T U M

I N S T I T U T F Ü R I N F O R M A T I K

Seventh OOPSLA Workshop on Behavioral Semantics of OO Business and System Specifications

Haim Kilov, Bernhard Rumpe, Ian Simmonds

TUM-I9820
Oktober 98

T E C H N I S C H E U N I V E R S I T Ä T M Ü N C H E N

TUM-INFO-10-I9820-100/1.-FI

Druck: Institut für Informatik der
Technischen Universität München

18-22 October 1998
Canada Place
Vancouver, British Columbia

Seventh OOPSLA Workshop on

Behavioral Semantics of OO Business and System Specifications

in conjunction with
The Thirteenth Annual ACM Conference
on Object-Oriented Programming Systems,
Languages and Applications

Monday 19th October 1998

The contents and the preface of the proceedings.
The proceedings will be available at the poster session and afterwards by contacting one of the organizers.

Call for Papers:

Workshop themes:

Business and system specifications are technical documents used to describe and understand businesses and specifically business rules and the computer systems that have to support (some of) these rules.

Specifications have to express this understanding in a clear, precise, and explicit way, in order to act as common ground between business domain experts, analysts and software developers. They also provide the basis for reuse of concepts and constructs ("patterns") common to all, or a large number of, businesses, and in doing so save intellectual effort, time and money. They introduce precision much earlier than in coding, so that business people -- and not the developers -- define all business rules. Adequate specification approaches substantially ease the elicitation of business requirements during walkthroughs with business customers, and support clear separation of concerns known since Adam Smith as division of labor. Different audiences are interested in different aspects of "common business components", and correspondingly may want to buy or sell these components based on different criteria.

Precise specification of semantics -- as opposed to just signatures -- is essential not only for business specifications, but also for business designs and system specifications. In particular, it is needed for appropriate handling of viewpoints which are essential for understanding large and even moderately sized systems, both business and computer ones. (800-page "flat" specifications are neiter used nor read by anyone.) In order to handle the complexity of a (new or existing) large system, it must be considered, on the one hand, as a composition of separate viewpoints, and on the other hand, as an integrated whole, probably at different abstraction levels.

Many concepts and constructs used for all kinds of behavioral specifications -- from business to systems -- have common semantics and thus are good candidates for standardization and industry-wide usage. Various international standardization activities (such as the ISO Reference Model of Open Distributed Processing, OMG activities around the semantics of UML and other OMG submissions, (common) business objects, as well as the OMG semantics working group) are at different stages of addressing these issues.

It is therefore the aim of the workshop to bring together theoreticians and practitioners to report their experience with making semantics precise (perhaps even formal), clear, concise and explicit in OO business specifications, business designs, and system specifications. Both academic (teaching!) and industrial "war stories" will be particularly appreciated. Experience in the usage of various (object-oriented) modeling approaches for these purposes would be of special interest, as would experience in explicit traceability of semantics between a business specification, business design, and a system specification.

Topics ...

include, but are not limited to:

- business specifications
- business architectures
- precise specification of semantics
- semantics of OO modeling approaches
- semantics-preserving refinement strategies
- viewpoint modelling
- standards
- business patterns (reusable fragments of specification)
- related tool support.

Organizers

Haim Kilov
Merrill Lynch
Operations, Services and Technology
World Financial Center
South Tower
New York
NY 10080-6105, USA
email: haim_kilov@ml.com

Bernhard Rumpe
Institut für Informatik,
Technische Universität München
80333 Munich, Germany
email: rumpe@in.tum.de

Ian Simmonds
IBM T J Watson Research Center
30 Saw Mill River Road
Hawthorne
NY 10532, USA
email: simmonds@us.ibm.com

Important Dates

```
Deadline for submission:    August     1, 1998
Notification of acceptance: August    20, 1998
Final version:              September 10, 1998
Day of workshop:            October   19, 1998
```

Please note that workshop participants must register at least on that day at OOPSLA conference. Early registration discount is available until August 30, 1998. We will have an overhead projector, and a flipchart available. Unfortunately nothing else.

Please note that the deadline for the final version is hard.

Proceedings

will be printed as technical report of the Munich University of Technology and will be available at the conference. Please note the submission guidelines. We are planning to produce a book with revised versions of the best papers of this and previous workshops.

This web site

is ***http://www.forsoft.de/~rumpe/oopsla98-ws/*** and will contain all information about the workshop. You may also contact the organizers.

Submissions

should be about 5-10 pages and highlight the main contributions of the author(s). Interesting papers will be selected by the organizers and their authors will have the possibility to give a 20 minute presentation of them at the workshop. Furthermore, each author is encouraged to present open questions and one or two main statements that shall be discussed at the workshop.
Submissions should be sent by email in Postscript (or if necessary Lotus WordPro, RTF or Word) format to email: simmonds@us.ibm.com.

Related information

- OOPSLA'98 General Home Page
- Last year's workshop at OOPSLA'97 (there are still proceedings available)
- Similar workshop at ECOOP'98
- Kilov, H. and Harvey, W.: Specification of Behavioral Semantics in Object-Oriented Information Modeling, Kluwer Academic Publishers, 1996. (A result of the first four OOPSLA workshops)

Seventh OOPSLA Workshop on Behavioral Semantics of OO Business and System Specifications

Doublets

RULES

1. The words given to be linked together constitute a `Doublet', the interposed words are the `Links', and the entire series a `Chain'. The object is to complete the Chain with the least possible number of Links.
2. Each word in the Chain must be formed from the preceding word by changing one letter in it, and one only. The substituted letter must occupy the same place, in the word so formed, which the discarded letter occupied in the preceding word, and all the other letters must retain their places.
3. When three or more words are given to be made into a Chain, the first and last constitute a `Doublet'. The others are called `Set Links', and must be introduced into the Chain in the order in which they are given. A Chain of this kind must not contain any word twice over.
4. No word is admissible as a Link unless it (or, if it be an inflection, a word from which it comes) is to be found in the following Glossary. Comparatives and superlatives of adjectives and adverbs, when regularly formed, are regarded as `inflections' of the positive form, and are not given separately, e.g., the word `new' being given, it is to be understood that `newer' and `newest' are also admissible. But nouns formed from verbs (as `reader' from `read') are not so regarded, and may not be used as Links unless they are to be found in the Glossary.

Lewis Carroll

Business and system specifications are – or have to be! – technical documents used to describe and understand businesses and specifically business rules and the computer systems that have to support (some of) these rules. Specifications have to express this understanding in a clear, precise, and explicit way, in order to act as common ground between business domain experts, analysts and software developers. They also provide the basis for reuse of concepts and constructs (“patterns”) common to all, or a large number of, businesses, and in doing so save intellectual effort, time and money. They introduce precision much earlier than in coding, so that business people – and not the developers – define all business rules.
An example of a set of business rules (for the *Doublets* game) was provided by Lewis Carroll and is reproduced above. These rules are clear, precise and elegant. As to conciseness, perhaps the reader can determine where these rules could have been improved.

Nevertheless, if all our business rules would have been formulated in such a manner (and appropriately structured!), perhaps our workshops would have achieved one of their most important goals.

Adequate specification approaches substantially ease the discovery of business requirements during walkthroughs with business customers, and support clear separation of concerns known since Adam Smith as division of labor. Different audiences are interested in different aspects of “common business components”, and correspondingly may want to buy or sell these components based on different criteria.

Precise specification of semantics – as opposed to just signatures – is essential not only for business specifications, but also for business designs and system specifications. In particular, it is needed for appropriate handling of viewpoints which are essential for understanding large and even moderately sized systems, both business and computer ones. (800-page “flat” specifications are neither used nor read by anyone.) In order to handle the complexity of a (new or existing) large system, it must be considered, on the one hand, as a composition of separate viewpoints, and on the other hand, as an integrated whole, probably at different abstraction levels.

Many concepts and constructs used for all kinds of behavioral specifications – from business to systems – have common semantics and thus are good candidates for standardization and industry-wide usage. Various international standardization activities (such as the ISO Reference Model of Open Distributed Processing, ISO General Relationship Model, OMG activities around the semantics of UML and other OMG submissions, (common) business objects, as well as the OMG semantics and reference model working group) are at different stages of addressing these issues.

It is therefore the aim of the workshop to bring together theoreticians and practitioners to report their experience with making semantics precise (perhaps even formal), clear, concise and explicit in OO business specifications, business designs, and system specifications. Both academic (teaching!) and industrial "war stories" will be particularly appreciated. Experience in the usage of various (object-oriented) modeling approaches for these purposes would be of special interest, as would experience in explicit traceability of semantics between a business specification, business design, and a system specification.

The topics of the workshop center include:

- business specifications
- business architectures
- precise specification of semantics …
- semantics of OO modeling approaches …
- semantics-preserving refinement strategies …
- viewpoint modelling …
- standards …
- business patterns (reusable fragments of specification)
- related tool support.

In order not to start from scratch, we include here the conclusions of our previous Workshop at OOPSLA'97 (reprinted from [2]).

- Start from top
- Discover from bottom
- Precision before correctness
- Do not confuse tool use with thinking
- Properties of a complete state space lead to an invariant
- Articulation is essential:
  - "All your terms have to be 5 or 6 words long because you have to pin down the context."
  - Use ontologies including relationships other than subtyping, to ask explicit questions about context
  - Be formal, but don't insist on exposing it
- Separate business from system specifications.
  - In code, separate business from plumbing.
  - Business rules, even detailed, should not be provided by developers
- Have a bidirectional mapping between graphical and formal specifications
- Abstraction (including selection of "appropriate refinement") has to be done by humans
  - Refinement invariants should include "relevant concerns" explicitly
- Open systems change their specifications

References

1. Haim Kilov, Bernhard Rumpe. Summary of ECOOP'97 Workshop on Precise Semantics of Object-Oriented Modeling Techniques. In: *Object-oriented technology: ECOOP'97 Workshop Reader*. Ed. by Jan Bosch and Stuart Mitchell. Springer Lecture Notes in Computer Science, vol. 1357, 1998.

2. Haim Kilov, Bernhard Rumpe, Ian Simmonds. Object-oriented Behavioral Semantics With an Emphasis on Semantics of Large OO Business Specifications. In: OOPSLA'97 Conference Addendum to the Proceedings. *ACM Press*, 1998.

3. Haim Kilov, Bernhard Rumpe. ECOOP'98 Workshop on Precise Behavioral Semantics (with an Emphasis on OO Business Specifications). To appear in: *Object-oriented technology: ECOOP'97 Workshop Reader*. Springer Lecture Notes in Computer Science, 1999.

Organizers

Haim Kilov
Merrill Lynch
Operations, Services and Technology
World Financial Center
South Tower
New York, NY 10080-6105
email: haim_kilov@ml.com or haim_kilov@omg.org

Bernhard Rumpe
Institut für Informatik,
Technische Universität München
80333 Munich, Germany
email: rumpe@in.tum.de

Ian Simmonds
IBM T J Watson Research Center
30 Saw Mill River Road
Hawthorne
NY 10532, USA
email: simmonds@us.ibm.com

Table of Contents