IMP

MODULE IMP-SYNTAX

SYNTAX $AExp$ ::= Int
| $String$
| Id
| `++` Id
| `read` ()
| $AExp$ `/` $AExp$ [division, strict]
| $AExp$ `+` $AExp$ [strict]
| ($AExp$) [bracket]

SYNTAX $BExp$ ::= $Bool$
| $AExp$ $\leq$ $AExp$ [seqstrict]
| `!` $BExp$ [strict]
| $BExp$ `&&` $BExp$ [strict(1)]
| ($BExp$) [bracket]

SYNTAX $Block$ ::= {}
| {$Stmt$}

SYNTAX $Stmt$ ::= $Block$
| Id `=` $AExp$ `;` [strict(2)]
| `if` ($BExp$)$Block$ `else` $Block$ [strict(1)]
| `while` ($BExp$)$Block$
| `int` Ids `;`
| `print` ($AExps$) `;` [strict]
| `halt` `;`
| `spawn` $Stmt$
| $Stmt$ $Stmt$

SYNTAX Ids ::= $List$\{Id, "," \}

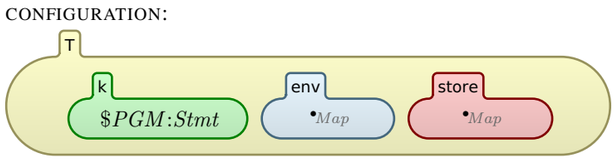
SYNTAX $AExps$ ::= $List$\{$AExp$, "," \} [seqstrict]

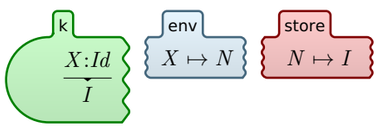
END MODULE

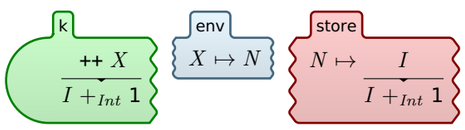
MODULE IMP

SYNTAX $KResult$ ::= Int
| $Bool$

CONFIGURATION:



RULE  [lookup]

RULE  [increment]

RULE $\frac{I1 \ \texttt{/} \ I2}{I1 \div_{Int} I2}$ requires $I2 =/=_{Int} 0$

RULE $\frac{I1 \ \texttt{+} \ I2}{I1 +_{Int} I2}$

RULE $\frac{I1 \leq I2}{I1 \leq_{Int} I2}$

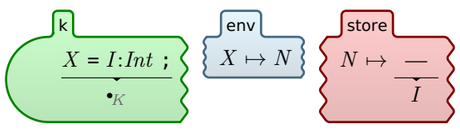
RULE $\frac{\texttt{!} \ T}{\neg_{Bool} T}$

RULE $\frac{\texttt{true} \ \&\& \ B}{B}$

RULE $\frac{\texttt{false} \ \&\& \ \_}{\texttt{false}}$

RULE $\frac{\{\}}{\bullet_K}$ [structural]

RULE $\frac{\{S\}}{S}$ [structural]

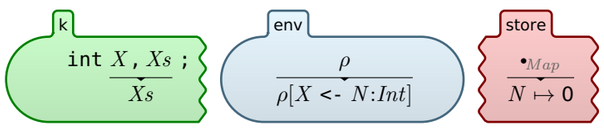
RULE  [structural]

RULE $\frac{S1{:}Stmt \quad S2{:}Stmt}{S1 \curvearrowright S2}$ [structural]

RULE $\frac{\texttt{if} \ (\texttt{true})S \ \texttt{else} \ \_}{S}$

RULE $\frac{\texttt{if} \ (\texttt{false})\_ \ \texttt{else} \ S}{S}$

RULE $\frac{\texttt{while} \ (B)S}{\texttt{if} \ (B)\{S \ \ \texttt{while} \ (B)S\} \ \texttt{else} \ \{\}}$ [structural]

RULE  [structural]

RULE $\frac{\texttt{int} \ \bullet_{Ids} \ \texttt{;}}{\bullet_K}$ [structural]

END MODULE