CLIENT

ensure: consistent model imp count: count ~ model.count

new cursor: TUPLE ITERATION CURSOR [V, K]

object_equality_for_keys: keys.object_comparison object equality for values: values.object comparison

require: not existing key in model: not model.domain.has (k)

ensure: entry added to model: model \sim old model.extended ([k,v])

require: not existing keys in model: ∀cursor: entries ⇒ (not model.as set.has(cursor.item))

ensure: entry removed from model: model = (old model.deep twin).domain subtracted by(k)

ensure: entries removed from model: model ~ (old model.deep twin).domain subtracted (ks)

ensure: correct result: ∀cursor: result ⇒ (model.range restricted by(v).domain.has(cursor.item))

ensure: entries_added_to_model: ∀cursor: entries ⇒ (model.as_set.has(cursor.item))

require: exiting keys in model: ∀cursor: ks ⇒ (model.domain.has (cursor.item))

ensure: empty model : model.is empty

add entries (entries : SET[TUPLE[k : K ; v : V]])

ensure : correct_result : Result = model.count
get keys (v : V) : ITERABLE [K]

require : existing_key_in_model : model.domain.has(k)

consistent_key_values_counts : key.count = values.count consistent imp adt counts : keys.count = count

feature -- required by iterable

add entry (v:V;k:K)

remove entry (k:K)

feature -- Queries

count: INTEGER

Invariant -- Always true

remove entries (ks:SET[K])

get value (k : K) : detachable V

feature -- Constructor

feature -- Commands

consistent_model_imp_contents: $\forall j: 1 \le j \ge \text{result.count} \Rightarrow (\text{result.has}(\text{create } \{\text{pair}[K, V]\}.\text{make}(\text{keys}[j], \text{values}[j]))$

EXAMPLE DICTIONARY TESTS

SETUP
TEAR_DOWN
feature
make
feature --setup
d: DICTIONARY [STRING, INTEGER]
teardown
feature --tests
test_array_comparison: BOOLEAN

ES TEST

name_of_attribute

tests_imps: BOOLEAN
test_setup: BOOLEAN
test_add: BOOLEAN
test_remove: BOOLEAN
test_get_keys: BOOLEAN
test_iterable_dictionary: BOOLEAN
test_iteration cursor: BOOLEAN

ITERABLE * ITERATION CURSOR [G] feature -- new cursor feature new cursor *: ITERATION CURSOR[G feature -- Commands new cursor * ensure: result attached: Result ≠ void after* : BOOLEAN item* : G forth* Dictionary feature -- Attributes keys, values feature -- Abstraction function model: FUN [K , V]

TUPLE ITERATION CURSOR

feature -- Constructor

 $make \left(\; v \; : LINKED_LIST \left[\; V \; \right] \; ; \; k \; : \; ARRAY \left[\; K \; \right] \; \right)$

feature -- Attributes value : LINKED LIST [V]

new cursor+

key : ARRAY[K]
cur_pos : INTEGER
feature -- Cursor Operations

item : TUPLE [V, K]
after : BOOLEAN

rth