SaMURaI

***S**emantic **M**ethod for **U**nified **R**ules **I**nteroperability in Knowledge-Based Systems* (**SaMURaI**)

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The main objective of this project is to propose a new knowledge interoperability formalism for rules. Existing Rule-Based System shells (e.g. CLIPS , Jess , Drools , OpenRules) provide different rule languages, which are merely a programming solution. Even though the syntax of these languages is precisely defined, they rarely provide any underlying logical interpretation. The proposed solution would allow for formalization of the knowledge interchange for common rule languages (CLIPS, Jess, Drools, OpenRules) thanks to unified logical interpretation.

Description

Motivation

Apparently there are two main persistent problems with the existing approaches to integration of Business Processes (BP) with Business Rules (BR):

1. Semantic mismatch problem – a semantic mismatch between a general workflow (defined by Business Process) and a specific task logic (defined using Business Rules).
2. Structure hierarchization problem – lack of a hierarchical, standardized and coherent methodology for designing systems using Business Processes with Business Rules.

The aim of the project is to address these problems by providing an efficient integration method and developing a hierarchical methodology for design and integration of these technologies. Such a design methodology fits into the MDE (Model-Driven Engineering) paradigm, which focuses on creating and exploiting domain models and simplifies the design process.

Expected benefits

Although Business Process and Business Rules technologies are an active field of research and development in the world, there is a lack of a coherent and standardized solution in the field of their integration.

Our solution proposes the consistent methodology which will be effectively using the BPMN notation

for modeling Business Processes with logic tasks defined using Business Rules based on SKE.

Intended results

- **Conceptual:** A hierarchical design methodology combining BPMN Business Processes and SKE Business Rules developed in this project will be a promising application of the MDE paradigm that eliminates a semantic mismatch between BP and BR, and the structure hierarchization problem.
- **Practical**: The results of the project will conceptually contribute to the Business Process and Business Rules field of research. From the practical point of view the proposed methodology can be further extended and adapted for applications.
- **Evaluative**: To show the effectiveness of the method, a number of case study examples will be specified and modeled. These benchmark examples will provide the input cases for evaluation.

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