Appendix

The Syntactical Rules of FRANCIS

<program>:=<main program><subroutine deck>

<main program>:=<program heading><block>ENP;

<program heading>:=PROGRAM<identifier>;

<identifier>:=<letter>{<letter>|<digit>}

<block>:=<array declaration part>

        <variable declaration part>

        <label declaration part>

        <statement part>

<array declaration part>:={DIMENSION<array declaration>;}

<array declaration>:=<type>:<subscripted variable>{,

                <subscripted variable>}

<subscripted variable>:=<identifier>(<unsigned integer>

                   {,<unsigned integer>})

<unsinged integer>:=<digit>{<digit>}

<type>:=INTEGER|REAL|BOOLEAN

<variable declaration part>:={VARIABLE<variable declaration>;}

<variable declaration>:=<type>:<identifier>{,<identifier>}

<label declaration part>:={LABEL<label>{,<label>};

:=<identifier>

<statement part>:=<statement>{<statement>}

<statement>:=<unlabelled statement>;|

           <label><unlabelled statement>;

<unlabelled statement>:=<statement I>|<if statement>

<statement I>:=<empty statement>|<assign statement>

<call statement>|<IO statement>|

<go to statement>

<empty statement>:=

<assign statement>:=<variable>=<expression>

<variable>:=<identifier>|<idnetifier>(<unsigned integer>|<identifier>

{,<unsigned integer>| <identifier> })

<expression>:=<simple expression>|<simple expression>

<relational operator><simple expression>

<relational operator> := EQ|NE|GT|GE|LT|LE

<simple expression>:=<term>|<sign><term>|

<simple expression><adding operator><term>

<adding operator>:=   +|-|OR

<term>:=<factor>|<term><multiplying operator><factor>

<multiplying operator>:=*|/|AND| ↑

<factor>:=<variable>|<unsigned constant>|(<expression>)

<unsigned constant>:=<unsigned number>|<constant identifier>

<unsigned number>:=<unsigned integer>|<unsigned real>

<unsigned real>:=<unsigned integer>.{<digit>}

<sign>:=   +|-

<constant identifier>:=<identifier>

<call statement>:=CALL<subroutine identifier>(<argument>

{,<argument>})

<subroutine identifier>:=<idnetifier>

<argument>:= <identifier>|<constant>

<constant>:=<unsigned constant>|<sign><unsigned constant>

<IO statement>:=INPUT<variable>

               OUTPUT<variable>

<number size>:=<unsigned integer>

<go to statement>:=GTO<label>

<if statement>:=IF <condition>THEN<statement I>|

               IF<condition>THEN<statement I>

                    ELSE<statement I>

<condition>:=<condition variable><relations><condition variable>

<condition variable>:=<variable>|<constant>

<relations>:=<relational operator>|OR|AND

<subroutine deck>:={<subroutine declaration>}

<subroutine declaration>:=<subroutine heading><block>ENS;

<subroutine heading>:=SUBROUTINE<identifier>(

                 {,<parameter group>});

:=<type>:<parameter>{,<parameter>}

:=<identifier>|<array>

<array>:=<array identifier>(   )

<array identifier>:=<identifier>