

$\langle \text{Start} \rangle ::= \langle \text{Constant} \rangle$   
 | '='  $\langle \text{Formula} \rangle$   
 | '{'  $\langle \text{Formula} \rangle$  '}'  
 $\langle \text{Formula} \rangle ::= \langle \text{Constant} \rangle$   
 |  $\langle \text{Reference} \rangle$   
 |  $\langle \text{FunctionCall} \rangle$   
 | '('  $\langle \text{Formula} \rangle$  ')'  
 |  $\langle \text{ConstantArray} \rangle$   
 | RESERVED-NAME  
 $\langle \text{Constant} \rangle ::= \text{NUMBER} \mid \text{STRING} \mid \text{BOOL} \mid \text{ERROR}$   
 $\langle \text{FunctionCall} \rangle ::= \langle \text{UnOpPrefix} \rangle \langle \text{Formula} \rangle$   
 |  $\langle \text{Formula} \rangle$  '%'  
 |  $\langle \text{Formula} \rangle \langle \text{BinOp} \rangle \langle \text{Formula} \rangle$   
 | EXCEL-FUNCTION  $\langle \text{Arguments} \rangle$  ')'  
 $\langle \text{UnOpPrefix} \rangle ::= '+' \mid '-'$   
 $\langle \text{BinOp} \rangle ::= '+' \mid '-' \mid '*' \mid '/' \mid '^'$   
 | '<' | '>' | '=' | '<=' | '>=' | '<>'  
 $\langle \text{Arguments} \rangle ::= \epsilon$   
 |  $\langle \text{Argument} \rangle$  { ','  $\langle \text{Argument} \rangle$  }  
 $\langle \text{Argument} \rangle ::= \langle \text{Formula} \rangle \mid \epsilon$   
 $\langle \text{Reference} \rangle ::= \langle \text{ReferenceItem} \rangle$   
 |  $\langle \text{RefFunctionCall} \rangle$   
 | '('  $\langle \text{Reference} \rangle$  ')'  
 |  $\langle \text{Prefix} \rangle \langle \text{ReferenceItem} \rangle$   
 | FILE '!' DDECALL  
 $\langle \text{RefFunctionCall} \rangle ::= '(' \langle \text{Union} \rangle ')'$   
 |  $\langle \text{RefFunctionName} \rangle \langle \text{Arguments} \rangle$  ')'  
 |  $\langle \text{Reference} \rangle$  ':'  $\langle \text{Reference} \rangle$   
 |  $\langle \text{Reference} \rangle$  '␣'  $\langle \text{Reference} \rangle$   
 $\langle \text{ReferenceItem} \rangle ::= \text{CELL}$   
 |  $\langle \text{NamedRange} \rangle$   
 |  $\langle \text{StructuredReference} \rangle$   
 | VERTICAL-RANGE  
 | HORIZONTAL-RANGE  
 | UDF  $\langle \text{Arguments} \rangle$  ')'  
 | ERROR-REF

$\langle \text{NamedRange} \rangle ::= \langle \text{Name} \rangle$   
 $\langle \text{Name} \rangle ::= \text{NAME} \mid \text{NAME-PREFIXED}$   
 $\langle \text{File} \rangle ::= \text{FILE}$   
 | FILENAME  
 | FILEPATH FILENAME  
 $\langle \text{Prefix} \rangle ::= \text{SHEET}$   
 | '' SHEET-QUOTED  
 |  $\langle \text{File} \rangle$  SHEET  
 | ''  $\langle \text{File} \rangle$  SHEET-QUOTED  
 | FILE '!'  
 | MULTIPLE-SHEETS  
 |  $\langle \text{File} \rangle$  MULTIPLE-SHEETS  
 $\langle \text{RefFunctionName} \rangle ::= \text{REF-FUNCTION}$   
 | REF-FUNCTION-COND  
 $\langle \text{Union} \rangle ::= \langle \text{Reference} \rangle$  { ','  $\langle \text{Reference} \rangle$  }  
 $\langle \text{ConstantArray} \rangle ::= \{ ' ' \langle \text{ArrColumns} \rangle ' ' \}$   
 $\langle \text{ArrColumns} \rangle ::= \langle \text{ArrRows} \rangle$  { ';'  $\langle \text{ArrRows} \rangle$  }  
 $\langle \text{ArrRows} \rangle ::= \langle \text{ArrConst} \rangle$  { ','  $\langle \text{ArrConst} \rangle$  }  
 $\langle \text{ArrConst} \rangle ::= \langle \text{Constant} \rangle$   
 |  $\langle \text{UnOpPrefix} \rangle$  NUMBER  
 | ERROR-REF  
 $\langle \text{StructuredReference} \rangle ::= \langle \text{SRCol} \rangle$   
 | '['  $\langle \text{SRExpr} \rangle$  ']'  
 |  $\langle \text{Name} \rangle \langle \text{SRCol} \rangle$   
 |  $\langle \text{Name} \rangle$  '['  $\langle \text{SRExpr} \rangle$  ']'  
 $\langle \text{SRExpr} \rangle ::= \langle \text{SRCol} \rangle$   
 |  $\langle \text{SRCol} \rangle$  ':'  $\langle \text{SRCol} \rangle$   
 |  $\langle \text{SRCol} \rangle$  ','  $\langle \text{SRCol} \rangle$   
 |  $\langle \text{SRCol} \rangle$  ','  $\langle \text{SRCol} \rangle$  ':'  $\langle \text{SRCol} \rangle$   
 |  $\langle \text{SRCol} \rangle$  ','  $\langle \text{SRCol} \rangle$  ','  $\langle \text{SRCol} \rangle$   
 |  $\langle \text{SRCol} \rangle$  ','  $\langle \text{SRCol} \rangle$  ','  $\langle \text{SRCol} \rangle$  ':'  $\langle \text{SRCol} \rangle$   
 $\langle \text{SRCol} \rangle ::= \text{FILENAME}$   
 | '['  $\langle \text{Name} \rangle$  ']'  
 | '[' SR-COLUMN '['