Funcons-beta: Objects

The PLanCompS Project

`Funcons-beta/Values/Composite/Objects/Objects.cbs`*

Objects

[*Datatype* objects
  Funcon object
  Funcon object-identity
  Funcon object-class-name
  Funcon object-feature-map
  Funcon object-subobject-sequence
  Funcon object-tree
  Funcon object-single-inheritance-feature-map]

Datatype objects ::= object(_ : atoms, _ : identifiers, _ : environments, _ : objects*)

object(A, C, Env, O^*) is an object: * distinguished by an atom A, * of a class named C, * with an environment Env with the features of the object, and * a sequence O^* of subobjects of the direct superclasses of C. object(A, C, Env) is an object of a base class. object(A, C, Env, O') is an object of a class with a single superclass. With multiple inheritance, subobjects due to repeated inheritance of the same class may be shared.

Implementations of objects generally represent an object as a vector of fields, and use pointers and offsets for efficient access to individual fields. The representation of objects used in this specification is independent of such implementation concerns.

Funcon object-identity(_ : objects) : ⇒ atoms
  Rule object-identity object(A : atoms, _ : identifiers, _ : environments, _* : objects*) ⇝ A

*Suggestions for improvement: `plancomps@gmail.com`.
Issues: `https://github.com/plancomps/CBS-beta/issues`.

Funcon object-class-name(_ : objects) : ⇒ identifiers

Rule object-class-name object(_ : atoms, *C* : identifiers, _ : environments, _* : objects*) ⇝ *C*

Funcon object-feature-map(_ : objects) : ⇒ environments

Rule object-feature-map object(_ : atoms, _ : identifiers, *Env* : environments, _* : objects*) ⇝ *Env*

Funcon object-subobject-sequence(_ : objects) : ⇒ objects*

Rule object-subobject-sequence object(_ : atoms, _ : identifiers, _ : environments, *O** : objects*) ⇝ *O**

Funcon object-tree(_ : objects) : ⇒ trees(objects)

object-tree *O* forms a tree where the branches are the object trees for the direct subobjects of *O*.

Rule object-tree(*O* : objects) ⇝ tree(*O*, interleave-map(object-tree given, object-subobject-sequence *O*))

Funcon object-single-inheritance-feature-map(*O* : objects) : ⇒ environments
⇝ map-override left-to-right-map(object-feature-map given,
single-branching-sequence object-tree *O*)

For multiple inheritance, different resolution orders can be specified by using difference linearisations of the object tree.