

The Grammar for Tiny

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1 Introduction

For the grammar that follows, here are the types of the various elements by type font:

- **Keywords are in this type font.**
- **TOKEN CLASSES ARE IN THIS TYPE FONT.**
- *Nonterminals are in this type font.*

1.1 Some Token Definitions

letter = a | ... | z | A | ... | Z

digit = 0 | ... | 9

ID = letter+

NUM = digit+

Also note that white space is ignored except that it must separate **ID**'s, **NUM**'s, and keywords.

2 The Grammar

1. $program \rightarrow stmt-seq$
2. $stmt-seq \rightarrow stmt-seq ; stmt \mid stmt$
3. $stmt \rightarrow if-stmt \mid repeat-stmt \mid assign-stmt \mid read-stmt \mid write-stmt$
4. $if-stmt \rightarrow \mathbf{if} \ exp \ \mathbf{then} \ stmt-seq \ \mathbf{end} \mid \mathbf{if} \ exp \ \mathbf{then} \ stmt-seq \ \mathbf{else} \ stmt-seq \ \mathbf{end}$
5. $repeat-stmt \rightarrow \mathbf{repeat} \ stmt-seq \ \mathbf{until} \ exp$
6. $assign-stmt \rightarrow \mathbf{ID} := exp$
7. $read-stmt \rightarrow \mathbf{read} \ \mathbf{ID}$
8. $write-stmt \rightarrow \mathbf{write} \ exp$
9. $exp \rightarrow simple-exp < simple-exp \mid simple-exp = simple-exp \mid simple-exp$
10. $simple-exp \rightarrow simple-exp + term \mid simple-exp - term \mid term$
11. $term \rightarrow term * factor \mid term / factor \mid factor$
12. $factor \rightarrow (\ exp \) \mid \mathbf{NUM} \mid \mathbf{ID}$