

# Semantics of Form-Oriented Analysis

Am Fachbereich Mathematik und Informatik  
der Freien Universität Berlin  
eingereichte Dissertation  
zur Erlangung des akademischen Grades  
eines Doktors der Naturwissenschaften  
vorgelegt von Gerald Weber

Berlin, 2002

Tag der Disputation 29.11.2002

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# Abstract

In this thesis we present Form-Oriented Analysis, a new analysis technique for an ubiquitous type of business applications. We define a precise semantic class of applications we call *submit/response style* applications, under which typical enterprise applications and web applications can be subsumed. Applications in this class are characterized by their type of user interface. The user of a submit/response style application fills out an electronic form, submits it to the system and receives a response page with data and new forms. The user then again submits data, partly under usage of the previously received data and so forth. We model such a submit/response style application with a bipartite finite state machine. This bipartite state machine is depicted in the key artifact of Form-Oriented Analysis, the form chart. Our analysis technique is firmly based on existing well-understood analysis notions and techniques, and consequently extends these methods. This thesis introduces Form-Oriented Analysis by defining and explaining the visual artifacts of our technique. Specifically, the form chart is defined as a class diagram, over which the object net is always a path. We give formal semantics of the artifacts based on UML. Form-Oriented Analysis fosters a design according to established architectures for enterprise applications. Our new method is accompanied by a fully implemented tool called Gently, which allows the automatic generation of prototypes from a form-oriented specification.



# Acknowledgements

I am deeply indebted to my supervisor, Prof. Dr. Elfriede Fehr, which offered me the support for this work and provided most valuable advice. In the same way I want to thank my secondary supervisor, Dr. habil. Martin Große-Rhode for the intense dialogue and many helpful recommendations, and for his readiness to survey my thesis. My deepest thanks go to my colleague Dirk Draheim for the outstanding cooperation in our scientific project, which lead to the completion of this thesis. Finally I want to thank my old friend Matthias Eichhoff for his ongoing counsel during all the time.

I dedicate this work to my mother Helmtrud Weber.



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