

Input: Function call *code* in function *func* at WyIL level

Output: A list of code before a function call

1: **Variables**

CopyAnalyser: Copy elimination analyser

VarStore: A variable set stores the names of temporary variables

2: **end Variables**

3: // Generate pre-deallocation code of a function call

4: **procedure** OPTIMISE_PREFUNCTIONCALL(*code*, *func*)

5: *list* = []

6: *ret* = function return variable at *code*

7: **if** *ret* != NULL AND *ret* is an Array **then**

8: *list.append*("PRE_DEALLOC(*ret*)") // Pre-Deallocation Macro on *ret*

9: **end if**

10: *params* = parameter list of *code*

11: // Check each actual parameter *param* at *code*

12: **for** *index* $\leftarrow 0$; *index* < |*params*|; *index* ++ **do**

13: *param* = *params*[*index*]

14: **if** (*param* is an Array AND

15: \neg *CopyAnalyser*.ISCOPYREMOVED(*param*, *code*, *func*)) **then**

16: // Copying of *param* is needed

17: *tmp* \leftarrow *VarStore*(*index*, *code*, *func*) // Temporary variable *tmp*

18: // Store the copy of *param* with temporary variable *tmp*

19: *list.append*("void* *tmp* = COPY(*param*);")

20: **end if**

21: **end for** // Ending declaration

22: **return** *list*

23: **end procedure**