LAMBDA

MODULE LAMBDA

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

SYNTAX *Type* ::= int
| bool
| *Type* -> *Type*
| (*Type*) [bracket(bracket())]

SYNTAX *Exp* ::= *Type*

SYNTAX *Variable* ::= *Id*

SYNTAX *KResult* ::= *Type*

CONFIGURATION:

k
$\$PGM:Exp$

RULE $\dfrac{I:Int}{\texttt{int}}$

RULE $\dfrac{B:Bool}{\texttt{bool}}$

RULE $\dfrac{T1:Type \texttt{ * } T2:Type}{T1 \texttt{ = int} \curvearrowright T2 \texttt{ = int} \curvearrowright \texttt{int}}$

RULE $\dfrac{T1:Type \texttt{ / } T2:Type}{T1 \texttt{ = int} \curvearrowright T2 \texttt{ = int} \curvearrowright \texttt{int}}$

RULE $\dfrac{T1:Type \texttt{ + } T2:Type}{T1 \texttt{ = int} \curvearrowright T2 \texttt{ = int} \curvearrowright \texttt{int}}$

RULE $\dfrac{T1:Type \texttt{ <= } T2:Type}{T1 \texttt{ = int} \curvearrowright T2 \texttt{ = int} \curvearrowright \texttt{bool}}$

RULE $\dfrac{\texttt{lambda } X \texttt{ . } E:Exp}{E[T \texttt{ / } X] \curvearrowright T:Type \texttt{ -> } \square}$

RULE $\dfrac{T2:Type \curvearrowright T1:Type \texttt{ -> } \square}{T1 \texttt{ -> } T2}$

RULE $\dfrac{T1:Type \quad T2:Type}{T1 \texttt{ = (} T2 \texttt{ -> } T:Type\texttt{)} \curvearrowright T}$

RULE $\dfrac{\texttt{if } T:Type \texttt{ then } T1:Type \texttt{ else } T2:Type}{T \texttt{ = bool} \curvearrowright T1 \texttt{ = } T2 \curvearrowright T1}$

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

RULE $\dfrac{\texttt{letrec } F \ X \texttt{ = } E \texttt{ in } E'}{\texttt{let } F \texttt{ = mu } F \texttt{ . lambda } X \texttt{ . } E \texttt{ in } E'}$ [macro(macro())]

RULE $\dfrac{\texttt{mu } X \texttt{ . } E}{(T:Type \texttt{ -> } T) \ (E[T \texttt{ / } X])}$

SYNTAX *KItem* ::= *Type* = *Type*

RULE $\dfrac{T \texttt{ = } T}{\bullet_K}$

END MODULE