Production Options for Individual Parser Development

1. Arithmetic Expressions

- `expr → expr + term | expr - term | term`
- `term → term * factor | term / factor | factor`
- `factor → ( expr ) | number | identifier`

2. Control Structures

- `stmt → if expr then stmt else stmt | while expr do stmt | assign`
- `assign → identifier = expr`
- `expr → expr && term | expr || term | term`
- `term → !factor | factor`
- `factor → true | false | ( expr ) | identifier`

3. Function Definitions and Calls

- `function → func identifier ( params ) { stmts }`
- `params → identifier | identifier , params | ε`
- `stmts → stmt ; stmts | ε`
- `call → identifier ( args )`
- `args → expr | expr , args | ε`

4. Assignment Operations

- `assign → identifier = expr`
- `expr → identifier + identifier | identifier - identifier | number`
- `number → digit number | digit`
- `digit → 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9`

5. Boolean Expressions

- `bool_expr → bool_expr && bool_term | bool_term`
- `bool_term → bool_term || bool_factor | bool_factor`
- `bool_factor → !bool_atom | bool_atom`
- `bool_atom → true | false | ( bool_expr ) | identifier`

6. Loop Structures

- `loop → for ( assign ; expr ; assign ) stmt`
- `stmt → assign ; stmt | if expr then stmt else stmt | while expr do stmt`
- `expr → identifier < identifier | identifier > identifier`

7. Array Operations

- array_decl → type identifier [number]
- array_assign → identifier [expr] = expr
- expr → expr + term | term
- term → factor * term | factor
- factor → number | identifier

8. String Operations

- str_expr → str_expr + str_term | str_term
- str_term → " string_literal " | identifier
- assign → identifier = str_expr

9. Basic Mathematical Functions

- expr → sin (term) | cos (term) | log (term) | term
- term → term * factor | term / factor | factor
- factor → number | identifier | (expr)

10. Conditional Expressions with Ternary Operator

- ternary_expr → expr ? expr : expr
- expr → identifier < identifier | identifier > identifier
- expr → expr + term | term
- term → factor * term | factor
- factor → number | identifier