```
Module Ertest
   IMPORTS GENERIC-EXP-SEMANTICS
   SYNTACTIC CONSTRUCTS:
      Attr ::=
            | Attr Attr [renameTo _{\sim}_]
              -\text{export}([Fun]).
             | -import( \#Name, [Fun]).
      Cases ::=
             | Cases; Cases
| Pattern ; Exps
      Decl ::=
    |FunCases|.
|Decl Decl [renameTo _ _ ]
ETerm ::= \#Bool |\#Int| \#Name |\#String
                 \mid \begin{bmatrix} ETerm - ETerm \end{bmatrix} \begin{bmatrix} strict \end{bmatrix}
     Exp ::= Pattern | \#Bool | \#Int | \#Name
          | self() | #Name () | [ Exps] [aux] | Exps [strict] | receive Cases end
             | \#Name (Exp) |
| Exp - Exp | [strict] |
| case Exp of Cases end [strict(1)]
    | case | Exp of | Cases end | Strict(1)|
| element( Exp, Exp) | Strict(3)|
| \#Name: \#Name ( Exp) | Strict(3)|
              | Exps ; Exps [strict(1)] 
| Exps , Exps [aux]
             | Exps , , Exps [strict]
      Fun ::=
            \mid Fun, Fun
             #Name // #Int
      FunCases ::=
                    | FunCases ; FunCases [renameTo \_ \frown \_]
                    \#Name()=¿ Exps
                  \#Name\ (Pattern)=; Exps
      Mod ::=
           | Mod\ Mod\ [renameTo\ \_\frown\_]
| -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 \_ \frown \_]
      Stmt ::=
           | Exp . [strict] 
| Stmt Stmt [renameTo <math>\_\frown\_] 
| match( Pattern , Exp ) [ strict(2)] 
   SEMANTIC CONSTRUCTS:
     Config ::=
            |\operatorname{run}(Prgm)|
     K ::=
         | match-failure
          check-msg(K)
                  | List\{ KResult\} at Nat
      List\{KResult\} ::=
                        | \text{ del } List\{KResult\} \text{ at } Nat
   CONFIGURATION:
  K EQUATIONS AND RULES: EQUATION:

\begin{array}{c}
(k) \\
P = V \\
\hline
\text{match}(P, V) \curvearrowright V
\end{array}

      (k)
(0.(•)
   EQUATION:

(k)

(length([V-V']])

(length(V')+1)
     EQUATION:

(k)

match( V, V)
     EQUATION:

(k)

match([],[])
     EQUATION:

(k)

match([H-T], [VH-VT])

match([H,VH) \cap match([T,VT])
     EQUATION:

\frac{k}{\text{match}(\text{pid}(N), \text{pid}(p))}

\frac{\text{match}(N, \text{pid}(p))}{\text{match}(N, \text{pid}(p))}

         receive PEs end Check-msg(PEs) 
ightharpoonup receive <math>PEs end
      EQUATION:
```

1

|   | $\frac{\mathbb{k}}{\text{match}(V, V') \cap F}$   | est )  |
|---|---|--|
| MONTH  MO      |   |  |
|   | N(E)  |  |
|   | k   |  |
| THE PARTY OF THE P      | $\overline{V}$  | $N\mapsto V$   |
| ROUTED      | self() pid  | pid(p)   |
| ### (### (### (### (### (### (### (###  |   | modules  |
| AND SECOND STATE OF THE SE      | -module( N). D  | Current module funs  |
| ### ##################################  | M: N( )   | (name) (funs) G  |
| ### 15   15   15   15   15   15   15   1  | (k)   | rrent) (name) G  |
| ### A PART OF THE PROPERTY OF       | k   |  |
| Company   Comp        | $ \begin{array}{c cccc} \hline \text{case } V \text{ of } P_1 & E_1 \\ \hline & E_1 \end{array} $   | $\frac{PEs \text{ end}}{G} \qquad \text{when} \qquad \frac{\text{(env)}}{G'} := \frac{\text{(k)}}{\text{match}(P_1, V)} \qquad G$  |
| Company   Comp        | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | PEs end $(k)$ $(env)$ $(env)$ $(env)$ $(env)$  |
| Martin   C  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  |  |
| NUMBER   Property           | match( N , V )  | G when $has Manning(G, M) - false$   |
|   | $\frac{V; E}{E}$  |  |
| Process   Proc        | (k)<br>(pid(p)! V)  | (pid) (mailbox) (VL)   |
| RCLE    Contact   Contac        | spawn( M, N, V  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   |
| RULE:  Check-mag( $P                                     $  | (k)   |  |
| RULE:  Check-msg( $P \ L E$ ) $\sim$ receive $PE$ s end  The property of the proper | check-msg( P ¿  | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   |
| TRULE:  (mailbox)  (mext-msg)  (mext-msg)  (mext-msg)  (mext-msg)  (mext-msg)  (mext-msg)  (mext-msg)  (mailbox)  (mext-msg)  (mailbox)  (match-failure)  (a)  (cinv)  (match-failure)  (cinv)  (match-failure)  (cinv)  (match-failure)  (cinv)  (match(P, V))  (a)  (cinv)  (match-failure)  (cinv)  (match(P, V)) (cinv)  (cinv)  (match(P, V) (cinv)  (cinv)  (cinv)  (match(P, V) (cinv)       | check-msg( P ;  | receive $PEs$ end $VL$ $G$ $G'$ $G'$ $G'$ $G'$ $G'$ $G'$ $G'$  |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | check-msg( P i check-msg( F   |  |
| EQUATION: $N()=i$ $T=N(     )=i$ $T$ EQUATION: $ES$ , $ES'=ES$ ; $ES'$ EQUATION: $PS$ , $PS'=PS$ ; $PS'$ EQUATION: $V$ , $V$ at $0=V$ EQUATION: $V$ , $V$ at $i$  | $\frac{\text{check-msg}(P)}{\bullet}$ EQUATION: $N() = N($  | $\frac{I}{VL} \qquad \frac{I}{s \ I} \qquad \frac{\text{(env)}}{G} \qquad \text{when}  V := VL \text{ at } I / \qquad \frac{\text{(k)}}{\text{match-failure}} \qquad \frac{\text{(env)}}{G'} \qquad := \qquad \frac{\text{(k)}}{\text{match}(P, V)} \qquad \frac{\text{(env)}}{G}$ |
| EQUATION: $ES$ ; $ES' = ES$ ,, $ES'$ EQUATION: $ES$ ; $ES' = ES$ , $ES'$ EQUATION: $ES$ ; $ES' = ES$ , $ES'$ EQUATION: $ES$ ; $ES' = ES$ , $ES'$ EQUATION: $ES$ ; $ES$ $ES$ , $ES$ $ES$ , $ES$ $ES$ $ES$ $ES$ $ES$ $ES$ $ES$ $ES$   | EQUATION: $N()=\xi T$<br>EQUATION: $ES$ , $ES'=$<br>EQUATION: $PS$ , $PS'=$<br>EQUATION: $V$ , $VL$ at 0<br>EQUATION: $V$ , $VL$ at $S$<br>EQUATION: $[T] = [T-$<br>EQUATION: $[T; T'] = [T-$ | = N( [] )=¿ T<br>ES; ES'<br>PS; PS'<br>= V<br>I = VLat I<br>- []]  |
| (processes)   | EQUATION: $ES$ ; $ES'$ = EQUATION: $del \cdot at I = EQUATION$ : $del \cdot V \cdot VL$   | $ES_{,,}$ $ES'_{,}$<br>$t_{0} = VL_{,}$<br>$t_{0} = V_{,}$ del $VL_{,}$ at $I_{,}$   |
|   |   | (processes)  |