

Using Concern Spaces to Measure Requirements Similarities

Călin Eugen Nicolae Gal-Chis

Faculty of Mathematics and Computer Science, Babes-Bolyai University, Cluj-Napoca

calin.gal-chis@ubbcluj.ro

The software artefacts are crucial during the development cycle of a software product and tracing them is important to the development process. The model used, the requirements document, and the code, are artefacts that can be updated or reused in different projects. Different types of notations are used to add traceability to artefacts, providing versatility in searching, indexing, updating, or retrieving them.

MultiCoS is an approach based on separation of concerns (SoC) in multiple spaces. The concern spaces are defined by grouping concerns by common interest. The relationships between concerns and entities provide to the concern a degree of meaning for an entity. Defining and using concerns to properly describe software components add semantic to artefacts such as specification documents, requirements documents, project documents, and code modules. Given this, the concerns and their relationships can provide traceability to higher level entity spaces, such as the application model, the views, and the design documents of a software application.

The MultiCoS metamodel is validated here in the software development cycle, reusing web applications artefacts process. In addition to other tracing methodologies, MultiCoS can add semantic value to artefacts and can strengthen the relationships to concerns or between artefacts by taking into account similarity coefficients.

In contrast to other methodologies, MultiCoS supports complex tracing systems by creating multiple relationships of different degrees between entities, based on the value of a concern, a fuzzy value that measures the impact of a concern to an entity.

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