

LAMBDA

MODULE LAMBDA

SYNTAX $Exp ::= Int$
| $Bool$
| Id
| (Exp) [bracket]
| $Exp\ Exp$
| $Exp * Exp$
| Exp / Exp
| $Exp + Exp$
| $Exp <= Exp$
| $\lambda id . Exp$
| $if\ Exp\ then\ Exp\ else\ Exp$
| $let\ Id = Exp\ in\ Exp$
| $letrec\ Id\ Id = Exp\ in\ Exp$
| $mu\ Id . Exp$

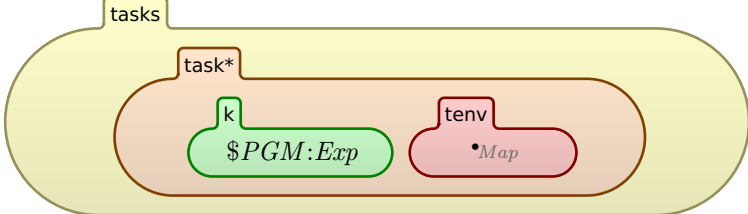
SYNTAX $Type ::= int$
| $bool$
| $Type \rightarrow Type$
| $(Type)$ [bracket]

SYNTAX $Exp ::= Type$

SYNTAX $Variable ::= Id$

SYNTAX $KResult ::= Type$

CONFIGURATION:



RULE $\frac{I:Int}{int}$

RULE $\frac{B:Bool}{bool}$

RULE $\frac{X:Id}{T}$ $X \mapsto T$

RULE $\frac{E1 * E2}{int}$ ρ $\xrightarrow{\bullet Bag}$ $\frac{E1 = int}{E2 = int}$ ρ

RULE $\frac{E1 / E2}{int}$ ρ $\xrightarrow{\bullet Bag}$ $\frac{E1 = int}{E2 = int}$ ρ

RULE $\frac{E1 + E2}{int}$ ρ $\xrightarrow{\bullet Bag}$ $\frac{E1 = int}{E2 = int}$ ρ

RULE $\frac{E1 <= E2}{bool}$ ρ $\xrightarrow{\bullet Bag}$ $\frac{E1 = int}{E2 = int}$ ρ

RULE $\frac{\lambda id . E}{Tx:Type \rightarrow Te:Type}$ $TEnv$ $\xrightarrow{\bullet Bag}$ $\frac{E = Te}{TEnv[X \leftarrow Tx]}$

RULE $\frac{E1\ E2}{T:Type}$ ρ $\xrightarrow{\bullet Bag}$ $\frac{E1 = T2 \rightarrow T}{E2 = T2:Type}$ ρ

RULE $\frac{if\ E\ then\ E1\ else\ E2}{T:Type}$ ρ $\xrightarrow{\bullet Bag}$ $\frac{E = bool}{E1 = T}{E2 = T}$ ρ

RULE $\frac{let\ X = E\ in\ E'}{(lambda\ X . E')\ E}$ [macro]

RULE $\frac{letrec\ F\ X = E\ in\ E'}{let\ F = mu\ F . lambda\ X . E\ in\ E'}$ [macro]

RULE $\frac{mu\ X . E}{T:Type}$ $TEnv$ $\xrightarrow{\bullet Bag}$ $\frac{E = T}{TEnv[X \leftarrow T]}$

SYNTAX $KItem ::= Exp = Exp$ [strict]

RULE $\frac{T:Type = T:Type}{\bullet K}$

RULE $\frac{\bullet K}{\bullet Bag}$

END MODULE