

# Compiler report - Project COCass

VILLANI Neven, ENS Paris-Saclay, PROGRAMMATION 1

January 7, 2021

## 1 Modifications

The following changes were made to existing constructs of the AST.

Each comes with an explanation of why it was deemed necessary in the context of other additions to the language.

### 1.1 Assignments

SET replaces both SET\_VAR and SET\_ARRAY as well as what was for some time SET\_DEREF.

- $x = 1; \not\rightarrow \text{SET\_VAR}("x", \text{CST } 1) \rightarrow \text{SET}(\text{VAR } "x", \text{CST } 1)$
- $t[0] = 1; \not\rightarrow \text{SET\_ARRAY}("t", \text{CST } 0, \text{CST } 1) \rightarrow \text{SET}(\text{OP2}(\text{S\_INDEX}, \text{VAR } "t", \text{CST } 0), \text{CST } 1)$
- $*x = 1 \not\rightarrow \text{SET\_DEREF}("x", \text{CST } 1) \rightarrow \text{SET}(\text{OP1}(\text{M\_DEREF}, \text{VAR } "x"), \text{CST } 1)$

Justification:

With the addition of  $*x$ , `SET_DEREF(x, e)` was first added but required much code duplication (all code related to assignment needed to appear thrice).

At first,  $t[x][y] = 1;$  was a parsing error, even though  $t[x][y]$  was a valid expression.

Since M\_DEREF added the horrible workaround  $\&t[x][y] = 1;$ , allowing any expression to be assigned to, I decided it was time to allow more expressions to be treated as lvalues. Changing assignment was deemed the best course of action.

At the same time, former constructors OPSET\_VAR, OPSET\_ARRAY and OPSET\_DEREF were all merged into OPSET.