1 Labelled Transition System for Head Linear Reduction

1.1 Notes

State is a tuple $\langle$ λ-term with underlined node, context, list of arguments $\rangle$, where

- λ-term with underlined node is a usual lambda term with one underlined position;
- context Γ is an unordered list of pair $(variable : term)$;
- list of arguments Δ is an ordere list of λ-terms.

1.2 Rules

1. (App)
   $\ldots(e_1 \underline{@} e_2)\ldots;\ \Gamma;\ \Delta \longrightarrow \ldots(\underline{e_1} @ e_2)\ldots;\ \Gamma;\ e_2 : \Delta$
2. (Lam–elim)
   $\ldots(\underline{\lambda x}.e_1)\ldots;\ x : B,\ \Gamma;\ B,\ \Delta \longrightarrow \ldots(\lambda x.\underline{e_1})\ldots;\ x : B,\ \Gamma;\ \Delta$
3. (Lam–non-elim)
   $\ldots(\underline{\lambda x}.e_1)\ldots;\ x : B,\ \Gamma;\ \$,\ \Delta \longrightarrow \ldots(\lambda x.\underline{e_1})\ldots;\ \Gamma;\ \$,\ \Delta$
4. (BVar)
   $\ldots\underline{x}\ldots;\ x : B,\ \Gamma;\ \Delta \longrightarrow \ldots\underline{B}\ldots;\ x : B,\ \Gamma;\ \Delta$
5. (FVar–pause-0)
   $\ldots\underline{x}\ldots;\ (x : \_) \notin \Gamma;\ B,\ \Delta \longrightarrow \ldots\underline{B}\ldots;\ \Gamma;\ \$,\ \Delta$
6. (FVar–pause-1)
   $\ldots\underline{x}\ldots;\ (x : \_) \notin \Gamma;\ \$,\ B,\ \Delta \longrightarrow \ldots\underline{B}\ldots;\ \Gamma;\ \$,\ \Delta$
7. (FVar–pause-2)
   $\ldots\underline{x}\ldots;\ (x : \_) \notin \Gamma;\ \$,\ \$,\ \Delta \longrightarrow \ldots\underline{x}\ldots;\ \Gamma;\ \$,\ \Delta$
8. (FVar–stuck)
   $\ldots\underline{x}\ldots;\ (x : \_) \notin \Gamma;\ \emptyset \longrightarrow$ THE END