

Complete TIPS Grammar Productions

<p><code><program> → TOK_PROGRAM TOK_IDENT TOK_SEMICOLON <block></code></p> <p>First Token Set: { TOK_PROGRAM }</p>
<p><code><block> → [TOK_VAR TOK_IDENT TOK_COLON (TOK_INTEGER TOK_REAL) TOK_SEMICOLON { TOK_IDENT TOK_COLON (TOK_INTEGER TOK_REAL) TOK_SEMICOLON }]</code> <code><compound></code></p> <p>First Token Set: { TOK_VAR, TOK_BEGIN }</p>
<p><code><statement> → <assignment> <compound> <if> <while> <read> <write></code></p> <p>First Token Set: { TOK_IDENT, TOK_BEGIN, TOK_IF, TOK_WHILE, TOK_READ, TOK_WRITE }</p>
<p><code><assignment> → TOK_IDENT TOK_ASSIGN <expression></code></p> <p>First Token Set: { TOK_IDENT }</p>
<p><code><compound> → TOK_BEGIN <statement> { TOK_SEMICOLON <statement> } TOK_END</code></p> <p>First Token Set: { TOK_BEGIN }</p>
<p><code><if> → TOK_IF <expression> TOK_THEN <statement> [TOK_ELSE <statement>]</code></p> <p>First Token Set: { TOK_IF }</p>
<p><code><while> → TOK_WHILE <expression> <statement></code></p> <p>First Token Set: { TOK_WHILE }</p>
<p><code><read> → TOK_READ TOK_OPENPAREN TOK_IDENT TOK_CLOSEPAREN</code></p> <p>First Token Set: { TOK_READ }</p>
<p><code><write> → TOK_WRITE TOK_OPENPAREN (TOK_IDENT TOK_STRINGLIT) TOK_CLOSEPAREN</code></p> <p>First Token Set: { TOK_WRITE }</p>
<p><code><expression> → <simple expression> [(TOK_EQUALTO TOK_LESSTHAN TOK_GREATERTHAN TOK_NOTEQUALTO) <simple expression>]</code></p> <p>First Token Set: { TOK_INTLIT, TOK_FLOAT_LIT, TOK_IDENT, TOK_OPENPAREN, TOK_NOT, TOK_MINUS }</p>
<p><code><simple expression> → <term> { (TOK_PLUS TOK_MINUS TOK_OR) <term> }</code></p> <p>First Token Set: { TOK_INTLIT, TOK_FLOAT_LIT, TOK_IDENT, TOK_OPENPAREN, TOK_NOT, TOK_MINUS }</p>
<p><code><term> → <factor> { (TOK_MULTIPLY TOK_DIVIDE TOK_AND) <factor> }</code></p> <p>First Token Set: { TOK_INTLIT, TOK_FLOAT_LIT, TOK_IDENT, TOK_OPENPAREN, TOK_NOT, TOK_MINUS }</p>
<p><code><factor> → TOK_INTLIT TOK_FLOATLIT TOK_IDENT (TOK_OPENPAREN <expression> TOK_CLOSEPAREN) (TOK_NOT <factor>) (TOK_MINUS <factor>)</code></p> <p>First Token Set: { TOK_INTLIT, TOK_FLOAT_LIT, TOK_IDENT, TOK_OPENPAREN, TOK_NOT, TOK_MINUS }</p>

Note: Symbols shown in **red** are EBNF symbols, not actual symbols expected.