

# IMP

MODULE IMP-SYNTAX

```
SYNTAX  AExp ::= Int
          | String
          | Id
          | ++ Id
          | read ()
          | AExp / AExp [strict, division]
          | 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
          | int Ids ;
          | print (AExps) ; [strict]
          | halt ;
          | spawn Stmt
          | Stmt Stmt
```

```
SYNTAX  Ids ::= List{ Id, “,” } [strict]
```

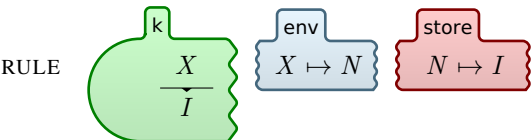
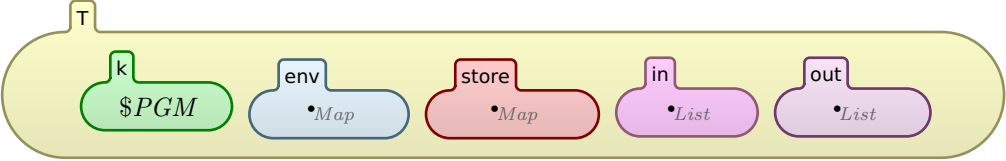
```
SYNTAX  AExps ::= List{ AExp, “,” } [strict]
```

END MODULE

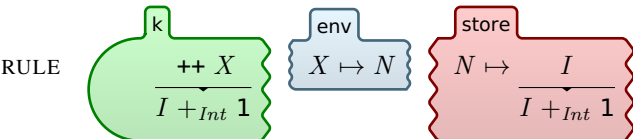
MODULE IMP

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

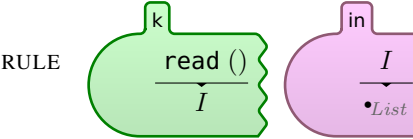
CONFIGURATION:



[lookup]



[increment]



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

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

RULE  $\frac{Str1 + Str2}{Str1 +_{String} Str2}$

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

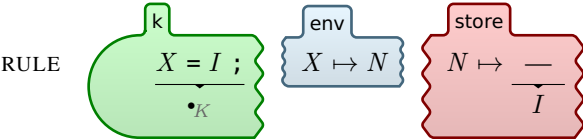
RULE  $\frac{! T}{\neg_{Bool} T}$

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

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

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

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

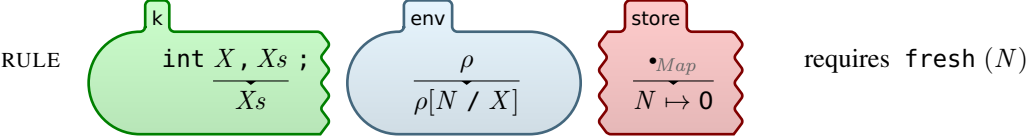


RULE  $\frac{S1 \ S2}{S1 \curvearrowright S2}$  [structural]

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

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

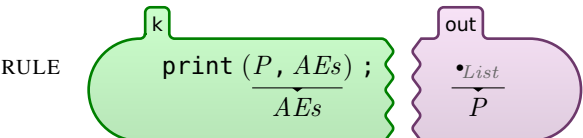
RULE  $\frac{\text{while } (B) S}{\text{if } (B) \{ S \ \text{while } (B) S \} \text{ else } \{ \}}$  [structural]



RULE  $\frac{\text{int } \bullet_{ids} ;}{\bullet_K}$  [structural]

```
SYNTAX  Printable ::= Int
          | String
```

```
SYNTAX  AExp ::= Printable
```



RULE  $\frac{\text{print } (\bullet_{AExps}) ;}{\bullet_K}$  [structural]

END MODULE