

Part II

Foundations of OPM

and SysML

Part I was an informal introduction to OPM and SysML, in which we used a detailed case study of the Automatic Crash Response system. We have discussed aspects of OPM and various SysML diagram kinds. Part II provides a more formal and theory-grounded exposure of OPM and SysML. It covers in an orderly fashion the ontology, conceptual modeling constructs, and applications. Chapter 9 introduces and defines what conceptual modeling is and what is its purpose and context. Chapter 10 presents the two basic building blocks of OPM—objects and processes. In a similar fashion to the way Part I is structured, Chap. 11 is about the textual modality of OPM—OPL. In Chap. 12 we turn to an orderly study of SysML with its four pillars and nine kinds of diagrams. The dynamic, time-dependent aspect of systems is the focus of Chap. 13. This is naturally followed by studying the structural, time-independent system aspect in Chap. 14. Following Chap. 15, which deals with participation constraints and fork links, in Chap. 16 we introduce the four fundamental structural relations. This concludes Part II. In Part III, titled *Structure and Behavior—Diving In*, we turn to elaborate on each of the four fundamental structural relations separately and continue with whole system aspects, including complexity management and control.