<table>
<tr><td>Consider the right recursive grammar
E ☛T + E | T
T ☛V * T | V
V ☛<id></td><td>Top-down Parsing with Back tracking</td></tr>
<tr><td><u>Left Factoring</u></td><td rowspan="2">Top-down parsing without back tracking</td></tr>
<tr><td>Common prefix requires applying left factoring
E ☞T + E | T
T ☞V * T | V
Left factor E
E ☞T + E | T
E ☞ TE”
E” ☞ + E |ε
Left factor T
T ☞ V * T | V
T☞ VT”
T”☞ * T | ε</td></tr>
<tr><td>Modified Left Factored Grammar</td><td rowspan="2">RD parser</td></tr>
<tr><td>E ::= T { +T}*
T ::= V{* V}*
V ::= <id></td></tr>
<tr><td>Consider the Left Recursive Grammar
E☛E+T|T
T☛T*V|V
V☛<id></td><td>Not Used as it is for Top-Down Parsing</td></tr>
<tr><td><u>Eliminating left-recursion</u></td><td rowspan="2">LL1 / Table driven / Top-down Parsing</td></tr>
<tr><td>Apply left recursion elimination
E ☞E+T|T
T☞T*V|V

Eliminate left recursion of E
E☞TE’
E’☞ ε | + TE’
Eliminating left recursion of T
T☞VT’
T’☞ ε | + VT’</td></tr>
<tr><td>Operator Grammar using (OPM)</td><td>Operator Precedence Parser (Bottom Up Parser)</td></tr>
<tr><td colspan="2"><table>
<tr><td></td><td>+</td><td>*</td><td>$</td></tr>
<tr><td>+</td><td>·></td><td><·</td><td>·></td></tr>
<tr><td>*</td><td>·></td><td>·></td><td>·></td></tr>
<tr><td>$</td><td><·</td><td><·</td><td>·></td></tr>
</table></td></tr>
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