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Box C: Active Data in Object-Oriented Systems

Many object-oriented programming languages support some form of event-driven control. This style of control is often used, for instance, to update gauges and dials in a user interface. In some cases the language itself provides a notation to associate a method invocation with the changing value of an instance variable of an object. In other object-oriented languages, event-driven control is provided as a set of kernel facilities. In Smalltalk-80 [1], for example, the system maintains for each object a list of dependent objects. An object can send itself the `changed` message, which causes an `update` message to be sent to each of its dependents. This is the mechanism underlying the Model-View-Controller paradigm [2] that drives virtually all aspects of Smalltalk's user interface. Another approach is exemplified by Flavors [3], where methods inherited from multiple ancestor superclasses are combined by invoking method fragments before and after the main method. Most modern object-oriented databases also include some style of "trigger", which is promising for systems designed and built using the tool abstraction approach.

References

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