

```

MODULE ERTIST
IMPORTS GENERIC-EXP-SEMANTICS
SYNTACTIC CONSTRUCTS:
Attr ::=
| Attr Attr [renameTo ↗~]
| -expect( [ Fun ] )
| -import( #Name, [ Fun ] )
Cases ::=
| Cases : Cases
Decl ::=
| Pattern ; Exprs
| FunCases
| Decl Decl [renameTo ↗~]
ETerm ::= #Bool[ #Int] #Name[ #String]
| []
| [ ETerm — ETerm ] | strict
Exp ::= Pattern[ #Bool] #Int[ #Name]
| self()
| #Name()
| [ Exprs ] [aux]
| Exprs [strict]
| receive Cases end
| length( Expr ) [strict]
| tuple-size( Expr ) [strict]
| Expr, Expr [strict]
| Pattern = Expr [strict(2)]
| #Name ( Expr )
| [ Expr — Expr ] | strict
| case Expr of Cases end | strict(1)
| element( Expr, Expr ) | strict
| #Name : #Name ( Expr ) [strict(3)]
| setelement( Expr, Expr, Expr ) [strict]
| spawn( Expr, Expr, Expr ) [strict]
Exprs ::= ExprPatterns
| Exprs : Exprs [strict(1)]
| Exprs, Exprs [aux]
| Exprs, Exprs [strict]
Fun ::=
| Fun, Fun
| #Name // #Int
FunCases ::=
| FunCases : FunCases [renameTo ↗~]
| #Name() ; Exprs
| #Name ( Pattern ) = Exprs
Mod ::=
| Mod Mod [renameTo ↗~]
| -module( #Name ). Attr
| -module( #Name ). Decl
| -module( #Name ). Attr Decl
Pattern ::= ETerm
| Patterns
| pid, #Name )
| [ Pattern — Pattern ] | strict
Patterns ::= Pattern
| Patterns : Patterns
| Patterns, Patterns [aux]
Prgm ::= Mod Stmt
| Mod Stmt [renameTo ↗~]
Stmt ::=
| Exp, [strict]
| Stmt Stmt [renameTo ↗~]
| match( Pattern, Expr ) | strict(2)
SEMANTIC CONSTRUCTS:
Config ::=
| run( Prgm )
K ::=
| match failure
| check-msg( K )
KResult ::=
| List( KResult ) at Nat
List( KResult ) ::=
| del List( KResult ) at Nat
CONFIGURATION:


```

# K EQUATIONS AND RULES:

EQUATION:

$$\frac{}{\parallel}$$

EQUATION:

$$\frac{}{-}$$

EQUATION:

$$\frac{V}{\bullet}$$

EQUATION:

$$\frac{P = V}{\text{match}(P, V) \wedge V}$$

EQUATION:

$$\frac{}{\Phi(\cdot)}$$

EQUATION:

$$\frac{V, V'}{V, V'}$$

EQUATION:

$$\frac{}{[V = V'] \mid [V = V']}$$

EQUATION:

$$\frac{V}{V}$$

EQUATION:

$$\frac{}{\text{length}(\square)}_0$$

EQUATION:

$$\frac{}{\text{length}([V = V])}_\text{length}(V) + 1$$

EQUATION:

$$\frac{}{\text{match}(V, V)}_\bullet$$

EQUATION:

$$\frac{}{\text{match}(\square, \square)}_\bullet$$

EQUATION:

$$\frac{}{\text{match}([H - T] : [VH - VT])}_\text{match}(H, VH) \wedge \text{match}(T, VT)$$

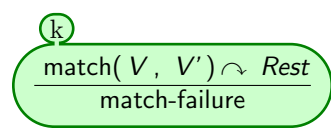
EQUATION:

$$\frac{}{\text{match}(\text{pid}(N), \text{pid}(\rho))}_\text{match}(N, \text{pid}(\rho))$$

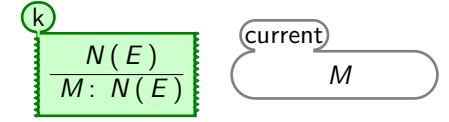
EQUATION:

$$\frac{}{\text{receive } PEx\text{end}}_{\text{check-msg}(P\acute{E}s) \wedge \text{receive } PEx\text{end}}$$

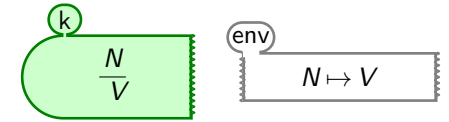
EQUATION:



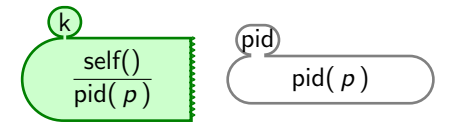
EQUATION:



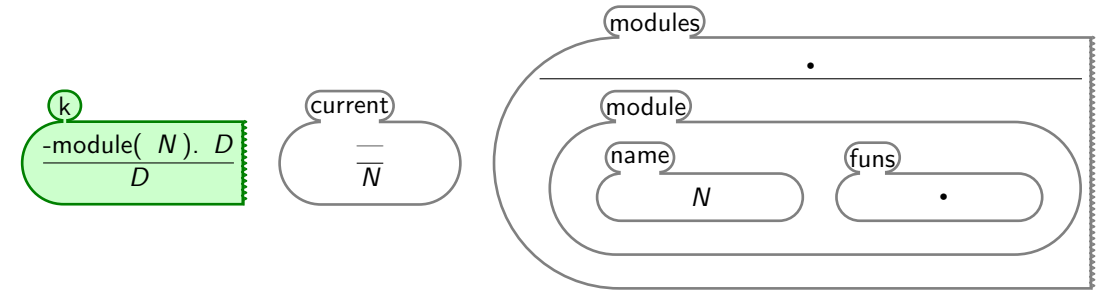
EQUATION:



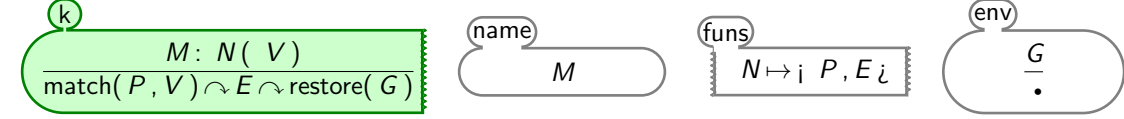
EQUATION:



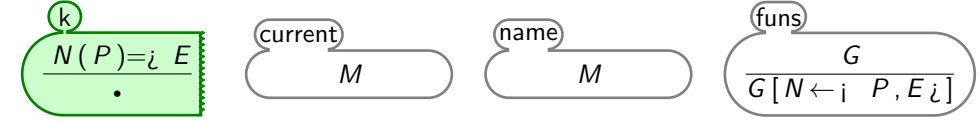
EQUATION:



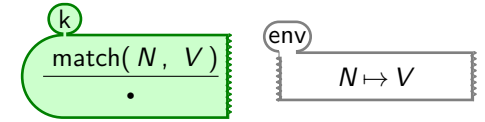
EQUATION:



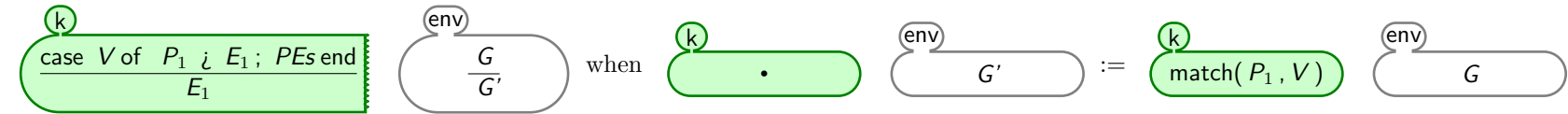
EQUATION:



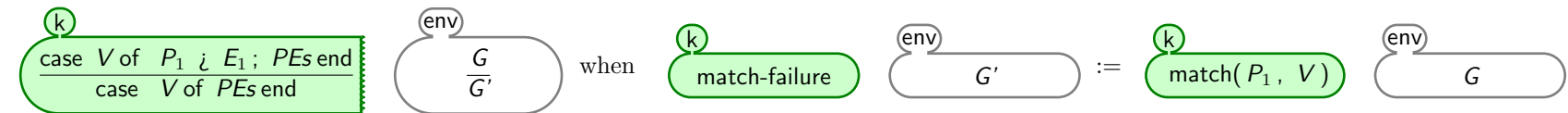
EQUATION:



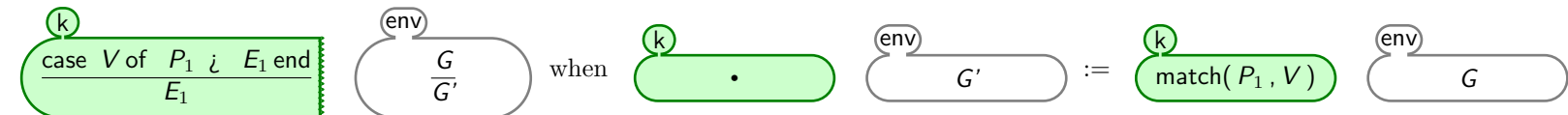
EQUATION:



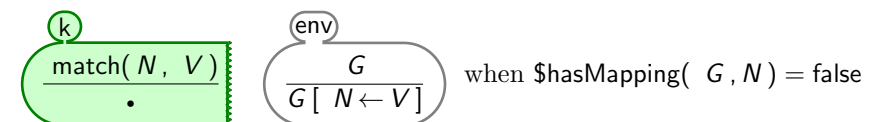
EQUATION:



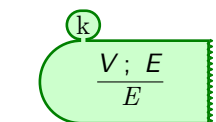
EQUATION:



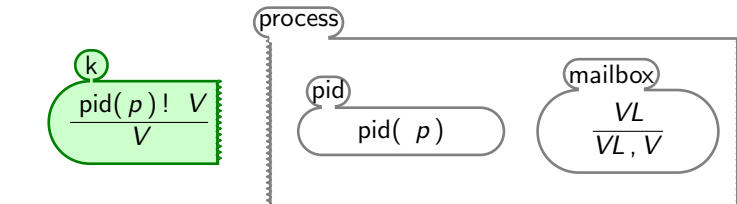
EQUATION:



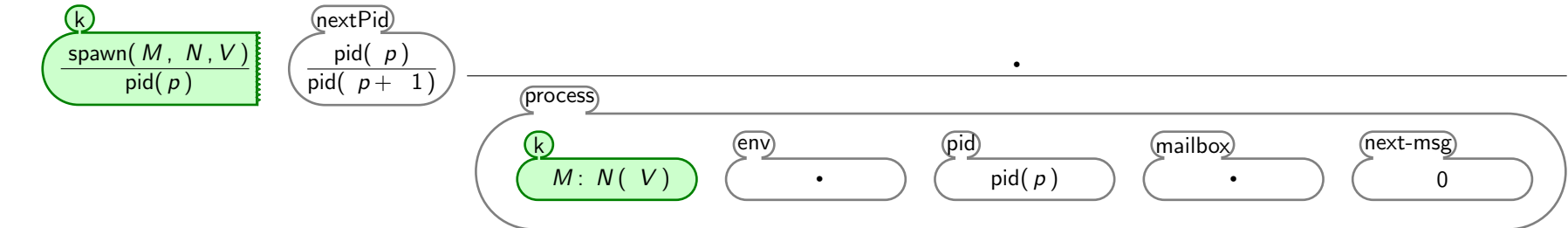
RULE:



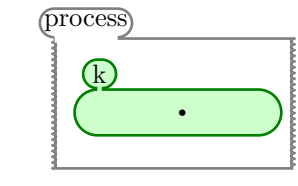
RULE:



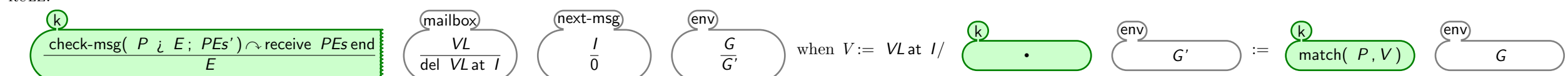
RULE:



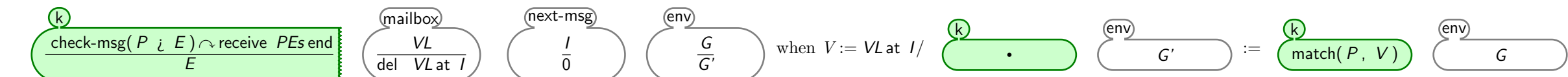
RULE:



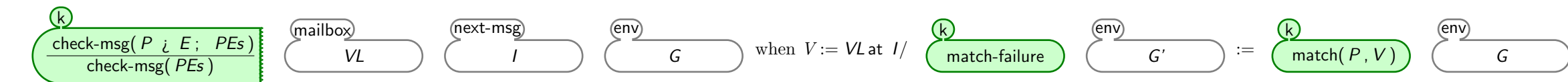
RULE:



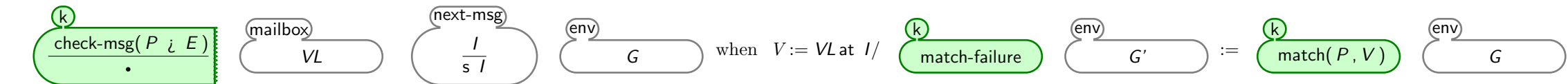
RULE:



RULE:



RULE:



EQUATION:  $N() = N([ ])$

EQUATION:  $N([ ] =_L T = M[ ] ) =_L T$

EQUATION:  $ES, ES' = ES, ES'$

EQUATION:  $PS, PS' = PS, PS'$

EQUATION:  $V, VL \text{ at } 0 = V$

EQUATION:  $V, VL \text{ at } s \mid I = VL \text{ at } I$

EQUATION:  $[T] = [T - [ ]]$

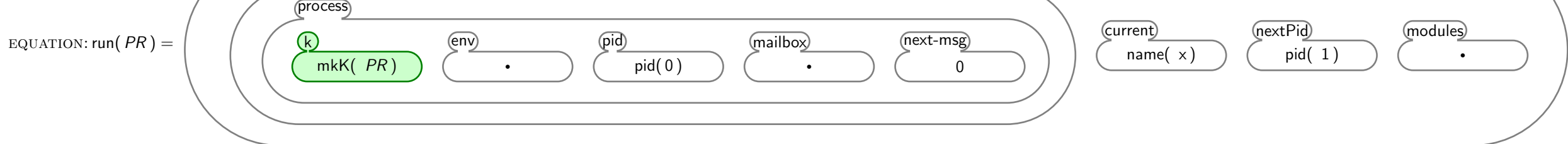
EQUATION:  $[T, T'] = [T - [T']]$

EQUATION:  $ES, ES' = ES, ES'$

EQUATION:  $\text{del } \bullet \text{ at } I =$

EQUATION:  $\text{del } V, VL \text{ at } 0 = VL$

EQUATION:  $\text{del } V, VL \text{ at } s \mid I = V, \text{del } VL \text{ at } I$



END MODULE