

IMP

MODULE IMP-SYNTAX

SYNTAX

$AExp ::= Int$

|

Id

|

$AExp / AExp$ [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)]

|

$\text{if } (BExp)Block \text{ else } Block$ [strict(1)]

|

$\text{while } (BExp)Block$

|

$Stmt \quad Stmt$

SYNTAX

$Pgm ::= \text{int } Ids ; Stmt$

SYNTAX

$Ids ::= List\{Id, \text{“}, \text{”}\}$

END MODULE

MODULE IMP

SYNTAX

$KResult ::= Int$

|

$Bool$

CONFIGURATION:

RULE

RULE

$$\frac{I1 / I2}{I1 \div_{Int} I2}$$

requires $I2 \neq_{Int} 0$

RULE

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

RULE

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

RULE

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

RULE

$$\frac{\text{true} \&\& B}{B}$$

RULE

$$\frac{\text{false} \&\& \text{—}}{\text{false}}$$

RULE

$$\frac{\{ \}}{\bullet_K}$$

[structural]

RULE

$$\frac{\{ S \}}{\bar{S}}$$

[structural]

RULE

RULE

$$\frac{S1:Stmt \quad S2:Stmt}{S1 \curvearrowright S2}$$

[structural]

RULE

$$\frac{\text{if (true)}S \text{ else —}}{S}$$

RULE

$$\frac{\text{if (false)— else } S}{S}$$

RULE

$$\frac{\text{while } (B)S}{\text{if } (B)\{S \text{ while } (B)S\} \text{ else } \{ \}}$$

[structural]

RULE

$$\frac{\text{int } X, Xs ; \text{—}}{\bar{Xs}}$$

requires $\neg_{Bool}(X \text{ in keys } (\rho))$

$$\frac{\rho:Map \quad \bullet_{Map}}{X \mapsto 0}$$

RULE

$$\frac{\text{int } \bullet_{Ids} ; S}{\bar{S}}$$

[structural]

END MODULE