A Computational Model for TROLL *light*

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The object specification language TROLL *light* is intended to be used for conceptual modeling of information systems. It is designed to describe the Universe of Discourse (UoD) as a system of concurrently existing and interacting objects, i.e., an object community. TROLL *light* is a dialect of the language TROLL. However, TROLL *light* is not just a subset of TROLL. For example, in TROLL *light* classes are understood as composite objects having the class extension as subobjects. Therefore in contrast to TROLL an extra notion of class is not needed in TROLL *light*. This leads to a more orthogonal use of object descriptions. Over and above that, concepts like class attributes, meta-classes, or heterogeneous classes are inherent in TROLL *light*. Second, TROLL *light* incorporates a query calculus providing a general declarative query facility for object-oriented databases.

The first part of the talk introduces the various language concepts offered by TROLL *light*. TROLL *light* objects have observable properties modeled by attributes, and the behavior of objects is described by events. Possible object observations may be restricted by constraints, whereas event occurrences may be restricted to specified life-cycles. TROLL *light* objects are organized in an object hierarchy established by sub-object relationships. Communication among objects is supported by event calling.

The second part of our paper outlines a simplified computational model for TROLL *light*. After introducing signatures for collections of object types (or templates as they are called in TROLL *light*) we explain how single states of an object community are constructed. By parallel occurrence of a finite set of events the states of object communities change. The object community itself is regarded as a graph where the nodes are the object community states reachable from an initial state and the edges represent transitions between states. We shortly indicate how this operational semantics of TROLL *light* could be also expressed in terms of graph grammars and graph productions.