Apêndice A

Gramática EBNF da Frankie estendida com o tipo UNION

<PROGRAM> := **"program"** <IDENTIFIER> **";"** <BLOCK> **"."**

<BLOCK> :=   [<VAR-DECLARATION-SECTION>]
              [<PROCEDURE-DECLARATION-SECTION>]
              <COMPOSITE-COMMAND>

<VAR-DECLARATION-SECTION> := <DECLARATION> { **";"** <DECLARATION> } **";"**

<PROCEDURE-DECLARATION-SECTION> := { <PROCEDURE-DECLARATION> **";"** }

<PROCEDURE-DECLARATION> := **"procedure"** <IDENTIFIER> [<FORMAL-PARAMETERS>] **";"** <BLOCK>

<FORMAL-PARAMETERS> := (<FORMAL-PARAMETERS-SECTION> { **";"** <FORMAL-PARAMETERS-SECTION>})

<FORMAL-PARAMETERS-SECTION> := [**"var"**] <IDENTIFIERS-LIST> **":"** <IDENTIFIER>

<DECLARATION> := <DECLARATION-SPECIFIERS> <DECLARATION-LIST>

<DECLARATION-SPECIFIERS> := <TYPE-SPECIFIER>

<TYPE-SPECIFIER> := (**"boolean"** | **"int"** | UNION-SPECIFIER)

<UNION-SPECIFIER> := **"union"** <IDENTIFIER> **"begin"** <UNION-DECLARATION> **"end"** **";"**

<UNION-DECLARATION> := {<IDENTIFIER> : <TYPE-SPECIFIER> **";"** }

<DECLARATION-LIST> := <IDENTIFIER> { **";"** <IDENTIFIER>}

<COMPOSITE-COMMAND> := **"begin"** <COMMAND> { **";"** <COMMAND>} **"end"**

<COMMAND> := <ATTRIBUTION>
              | <PROCEDURE-CALL>
              | <COMPOSITE-COMMAND>
              | <CONDITIONAL-COMMAND>
              | <ITERATION-COMMAND>

<ATTRIBUTION> := <VARIABLE> := <EXPRESSION>

<PROCEDURE-CALL> := <IDENTIFIER> [(EXPRESSION-LIST)]

<CONDITION-COMMAND> := **"if"** (EXPRESSION) <COMMAND> [**"else"** <COMMAND>]

<ITERATION-COMMAND> := **"while"**(<EXPRESSION>) <COMMAND>

<EXPRESSION> := <SIMPLE-EXPRESSION> [<RELATION> <SIMPLE-EXPRESSION>]

<RELATION> := **"="** | **"<>"** | **"<"** | **"<="** | **">="** | **";"**

<SIMPLE-EXPRESSION> := [**"+"** | **"-"**] <TERM> { (**"+"** | **"-"** | **"or"**) <TERM> }

<TERM> := <FACTOR> { (**"*"** | **"div"** | **"and"**) <FACTOR> }

<FACTOR> :=   <VARIABLE>
               | <NUMBER>
               | (EXPRESSION)
               | **"not"** <FACTOR>

<VARIABLE> := <IDENTIFIER>

<EXPRESSION-LIST> := <EXPRESSION> { **";"** <EXPRESSION> }