

## Service Interactions Coordination Using a Declarative Approach: Focuses on Deontic Rule from Semantics of Business Vocabulary and Rules Models

**Authors :** Nurulhuda A. Manaf, Nor Najihah Zainal Abidin, Nur Amalina Jamaludin

**Abstract :** Coordinating service interactions are a vital part of developing distributed applications that are built up as networks of autonomous participants, e.g., software components, web services, online resources, involve a collaboration between a diverse number of participant services on different providers. The complexity in coordinating service interactions reflects how important the techniques and approaches require for designing and coordinating the interaction between participant services to ensure the overall goal of a collaboration between participant services is achieved. The objective of this research is to develop capability of steering a complex service interaction towards a desired outcome. Therefore, an efficient technique for modelling, generating, and verifying the coordination of service interactions is developed. The developed model describes service interactions using service choreographies approach and focusing on a declarative approach, advocating an Object Management Group (OMG) standard, Semantics of Business Vocabulary and Rules (SBVR). This model, namely, SBVR model for service choreographies focuses on a declarative deontic rule expressing both obligation and prohibition, which can be more useful in working with coordinating service interactions. The generated SBVR model is then be formulated and be transformed into Alloy model using Alloy Analyzer for verifying the generated SBVR model. The transformation of SBVR into Alloy allows to automatically generate the corresponding coordination of service interactions (service choreography), hence producing an immediate instance of execution that satisfies the constraints of the specification and verifies whether a specific request can be realised in the given choreography in the generated choreography.

**Keywords :** service choreography, service coordination, behavioural modelling, complex interactions, declarative specification, verification, model transformation, semantics of business vocabulary and rules, SBVR

**Conference Title :** ICSOCA 2020 : International Conference on Service-Oriented Computing and Applications

**Conference Location :** Singapore, Singapore

**Conference Dates :** September 08-09, 2020