

Réponse question 3 du TD4 de compilation 2015

Soit $m_4 = \langle \text{fct}, 12, \text{meth}, \text{entier} \rangle . \langle \text{t}, @\text{tas}, \text{tab}, \text{entier} \rangle . \langle \text{x}, 3, \text{var}, \text{entier} \rangle . \langle \text{C}, \omega, \text{var}, * \rangle . []$ et @tas pointe sur le tableau [6, 6, 6, _]

[affectationT]₅₁ $m_4 \dashv\text{-- affectation}(\text{tab}(\text{ident}(\text{t}), 54, 55) \rightarrow m_r = \text{AffecterValT}(\text{t}, \text{ind}_0, v_0, m_4) = \text{AffecterValT}(\text{t}, 3, 6, m_4)$
 [appelE]₅₅ $m_4 \dashv\text{-- eval- appelE}(56, 57) \Rightarrow v_0 = 6$
 [appelI]₅₅ $m_4 \dashv\text{-- appelI}(\text{ident}(\text{fct}), 57) \rightarrow m_5 = \langle \text{fct}, 12, \text{meth}, \text{entier} \rangle . \langle \text{t}, @\text{tas}, \text{tab}, \text{entier} \rangle . \langle \text{x}, 3, \text{var}, \text{entier} \rangle . \langle \text{C}, 6, \text{var}, * \rangle . []$
 [vars]₁₈ $\text{ExpParam}(57, \text{Parametre}(\text{fct}, m_4), m_4) \dashv\text{-- Déclaration}(\text{fct}, m_4) \rightarrow m_6 \equiv$
 $m_9 \dashv\text{-- vars}(19, 22) \rightarrow m_6 \text{ où } m_9 = \langle \text{max}, 1, \text{var}, \text{entier} \rangle . m_4$
 [var]₁₉ $m_9 \dashv\text{-- var}(\text{entier}, \text{ident}(\text{y}), 21) \rightarrow m_{10} = \text{DeclVar}(\text{y}, v_1, \text{entier}, m_9, 0), \text{ donc } m_{10} = \langle \text{y}, 5, \text{var}, \text{entier} \rangle . m_9$
 [nbre]₂₁ $m_9 \dashv\text{-- eval- nbre}(5) \Rightarrow v_1 = 5$
 [vnil]₂₂ $m_{10} \dashv\text{-- vnil} \rightarrow m_6, \text{ donc } m_6 = m_{10}$
 [instrs]₂₃ $m_6 \dashv\text{-- Corps}(\text{fct}, m_6) \rightarrow m_7 \equiv m_6 \dashv\text{-- instrs}(24, 38) \rightarrow m_7 = \langle \text{y}, 6, \text{var}, \text{entier} \rangle . \langle \text{max}, 0, \text{var}, \text{entier} \rangle .$
 $\langle \text{fct}, 12, \text{meth}, \text{entier} \rangle . \langle \text{t}, @\text{tas}, \text{tab}, \text{entier} \rangle . \langle \text{x}, 3, \text{var}, \text{entier} \rangle . \langle \text{C}, 6, \text{var}, * \rangle . []$
 [tantquevrai]₂₄ $m_6 \dashv\text{-- tantque}(25, 28) \rightarrow m_{11}$
 [op2]₂₅ $m_6 \dashv\text{-- eval- } >(26, 27) \Rightarrow v_2 = v_3 > v_4 = 1 > 0 = \text{true}$
 [ident]₂₆ $m_6 \dashv\text{-- eval- ident}(\text{max}) \Rightarrow v_3 = 1$
 [nbre]₂₇ $m_9 \dashv\text{-- eval - nbre}(0) \Rightarrow v_4 = 0$
 [instrs]₂₈ $m_6 \dashv\text{-- instrs}(29, 31) \rightarrow m_{12} = m_{14}$
 [somme]₂₉ $m_6 \dashv\text{-- somme}(\text{ident}(\text{y}), 30) \rightarrow m_{13} = \text{AffecterVal}(\text{y}, \text{Val}(\text{y}, m_6) + v_{11}, m_6)$
 $\text{ donc } m_{13} = \text{AffecterVal}(\text{y}, 5+1, m_6), \text{ donc } m_{13} = \langle \text{y}, 6, \text{var}, \text{entier} \rangle . m_9$
 [ident]₃₀ $m_6 \dashv\text{-- eval- ident}(\text{max}) \Rightarrow v_{11} = 1$
 [instrs]₃₁ $m_{13} \dashv\text{-- instrs}(32, 37) \rightarrow m_{12}$

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[affectation]32 m13-- affectation(ident(max), 34) → m14 = AffecterVal(max, v8, m13)
donc m14 = AffecterVal(max, 0, m13), m14 = <y, 6, var, entier>.<max, 0, var, entier>.m4
[op2]25 m12|-eval- -(35, 36) ⇒ v8 = v9-v10 = 1-1=0
[ident]35 m13|-eval- ident(max) ⇒ v9 = 1
[nbre]36 m9|-eval- nbre(1) ⇒ v10 = 1
[inil]37 m14-- inil → m14 = m12
[tantquefaux]24 m12 |-- tantque(25, 28) → m11 = m12 = m14
[op2]25 m12 |- eval - >(26, 27) ⇒ v5 = v6 > v7 = 0 > 0 = false
[ident]26 m12 |-eval- ident(max) ⇒ v6 = 0
[nbre]27 m12 |-eval- nbre(0) ⇒ v7 = 0
[instrs]38 m11 |-- instrs(39, 41) → m7
[retour]39 m11 |-- retour(ident(y)) → m15 = AffecterVal(VariableClasse(m6), v12, m11) = AffecterVal(C, 6, m11)
donc m15 = <y, 6, var, entier>.<max, 0, var, entier>.<fct, 12, meth, entier>.<t, @tas, tab, entier>.<x, 3, var, entier>.<C, 6, var, *>.[ ]
[ident]40 m11 |-eval- ident(y) ⇒ v12 = 6
[inil]41 m15-- inil → m15 = m7
[rvars]18 m7 |-retrait- Déclaration(fct, m7) → m8 ≡ m7 |-retrait- vars(19, 22) → m8 = m15
[rvar]19 m7 |-retrait- var(17, 20, 21) → m16 = RetirerDecl(y, m7), donc m16 = <max, 0, var, entier>.<fct, 12, meth, entier>.<t, @tas, tab, entier>.<x, 3, var, entier>.<C, 6, var, *>.[ ]
[rvnil]22 m16 |-retrait- vnil → m16 = m8
[rentetes] m8 |-retrait- Parametre(fct, m8) → m5 ≡ m8 |-retrait- entetes(15, 17) → m5
[rentete]19 m8 |-retrait-- entete(entier, 16) → m17 = RetirerDecl(max, m8),
donc m17 = <fct, 12, meth, entier>.<t, @tas, tab, entier>.<x, 3, var, entier>.<C, 6, var, *>.[ ]
[renil]22 m17 |-retrait- enil → m17 = m5
[ident] m5 |-eval- VariableClasse (m5) ⇒ v0 ≡ m5 |-eval- ident (C) ⇒ v0 = 6
[ident]24 m4 |-eval- ident(x) ⇒ ind0 = Val(x, m4) = 3

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