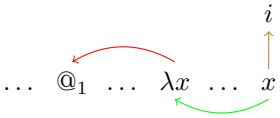
1 Labelled Transition System для Traversals

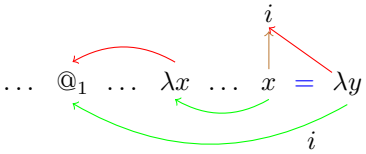
- Вход: λ-терм $M \in \Lambda$ вида $\Lambda @ \Lambda \mid \Lambda\ x\ .\ \Lambda \mid x$;
- Пространство состояний — множество цепочек вида $n_1,\ \ldots,\ n_m,\ \ldots$, где $\forall i,\ n_i$ — узел дерева для M;
- Метка перехода — добавляемый узел дерева.

1.1 Rules

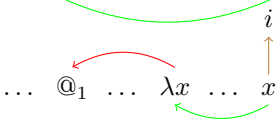
1. (BVars)
   - (BVar – Lam)



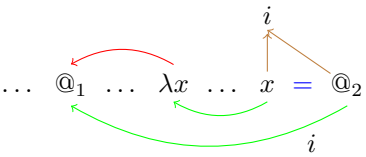
   $\longrightarrow^{\lambda y}$



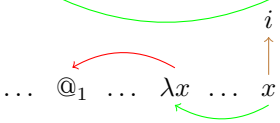
   - (BVar – App)



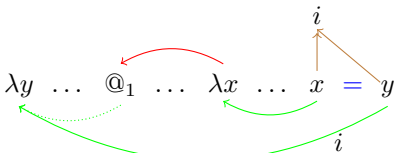
   $\longrightarrow^{@_2}$



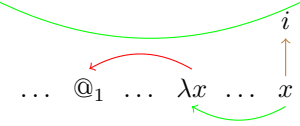
   - (BVar – BVar)



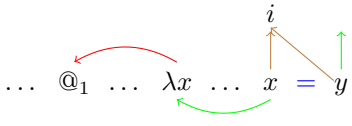
   $\longrightarrow^{y}$, где $\exists\ \lambda y$ в истроии, доступная по цепочке зеленых указателей из $@_1$



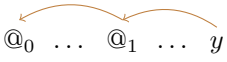
   - (BVar – FVar)



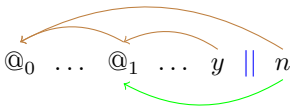
   $\longrightarrow^{y}$, где $\nexists\ \lambda y$ в истроии, доступная по цепочке зеленых указателей из $@_1$



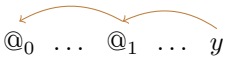
2. (FVars)
   - (FVar – Not-FVar)



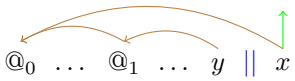
   $\longrightarrow^{n}$, where n is a right child of $@_1$ and $n \neq$ (FVar)



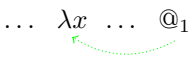
- (FVar – FVar)



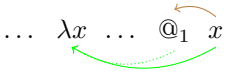
$\longrightarrow^{x}$, where n is a right child of $@_1$ and $n =$ (FVar)



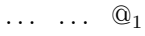
3. (Apps)
   - (App – BVar)



$\longrightarrow^{x}$



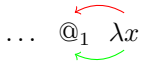
   - (App – FVar)



$\longrightarrow^{y}$, such that $\nexists \lambda y$ in tarversal: $@_1 -\!\!- > \lambda y$

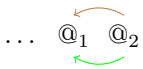
   - (App – Lam)

$\longrightarrow^{\lambda x}$

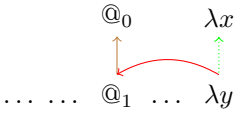


   - (App – App)

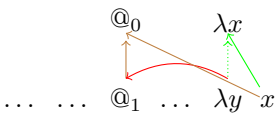
$\longrightarrow^{@_2}$



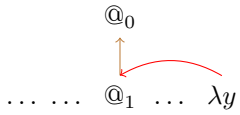
4. (Lam-Reds)
   - (Lam-Red – BVar)



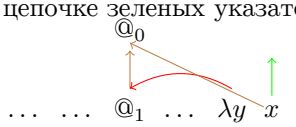
$\longrightarrow^{x}$



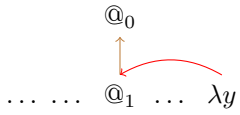
- (Lam-Red – FVar)



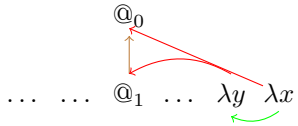
$\longrightarrow^{x}$, где $\nexists\ \lambda x$ в истории, доступная по цепочке зеленых указателей из λy



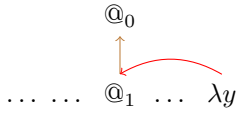
- (Lam-Red – Lam)



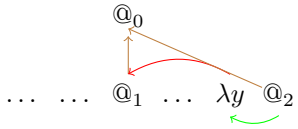
$\longrightarrow^{\lambda x}$



- (Lam-Red – App)

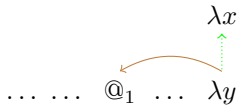


$\longrightarrow^{@_2}$

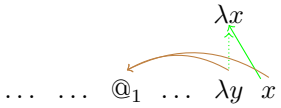


5. (Lam-Browns)

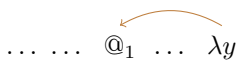
- (Lam-Brown – BVar)



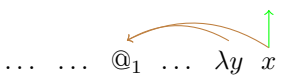
$\longrightarrow^{x}$



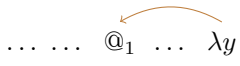
- (Lam-Brown – FVar)



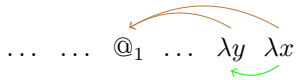
$\longrightarrow^{x}$, где $\nexists\ \lambda x$ в истории, доступная по цепочке зеленых указателей из λy



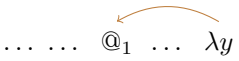
- (Lam-Brown – Lam)



$\longrightarrow^{\lambda x}$



- (Lam-Brown – App)



$\longrightarrow^{@_2}$