

CafeOBJ Starter

CafeOBJ is a system for prototyping (or animating) algebraic specifications. It encompasses all of the specification facilities we have discussed, in particular, subsort facilities. Algebraic specifications are grouped into CafeOBJ “modules”. Modules may be entered in files and CafeOBJ uses the '.mod' extension to identify these files. CafeOBJ provides support for all of the elements of algebraic specification facilities we have discussed. The system prompt is the name of the current module, or if none has been established, "CafeOBJ>". Entering '?' at the prompt, produces a summary of the available top-level commands.

The system is available on the HP workstations, and the UNIX command to start the system is 'cafeobj'. CafeOBJ's top -level accepts declarations and commands — module definitions can be entered directly at this level. Commands provide for reducing terms, showing various status and structural information, setting various conditions, etc. A reduction evaluates a given term with respect to a selected specification — this is the basic “specification animation” role of the system. **On our local system, the input (in) command fails when it occurs within a loading module** — a workaround is to issue all these necessary commands at the top level.

CafeOBJ has both a conceptual semantics based on the logic of equations, and an operational semantics (not yet discussed) based on term rewriting; these two interpretations are in good, but not perfect, agreement.

CafeOBJ enforces a strong but flexible type system. Every operation has a signature describing the types of its arguments and result, and these constraints are rigorously enforced. However, subsorts provide the flexibility of overloading and multiple inheritance. Also generic (parameterized) specifications add much to the expressiveness.

Operations may be designated to be written in prefix, postfix, or infix (“mixfix” actually) notation at the definer’s discretion. They may also be designated as having associativity or commutativity properties by fiat (i.e., without writing equations). It is a convention (but not enforced) that module names are entirely upper case, while sort names only have an upper case first letter. Note that the period character '.' is special since it is used (preceded by a blank) to terminate operator and equation declarations.

Pre-defined facilities include the following modules: BOOL, NAT, INT, RAT, FLOAT, CHARACTER, STRING, 2TUPLE, 3TUPLE, and 4TUPLE. You can use on-line inspection commands to explore them.

Documentation is available on-line in directory /usr/pkg/cafeobj/doc. There is a Postscript version of the manual (file manual.ps) or an HTML version (point your browser at the file cafeobj.html or index.html).