

A STUDY ON UML

This book is based on the new version of UML—UML 2.0. In this version, the structure and documentation of UML was completely revised. There are now two documents available that describe UML:

- **UML 2.0 Infrastructure** defines the basic constructs of the language on which UML is based. This section is not directly relevant to the users of UML (our readers), but is directed more towards the developers of modeling tools.
- **UML 2.0 Superstructure** defines the user constructs of UML 2.0, meaning those elements of UML that users work with at the immediate level.

Among other things, this revision of UML was created to pursue the following goals:

- To restructure and refine UML so that usability, implementation, and adaptation are simplified.
- The UML infrastructure is supposed to:
 - Provide a reusable meta-language core, with which UML can define itself
 - Provide mechanisms for the adjustment of language
- The UML superstructure is supposed to:
 - Feature better support for component-based development
 - Improve constructs for the specification of architecture
 - Provide better options for the modeling of behavior

In addition to the proposal of UML Infrastructure and UML Superstructure specifications, separate proposals were published for a new *Object Constraint*

Language (OCL) as well as for Diagram Interchange. Together, they make up the complete UML 2.0 package, as shown in Figure 2.12:

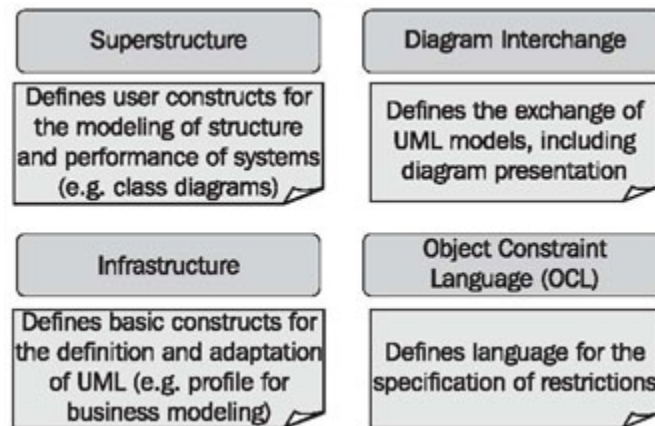


Figure 2.12 The complete UML 2.0 package

UML 2.0, as a whole, is more extensive and more complex than earlier versions. The extent of UML documentation has also further increased. While the documentation of UML 1.5, including OCL, comprised about 730 pages, the documentation of UML 2.0, also including OCL, contains approximately 1050 pages.

Even though part of the documentation doesn't concern the 'normal' UML user, for a member of a software development project, reading the complete work is unrealistic. This is not only due to the number of pages, but also because of the number and complexity of UML constructs. Because of this, reduction to the UML constructs necessary for everyday project work is even more necessary than with earlier versions.

The concept of this book is to show a very simplified picture of UML. This is becoming even more important with the increasing scope of UML, since the accessibility of UML did not become any greater with version 2.0.

We consciously only show the tip of the iceberg, while the part hidden under water becomes bigger and bigger. More than ever, we are of the opinion that the tip of the

iceberg (as shown in Figure 2.13) is sufficient for our target audience—members of IT project teams—to understand UML enough to use it meaningfully in projects:

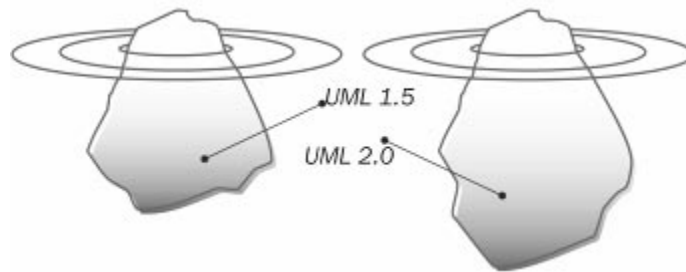


Figure 2.13 The UML iceberg

We would also like to point out a new possibility that UML 2.0 opens up. One of the goals of UML 2.0 was the definition of formal and completely defined semantics. If this new possibility is utilized for the development of models, corresponding systems can be generated from these models. This yields the following advantages:

- A model that was described with UML reflects the real system.
- It is possible to correct mistakes in the model early and continuously.
- Intermediate steps such as amending code outside of the model design are omitted.
- It is possible to make the same model executable on different platforms (hardware as well as software).

However, a price has to be paid for these advantages. It becomes necessary to acquire a deep and accurate understanding of UML and considerable effort has to be invested in the development of the models.

Source : <http://sourcemaking.com/uml/basic-principles-and-background/uml2>