20) - D(92, E) (93, E, 20) - D(92, E)(92, 8, 20) -0 (90, 20)

() States: 90, 91, 92, 93
Starting State: 90
Final State: 93
Alphabet: {a, b}
Stack: {20} (90, E, 20)-D(91, 20) (91, a, 20) - D(11, 20) (91, a, 20) - D(91, a20) (91, b, 20) - D(91, b20) (91, a, a) - D(91, aa) (91, b, b) - D(91, bb) (91, a, b) - D(92, E) (91, b, a) - D(92, E) (92, E, 20) - D(93, 20)



b) S-DA/Ba A-DB
B-D3/a
Introducing Xa-Da
3-DA BXa A-DB B-D3 Xa
Replacing
3-DA BXa A-D3 Xa
Finally
S-DBXa Xa B-DBXa Xa Xa-Da

7. S-DaAA
A-Das 631a
6110:0-30 013
Tables: (1 = (40, 41 &
States: Q = 290, 912 Input: Z = {a,b} Start state: symbolis s
Transition function: 8
36-3 24 3 Toriso I have have forth set
S(90, E, E) = (91, 3)
The state of the s
S(91, E, 3) = (91, AAa)
8(91, E, A) = (91, 368a)
S(91,a,a) = (91,E)
S(91,b,b) = (91, E)
0 0 11 / 0 , 10 / 11 / 1
toling by indicate for every shore in a fullet

a) States: {9} Input: {a,b} Stack: {A,B,20} Transition function: 8 Production rules: S-D920 920-Dax 3,X,Y are non-terminal 920-DE Slates 9A-DaY 9B-DbY 9B-DE
b) 1) we need to start with a start symbol 3 S-D920 920-Dax 9A-Day 9AA-Day 9AB-Dby 9BB-Day 9B-Day 9-DE