Ex 3: Recursive descent parser

$S \rightarrow aAb$

$A \rightarrow bA \mid aB$ gen acacb

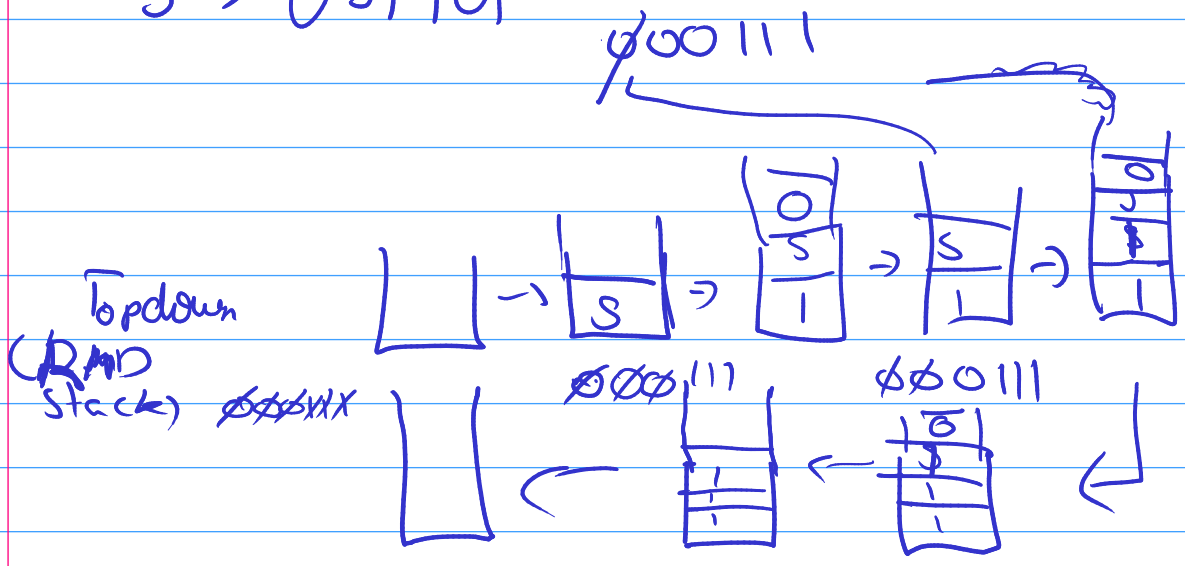
$B \rightarrow c$

```
lex()
S()
{ if(nextToken == 'a')
  {
    lex()
    A()
    lex()
    if(nextToken == 'b')   Acc.
  }
  else error
}
```

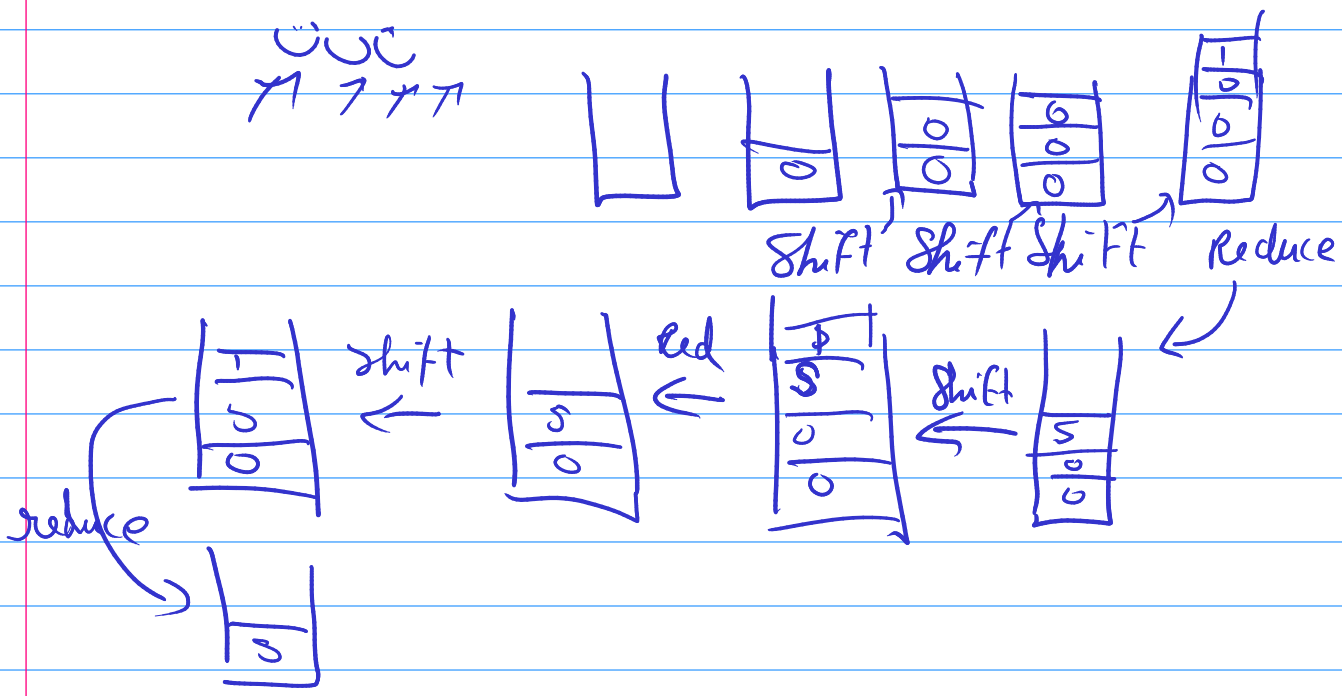
```
A(){
    if(nextToken == b)
    { lex()
      A() }
  else if(nextToken == a)
    {
      lex()
      B()
    }
  else error
}
```

```
B()
{
  if(nextToken
       == 'c')
    ret
  else
    Error
}
```

$S \to 0S1 \mid 01$

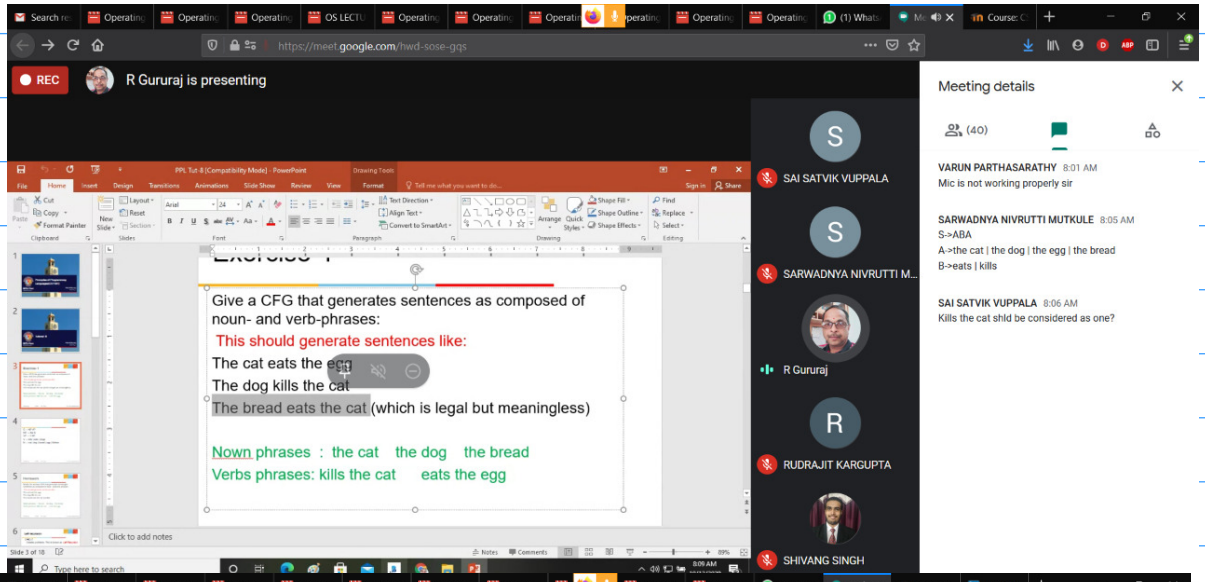


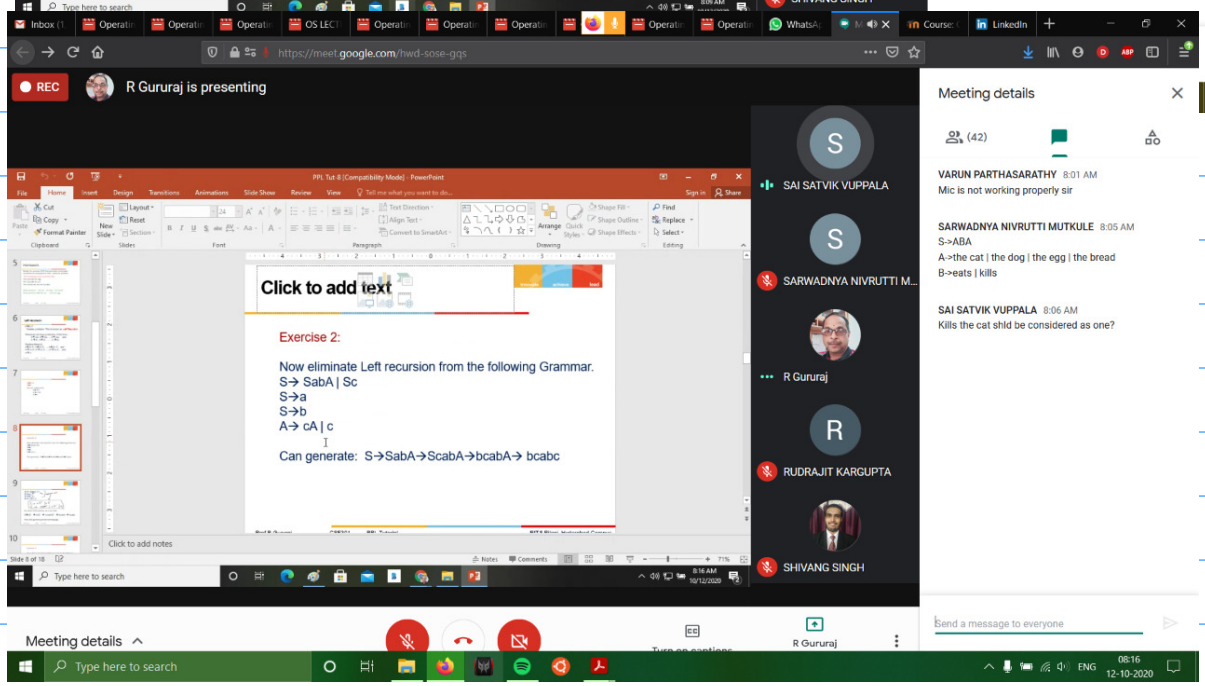
Bottom up (LMD)



$S \rightarrow SS+ \mid SS* \mid a$

aaa*a++ Top down Bottom-up, shiftreduce





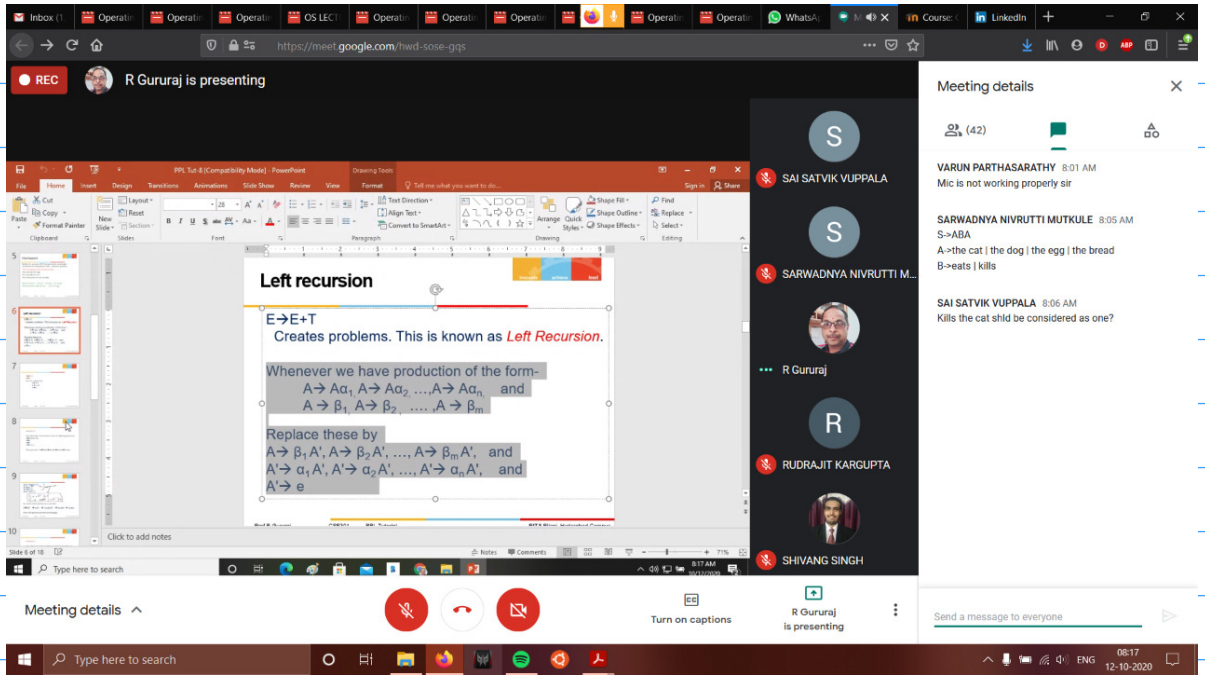
(1) $S \rightarrow NP\ VP$

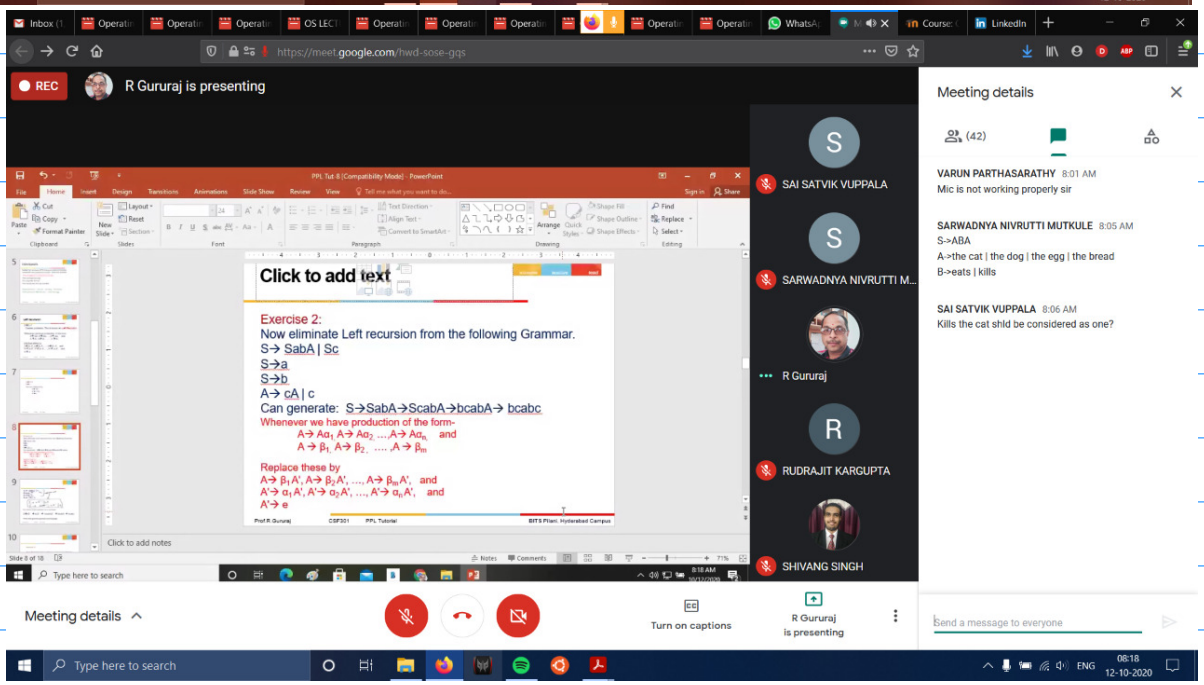
$NP \rightarrow the\ N$

$VP \rightarrow VNP$

$N \rightarrow cat \mid dog \mid bread \mid egg$

$V \rightarrow kills \mid eats$


REC
R Gururaj is presenting
Left recursion
E→E+T
Creates problems. This is known as Left Recursion.
Whenever we have production of the form-
A→ Aα1 A→ Aα2 ...,A→ Aαn and
A → β1, A→ β2, ..., A → βm
Replace these by
A→ β1 A', A→ β2 A', ..., A→ βm A', and
A'→ α1 A', A'→ α2 A', ..., A'→ αn A', and
A'→ e
Click to add notes
SAI SATVIK VUPPALA
SARWADNYA NIVRUTTI M...
R Gururaj
RUDRAJIT KARGUPTA
SHIVANG SINGH
Meeting details
(42)
VARUN PARTHASARATHY 8:01 AM
Mic is not working properly sir
SARWADNYA NIVRUTTI MUTKULE 8:05 AM
S->ABA
A->the cat | the dog | the egg | the bread
B->eats | kills
SAI SATVIK VUPPALA 8:06 AM
Kills the cat shld be considered as one?
Send a message to everyone
Meeting details
Turn on captions
R Gururaj is presenting
Type here to search
ENG
08:17
12-10-2020


REC
R Gururaj is presenting
Click to add text
Exercise 2:
Now eliminate Left recursion from the following Grammar.
S→ SabA | Sc
S→a
S→b
A→ cA | c
Can generate: S→SabA→ScabA→bcabA→ bcabc
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A→ Aα1 A→ Aα2 ...,A→ Aαn and
A → β1, A→ β2, ..., A → βm
Replace these by
A→ β1 A', A→ β2 A', ..., A→ βm A', and
A'→ α1 A', A'→ α2 A', ..., A'→ αn A', and
A'→ e
Click to add notes
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ENG
08:18
12-10-2020