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RESEARCH ON THE CONSTRUCTION OF SPACECRAFT SYSTEM MODEL LIBRARY BASED ON SYSML

Abstract

As the complexity of aerospace missions increases, the scale of the system is rapidly expanding, the coupling relationship between different disciplines is becoming more and more complex, and the performance requirements for aerospace products are also increasing. Therefore, the transition from traditional systems engineering to model-based systems engineering has become an important development trend. In the process of applying model-based system engineering (MBSE) to the overall design of the spacecraft system, the workload of modeling is heavy, and it is difficult to reuse the existing rich design experience, which seriously affects the popularization and application of MBSE. In order to solve this problem, a model library construction method for the overall design of the spacecraft system is proposed. The main connotation of this method is: Based on MBSE method, combined with the professional semantics and R D process of the spacecraft design field, the meta-models of SysML is extended to form the domain-related modeling language at all levels of the system, and finally the domain knowledge and model libraries of the spacecraft system overall design are further constructed. The construction of domain meta-models and model libraries can achieve maximum model reuse, reduce the modeling workload of the spacecraft design using MBSE, and improve the efficiency of system modeling and analysis.