ETF_MODEL create {ETF_MODEL_ACCESS} feature -- Auxiliary queries, commands find_next_nil -- find and change the nil to unknwon when there is no unknown is_in_set: **BOOLEAN** set_and_expand_set (e: EXPRESSION; str: STRING_8) set_next_unknown_binary_unary_set (e: EXPRESSION; str: STRING_8) feature -- Insert insert_binary_expression (e: COMPOSITE; str: STRING_8) insert_close_set_enumeration (str: STRING_8) insert_constant (t: CONSTANT; str: STRING_8) insert_open_set_enumeration (str: STRING_8) insert_unary_operation (e: EXPRESSION; str: STRING_8) feature -- model attributes exp status: STRING 8 exp_status_prefix: STRING_8 i: INTEGER_32 nil: NIL_EXPRESSION pp: PRETTY_PRINT report: STRING_8 tree: ARRAY [EXPRESSION] tree_type: ARRAY [INTEGER_32] -- 1 means unary, 2 means binary, 3 means open set, 4 means close set, 0 means constant unknown: UNKNOWN_EXPRESSION feature -- model operations default_update -- Perform update to the model state. reset -- Reset model state. feature -- queries out: STRING_8 -- New string containing terse printable representation -- of current object feature --output print_out_expression

type_check

TYPE CHECK

```
feature
  visit_addition (a: ADDITION)
  visit_boolean (b: BOOLEAN_CONSTANT)
  visit_close_set_enumeration (e:
CLOSE_SET_ENUMERATION)
  visit_conjoin (c: CONJOIN)
  visit_difference (d: DIFFERENCE)
  visit_disjoin (d: DISJOIN)
  visit_division (d: DIVISION)
  visit_equals (e: EQUALS)
  visit_exists (e: THERE_EXISTS)
  visit_for_all (f: FOR_ALL)
  visit_gt (g: GREATER_THAN)
  visit_imply (i: IMPLY)
  visit_integer (i: INTEGER_CONSTANT)
  visit_intersection (i: INTERSECTION)
  visit_lt (l: LESS_THAN)
  visit_multiplication (m: MULTIPLICATION)
  visit_negation (n: NEGATION)
  visit_negative (n: NEGATIVE)
  visit_nil (n: NIL_EXPRESSION)
  visit_open_set_enumeration (e: OPEN_SET_ENUMERATION)
  visit_subtraction (s: SUBTRACTION)
  visit_sum (s: SUM)
  visit_union (u: UNION)
  visit_unknown (u: UNKNOWN_EXPRESSION)
```

```
PRETTY PRINT
feature
  text: STRING_8
feature -- ENUMERATION
  enumeration (a: ENUMERATION)
  visit_close_set_enumeration (a: CLOSE_SET_ENUMERATION)
  visit_open_set_enumeration (a: OPEN_SET_ENUMERATION)
feature -- binary
  composite (a: COMPOSITE)
  visit_addition (a: ADDITION)
  visit_conjoin (a: CONJOIN)
  visit_difference (a: DIFFERENCE)
  visit_disjoin (a: DISJOIN)
  visit_division (a: DIVISION)
  visit_equals (a: EQUALS)
  visit_gt (a: GREATER_THAN)
  visit_imply (a: IMPLY)
  visit_intersection (a: INTERSECTION)
  visit_lt (a: LESS_THAN)
  visit_multiplication (a: MULTIPLICATION)
  visit_subtraction (a: SUBTRACTION)
  visit_union (a: UNION)
feature -- constant
  visit_boolean (b: BOOLEAN_CONSTANT)
  visit_integer (i: INTEGER_CONSTANT)
  visit_nil (n: NIL_EXPRESSION)
  visit_unknown (u: UNKNOWN_EXPRESSION)
feature -- unary
  unary (a: UNARY)
  visit_exists (a: THERE_EXISTS)
  visit_for_all (a: FOR_ALL)
  visit_negation (a: NEGATION)
  visit_negative (a: NEGATIVE)
```

VISITOR

visit_boolean (b: **BOOLEAN_CONSTANT**) visit_close_set_enumeration (e: CLOSE_SET_ENUMERATION) visit_conjoin (c: CONJOIN) visit_difference (d: **DIFFERENCE**) visit_disjoin (d: **DISJOIN**) visit_division (d: **DIVISION**) visit_equals (e: EQUALS) visit_exists (e: THERE_EXISTS) visit_for_all (f: **FOR_ALL**) visit_gt (g: GREATER_THAN) visit_imply (i: **IMPLY**) visit_integer (i: INTEGER_CONSTANT) visit_intersection (i: INTERSECTION) visit_lt (l: LESS_THAN) visit_multiplication (m: MULTIPLICATION) visit_negation (n: **NEGATION**) visit_negative (n: **NEGATIVE**) visit_nil (n: NIL_EXPRESSION) visit_open_set_enumeration (e: **OPEN_SET_ENUMERATION**) visit subtraction (s: SUBTRACTION) visit_sum (s: **SUM**) visit_union (u: **UNION**) visit_unknown (u: UNKNOWN_EXPRESSION)

EVALUATION

feature

visit_addition (a: ADDITION)

visit_sum (a: SUM)

visit_addition (a: **ADDITION**)

visit_boolean (b: **BOOLEAN_CONSTANT**)

visit_close_set_enumeration (e: CLOSE_SET_ENUMERATION)

visit_conjoin (c: CONJOIN)

visitication (m: MULTIPLICATION)

visit nil (n: NIL EXPRESSION)

visit_open_set_enumeration (e: **OPEN_SET_ENUMERATION**)

visit_subtraction (s: **SUBTRACTION**)

visit sum (s: SUM)

visit_union (u: UNION)

visit unknown (u: UNKNOWN EXPRESSION)

evaluation

pp