Part III

Structure and Behavior: Diving In

Having laid down in Part II the fundamentals and foundations of model-based systems engineering in both OPM and SysML, Part III goes to the heart of conceptual modeling. In the first four chapters of this Part, we delve into the details and usage of each one of the four fundamental structural relations. Chapters 17 and 18 discuss aggregation-participation and exhibition-characterization, respectively. Chapter 19 is about states and values, concepts that are needed for the two remaining fundamental structural relations—generalization-specialization and classification-instantiation, both elaborated on in Chap. 20. Chapter 21 concerns complexity management. It defines and describes the four refinement and abstraction mechanisms of OPM while also discussing complexity management in SysML. Chapter 22 is about OPM operational semantics and control links—the way control is managed during execution of the system. In Chap. 23 we specify how to model logical operators and probabilities. Finally, Chap. 24 is an overview of ISO 19450 Publically Available Specification (PAS)—*Automation Systems and Integration—Object-Process Methodology*, adopted by the International organization for Standardization in 2014.