Ontological Patterns and Anti-Patterns for the Modeling of Complex Enterprise Relations

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Enterprise modeling requires of course to pay attention to different kinds of business relationships. In many cases, we really need to talk about such relationships, for instance, when the contractual conditions that regulate them evolve in time, or when such conditions are violated. In terms of conceptual modeling, this means that relationships need to be \textit{reified}, they need to be put in the domain of discourse.

In this tutorial, we shall first introduce the ontological basis of relationships reification, according to which relationships are construed as \textit{truthmakers} of relational statements. We shall then illustrate different kinds of ontological patterns and anti-patterns based on the different nature of such truthmakers, by discussing concrete case studies related to enterprise modeling.

The material presented in the tutorial is based on a novel theory of relationships and reification that was first published in (Guarino and Guizzardi (2015, 2016)) and later used to evolve the Ontology-Driven Conceptual Modeling language OntoUML (Guizzardi et al. (2018)).

The theory has since then been successfully applied to model economic transactions (Guarino, Guizzardi, and Sales (2018)), legal relations (Griffo, Almeida, and Guizzardi (2018)), service contracts (Griffo, Almeida, Guizzardi, and Nardi (2017)), complex service life-cycles (Nardi et al. (2015)), preference relations in economics (Porello and Guizzardi (2018)), and strategic enterprise relationships (Sales, Porello, Guarino, Guizzardi, and Mylopoulos (2018)).

The approach to complex relation modeling by employing Ontological Design Patterns has been discussed in (Guarino, Sales, and Guizzardi (2018)); The approach for Anti-Pattern detection and systematic model rectification employed here has been discussed in (Guizzardi (n.d.)).
References


Guarino, N., & Guizzardi, G. (2015). We need to discuss the relationship: Revisiting relationships as modeling constructs. In International conference on advanced information systems engineering, caise 2015 (pp. 279–294).


