**Eliminate left recursion and common left prefixes**

1. PROGRAM 🡪 **start** DEFINITIONS **{** COMMANDS **}** **finish**
2. DEFINITIONS 🡪 DEFINITION DEFINITIONS\_B
3. DEFINITIONS\_B 🡪 **;** DEFINITIONS
4. DEFINITIONS\_B 🡪 Ɛ
5. DEFINITION 🡪 id **:** **exception**
6. DEFINITION 🡪 TYPE id DEFINITION\_B
7. DEFINITION\_B 🡪 ID\_LIST
8. DEFINITION\_B 🡪 **const =** number
9. TYPE 🡪 **integer**
10. TYPE 🡪 **real**
11. ID\_LIST 🡪 Ɛ
12. ID\_LIST 🡪 **,** id ID\_LIST
13. COMMANDS 🡪 COMMAND COMMANDS\_B
14. COMMANDS\_B 🡪 Ɛ
15. COMMANDS\_B 🡪**;** COMMANDS
16. COMMAND 🡪 id **=** EXPRESSION
17. COMMAND 🡪 **while** CONDITION **do** COMMANDS **od**
18. COMMAND 🡪 **raise** id
19. COMMAND 🡪 **block** DEFINITIONS **{** COMMANDS **}** **end\_block**
20. EXPRESSION 🡪 number
21. EXPRESSION 🡪 id EXPRESSION\_B
22. EXPRESSION\_B 🡪 Ɛ
23. EXPRESSION\_B 🡪 binary\_ar\_op EXPRESSION
24. CONDITION 🡪 **(** id rel\_op id **)**

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| grammar variables | NULLABLE(X) | FIRST | FOLLOW |
| PROGRAM | - | { **‘start’** } | { EOF } |
| DEFINITIONS | - | { id, ‘integer’, ‘real’} | { ‘{‘ } |
| DEFINITIONS\_B | + | { ‘;’ } | { ‘{‘ } |
| DEFINITION | - | {id, ‘integer’, ‘real’} | { ‘;’ , ‘{‘ } |
| DEFINITION\_B | + | { ‘,’ , ‘const’} | { ‘;’ , ‘{‘ } |
| TYPE | - | {‘integer’, ‘real’} | { id } |
| ID\_LIST | + | { ‘,’ } | { ‘;’ , ‘{‘ } |
| COMMANDS | - | { id, ‘while’, ‘raise’, ‘block’} | { ‘}’, od} |
| COMMANDS\_B | + | { ‘;’ } | {‘}’ , od} |
| COMMAND | - | {id, ‘while’, ‘raise’, ‘block’} | { ‘;’ , ‘}’ , od } |
| EXPRESSION | - | {number, id} | { ‘;’ , ‘}’ , od } |
| EXPRESSION\_B | + | { binary\_ar\_op } | {‘;’ , ‘}’ , od } |
| CONDITION | - | { ‘(‘ } | { do} |