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An ontology-based approach for multiperspective requirements traceability between analysis models

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Abstract

The traceability of multiperspective software artifacts has been recognized as an important task, particularly in requirements change management. The heterogeneity of multiperspective software artifacts makes it difficult to perform tracing, verification and merging of the requirements among various system developers. In view of that, ontology is used as a knowledge management mechanism to represent multiperspective software artifacts in a common way for interoperability and traceability purposes. Our multiperspective requirements traceability (MUPRET) framework was firstly proposed for tracing the textual requirements to resolve the heterogeneity problems found in multiperspective requirements artifacts. In this paper, the enhancement of MUPRET framework is proposed to automatically generate traceability relationships of multiperspective software artifacts expressed in terms of typical analysis models (i.e., class diagram and entity relationship diagram). We emphasize on tracing multiperspectives in the analysis phase of software development process. An illustrative example of the extended applications is also discussed. © 2010 IEEE.

Author Keywords

Analysis model; Knowledge management; Multiperspective software development; Ontology; Requirements traceability

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