3. Si consideri il seguente albero, dove $\to$ rappresenta la SOS a piccoli passi e $\overset{*}{\to}$ la sua chiusura transitiva.

$$\dfrac{(f(3),s) \overset{*}{\underset{r}{\to}} (5,s)}{\dfrac{(f(3),s) \underset{r}{\to} \underbrace{(\langle [] + \mathbf{int}\ x; \leftrightarrow 3 \div x = x+2;, x\rangle, s[3/l_2])}_{\mathtt{conf}_0}}{\mathtt{conf}_0}\ r(f)=(\mathbf{int}\ x;,x=x+2;,x)} \qquad \dfrac{\mathtt{conf}_0 \overset{*}{\underset{r}{\to}} (5,s)}{\dfrac{\mathtt{conf}_0 \overset{*}{\underset{r}{\to}} \underbrace{(\langle [l_1/x] \div x = x+2;, x\rangle, s[3/l_2])}_{\mathtt{conf}_1}}{\mathtt{conf}_1}\ \mathtt{cond}_1} \qquad T_3$$

dove T_3 è l'albero

$$\dfrac{\mathtt{conf}_1 \overset{*}{\underset{r}{\to}} (5,s)}{\dfrac{\mathtt{conf}_1 \underset{r}{\to} \underbrace{(\langle [l_1/x] \div x = 3+2;, x\rangle, s[3/l_2])}_{\mathtt{conf}_2}}{\dfrac{\dfrac{\dfrac{(x=x+2;,s[3/l_2]) \underset{r_1}{\to} (x=3+2;,s[3/l_2])}{(x=x+2,s[3/l_2]) \underset{r_1}{\to} (x=3+2,s[3/l_2])}}{(x,s[3/l_2]) \underset{r_1}{\to} (3,s[3/l_2])}\ s[3/l_2](r_1(x))=3}\ \mathtt{cond}_1} \qquad \dfrac{\mathtt{conf}_2 \overset{*}{\underset{r}{\to}} (5,s)}{\dfrac{\mathtt{conf}_2 \underset{r}{\to} \underbrace{(\langle [l_1/x] \div x = 5;, x\rangle, s[3/l_2])}_{\mathtt{conf}_3}}{\dfrac{\dfrac{(x=3+2;,s[3/l_2]) \underset{r_1}{\to} (x=5;,s[3/l_2])}{(x=3+2,s[3/l_2]) \underset{r_1}{\to} (x=5,s[3/l_2])}}{(3+2,s[3/l_2]) \underset{r_1}{\to} (5,s[5/l_2])}\ \mathbf{3+2=5}}\ \mathtt{cond}_1} \qquad \dfrac{\mathtt{conf}_3 \overset{*}{\underset{r}{\to}} (5,s[5/l_2])}{\dfrac{\mathtt{conf}_3 \underset{r}{\to} (\langle [l_1/x] \div x\rangle, s[5/l_2])}{\dfrac{(x=5;,s[3/l_2]) \underset{r_1}{\to} (\lambda, s[5/l_2])}{(x=5,s[3/l_2]) \underset{r_1}{\to} (5,s[5/l_2])}}\ \mathtt{cond}_1} \qquad \dfrac{(\langle [l_1/x] \div x\rangle, s[5/l_2]) \overset{*}{\underset{r}{\to}} (5,s)}{\dfrac{(\langle [l_1/x] \div x\rangle, s[5/l_2]) \underset{r}{\to} (5,s)}{T}\ \mathtt{cond}_1}$$

Indicando l'isomorfismo fra $\mathtt{Loc}$ e $L_{\mathtt{Loc}}(\mathbf{LW})$ con $\mathtt{sem2sin} : \mathtt{Loc} \to L_{\mathtt{Loc}}(\mathbf{LW})$ e $\mathtt{sin2sem} : L_{\mathtt{Loc}}(\mathbf{LW}) \to \mathtt{Loc}$, affinché l'albero sia corretto bisogna sostituire:

$\mathtt{cond}_1$ con	r_1 con	T con
$l_2 = \mathtt{sin2sem}(l_1) \wedge \mathtt{Nuova}(l_2, r, s)$	$r[rl]$	$\dfrac{(x,s[5/l_2]) \underset{r_1}{\to} (5,s[5/l_2])}{}$
$l_2 = \mathtt{sem2sin}(l_1) \wedge \mathtt{Nuova}(l_2, r, s)$	$r[l_1/x]$	$\dfrac{(x,s[5/l_2]) \underset{r_1}{\to} (5,s)}{}$
$l_1 = \mathtt{sin2sem}(l_2) \wedge \mathtt{Nuova}(l_2, r, s)$	$r[l_2/x]$	
$l_1 = \mathtt{sem2sin}(l_2) \wedge \mathtt{Nuova}(l_2, r, s)$	$r[\mathtt{sin2sem}(l_1)/x]$	$\dfrac{(x,s[5/l_2])_{r[l_2/x]} \overset{\to}{} (5,s[5/l_2])}{}$
$l_1 = l_2 \wedge \mathtt{Nuova}(l_2, r, s)$	$r[\mathtt{sem2sin}(l_2)/x]$	
$\mathtt{Nuova}(l_2, r, s)$	r	