

# IMP

## MODULE IMP-SYNTAX

```
SYNTAX  AExp ::= Int
          | Id
          | AExp / AExp [strict]
          | AExp + AExp [strict]
          | (AExp) [bracket]

SYNTAX  BExp ::= Bool
          | AExp ≤ 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
          | Stmt Stmt

SYNTAX  Pgm ::= int Ids ; Stmt

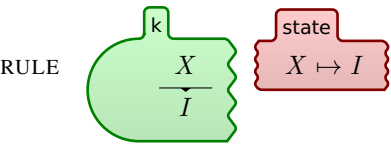
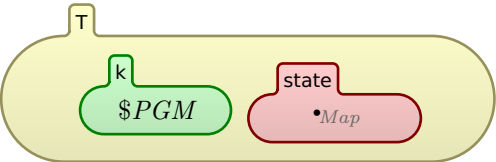
SYNTAX  Ids ::= List{Id, “,”}
```

END MODULE

## MODULE IMP

```
SYNTAX  KResult ::= Int
          | Bool
```

CONFIGURATION:



RULE  $\frac{I1 \ / \ I2}{I1 \div_{Int} I2}$  requires  $I2 \neq_{Int} 0$

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

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

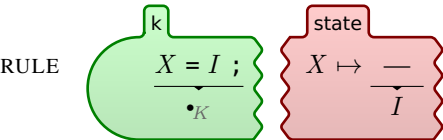
RULE  $\frac{! \ T}{\neg_{Bool} T}$

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

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

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

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



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

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

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

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

RULE  $\frac{\text{int } X, Xs ; \text{—}}{Xs}$  requires  $\neg_{Bool}(X \text{ in keys } (\rho))$

RULE  $\frac{\text{int } \bullet_{Ids} ; S}{S}$  [structural]

END MODULE