MiniML Grammar Spec

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- 2 fevrier, 2023 Première Version

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- Fix Match_Case
- Fix NewContructor_Case

3 Tokens

3.1 Symbols

3.2 Separators

```
{ } [ ] ( ) ; : , * -> | =
```

3.3 Operators

```
+ * - / & |
```

3.4 Mots-Clefs

```
let rec fun in match with type of if then else
```

3.5 Types

```
int bool
```

3.6 Valeurs_Atomiques

```
nombre := ('-')?['0'-'9']*
boolean := ("true"|"false")
```

3.7 Identificateur

```
alphanum := ['a'-'z' 'A'-'Z' '0'-'9' '_']*
basic_ident := ['a'-'z' '_'] alphanum
constructeur_ident := ['A'-'Z'] alphanum
```

4 Grammaire

```
Prog := | Def
        | Expr
        | Prog ;; Prog
```

4.1 Variables

```
Variable := | basic_ident
            | Variable : Type
Variables:= | Variable
            | Variable Variables
```

4.2 Types

```
Type    :=  | int
            | bool
            | (Types -> Type) # Lambda_Type
            | ( -> Type) # Lambda_Type
            | ( Type_Ls ) # Tuple_Type
            | [ Type ] # List_Type
            | [ ] # EmptyList_Type ?

Types   :=  | Type
            | Type Types
Type_Ls :=  | Type
            | Type , Type_Ls
```

4.3 Expressions

```
Value   :=  | nombre
            | boolean

Expr    :=  | ( Expr )
            | Value
            | Variable
            | constructeur_ident Expr # Custom Expr
            | ( Expr , Exprs_Ls ) # Tuple
            | [ Exprs_Ls ] # List
            | [ ] # EmptyList
            | ( Exprs_Seq ) # Sequence
            | let Variable = Expr in Expr # Binding
            | fun Variables -> Expr # Lambda
```

```
            | let Variables = Expr in Expr # LambdaBinding (Sugar)
            | if Expr then Expr else Expr # Condition
            | Expr (Exprs_Arg) # Call
            | match Expr with Match_Case

Match_Case := | Expr -> Expr
              | Match_Case '|' Match_Case

Exprs_Arg := | Expr
             | Expr Exprs_Arg
Exprs_Ls  := | Expr
             | Expr , Exprs_Ls
Exprs_Seq := | Expr ; Exprs_Seq
```

4.4 Definitions

```
Def     :=   | let Variable = Expr
             | let Variables = Expr (Sugar)
             | type = ident NewContructor_Case # Type Declaration

NewContructor_Case :=   | constructeur_ident of Type
                        | NewContructor '|' NewContructor_Case
```