

LANGUAGE_COMMANDS+

```

feature -- model attributes
  classes: LINKED_LIST[CLASS_INSTANCE]
  current_exp: EXPRESSION
  pretty: PRETTY_PRINTING
feature {NONE} -- Initialization
  make
feature -- model operations
  reset+
  add_class (name: STRING) +
    require
      not_assigning:  $\neg$  assign_in_progress
      not_existing_class:  $\neg$  existing_class (name)
  add_attr (cn, fn, type: STRING) +
    require
      not_assigning:  $\neg$  assign_in_progress
      existing_class: existing_class (cn)
      not_existing_feature:  $\neg$  existing_fn (cn, fn)
      valid_return_type: valid_ref_type (type)
  add_command (cn, name: STRING;
  params: ARRAY[TUPLE[STRING, STRING]]) +
    require
      not_assigning:  $\neg$  assign_in_progress
      existing_class: existing_class (cn)
      not_existing_feature:  $\neg$  existing_fn (cn, name)
      not_clashing_params:  $\neg$  params_clash_with_classes (params)
      not_duplicated_params:  $\neg$  params_are_duplicated (params)
      params_are_valid_ref_type: params_type_valid (params)
  add_query (cn, name: STRING;
  params: ARRAY[TUPLE[STRING, STRING]]; type: STRING) +
    require
      not_assigning:  $\neg$  assign_in_progress
      existing_class: existing_class (cn)
      not_existing_feature:  $\neg$  existing_fn (cn, name)
      not_clashing_params:  $\neg$  params_clash_with_classes (params)
      not_duplicated_params:  $\neg$  params_are_duplicated (params)
      params_are_valid_ref_type: params_type_valid (params)
      valid_return_type: valid_ref_type (type)
  add_assignment (cn, fn, n: STRING) +
    require
      not_assigning:  $\neg$  assign_in_progress
      existing_class: existing_class (cn)
      feature_exists: find_feature (cn, fn) > 0
      feature_is_not_attr:  $\neg$  existing_attr (cn, fn)
  add_int_expression (v: STRING) +
    require
      assign_in_progress: assign_in_progress
  add_callchain_expression (v: ARRAY[STRING]) +
    require
      assign_in_progress: assign_in_progress
      chain_not_empty:  $\neg$  v.is_empty
  generate_java_code+
  type_check+
require
  not_assigning:  $\neg$  assign_in_progress
feature -- queries
  out: STRING

```

VISITOR*

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feature -- Visit features for all effective descendants of EXPRESSION
  visit_int_constant (i: INTEGER_CONSTANT)*
  visit_bool_constant (b: BOOLEAN_CONSTANT)*
  visit_callchain (c: CALL_CHAIN)*
  visit_addition (a: ADDITION)*
  visit_subtraction (s: SUBTRACTION)*
  visit_multiplication (m: MULTIPLICATION)*
  visit_division (d: DIVISION)*
  visit_modulo (m: MODULO)*
  visit_and (a: LOGICAL_AND)*
  visit_or (o: LOGICAL_OR)*
  visit_equals (e: EQUALS)*
  visit_greater (g: GREATER_THAN)*
  visit_less (l: LESS_THAN)*
  visit_binary (b: BINARY_OP)*
  visit_unary (u: UNARY_OP)*
  visit_next (n: NEXT)*
  visit_nil (n: NIL)*

```

PRETTY_PRINTING+

```

feature -- Attributes
  pretty_result: STRING
feature -- Initialize
  make
feature -- Handling of EXPRESSION
  descendants
  visit_int_constant
  (i: INTEGER_CONSTANT) +
  visit_bool_constant
  (b: BOOLEAN_CONSTANT) +
  visit_callchain (c: CALL_CHAIN) +
  visit_addition (a: ADDITION) +
  visit_subtraction (s: SUBTRACTION) +
  visit_multiplication (m: MULTIPLICATION) +
  visit_division (d: DIVISION) +
  visit_modulo (m: MODULO) +
  visit_and (a: LOGICAL_AND) +
  visit_or (o: LOGICAL_OR) +
  visit_equals (e: EQUALS) +
  visit_greater (g: GREATER_THAN) +
  visit_less (l: LESS_THAN) +
  visit_binary (b: BINARY_OP) +
  visit_unary (u: UNARY_OP) +
  visit_next (n: NEXT) +
  visit_nil (n: NIL) +

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TYPE_CHECK+

```

feature -- Attributes
  check_result: BOOLEAN
  exp_type: STRING
  model: LANGUAGE_COMMANDS
  number: STRING = "NUMBER"
  logical: STRING = "LOGICAL"
feature -- Initialize
  make
feature -- Helper methods
  find_param (m: METHOD; n: STRING):
INTEGER
  set_exp_type (t: STRING)
feature -- Handling of EXPRESSION
  descendants
  visit_int_constant (i: INTEGER_CONSTANT) +
  visit_bool_constant
  (b: BOOLEAN_CONSTANT) +
  visit_callchain (c: CALL_CHAIN) +
  visit_addition (a: ADDITION) +
  visit_subtraction (s: SUBTRACTION) +
  visit_multiplication (m: MULTIPLICATION) +
  visit_division (d: DIVISION) +
  visit_modulo (m: MODULO) +
  visit_and (a: LOGICAL_AND) +
  visit_or (o: LOGICAL_OR) +
  visit_equals (e: EQUALS) +
  visit_greater (g: GREATER_THAN) +
  visit_less (l: LESS_THAN) +
  visit_binary (b: BINARY_OP) +
  visit_unary (u: UNARY_OP) +
  visit_next (n: NEXT) +
  visit_nil (n: NIL) +

```

pretty+