

Aayush Shah

19BCE245

1 October 2022

Compiler Construction

Practical 4

Implement leftmost derivation removal algorithm

• Code :

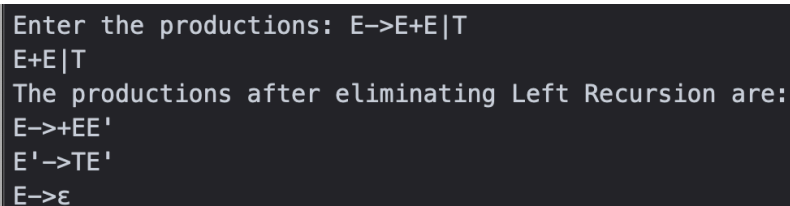
```
#include<stdio.h>
#include<string.h>

int main()  {
    char
input[100],l[50],r[50],temp[10],tempprod[20],productions[
25][50];
    int i=0,j=0,flag=0,consumed=0;
    printf("Enter the productions: ");
    scanf("%1s->%s",l,r);
    printf("%s",r);
    while(sscanf(r+consumed,"%[^|]s",temp) == 1 &&
consumed <= strlen(r))  {
        if(temp[0] == l[0])  {
            flag = 1;
            sprintf(productions[i++],"%s-
>%s%s'\0",l,temp+1,l);
        }
        else
            sprintf(productions[i++],"%s'-
>%s%s'\0",l,temp,l);
        consumed += strlen(temp)+1;
    }
    if(flag == 1)  {
        sprintf(productions[i++],"%s->\0",l);
        printf("The productions after eliminating Left
Recursion are:\n");
        for(j=0;j<i;j++)
```


```
        printf("%s\n", productions[j]);  
    }  
    else  
        printf("The Given Grammar has no Left  
Recursion");  
    return 0;  
}
```

output

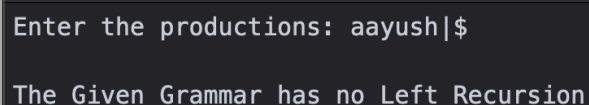
- Grammer with left recursion :




```
Enter the productions: E->E+E|T  
E+E|T  
The productions after eliminating Left Recursion are:  
E->+EE'  
E'->TE'  
E->ε
```

✓ Run Succeeded | Time 15 ms | Peak Memory 504K |  main ↕ | Spaces: 4 ↕ | 77 Characters

- Grammer with no left recursion :



```
Enter the productions: aayush|$  
  
The Given Grammar has no Left Recursion
```

✓ Run Succeeded | Time 15 ms | Peak Memory 504K |  main ↕ | Spaces: 4 ↕ | Line 26, Column 19