Modular Requirements Against Feature Interaction Problems

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Abstract

Structuring requirements into information-hiding modules helps against feature interaction problems. Feature-oriented descriptions are popular, for example, in telephone switching. But composing many features often leads to undesired behaviour. Our requirements modules group those properties together that are likely to change together. This reduces dependencies among requirements modules. Dependencies should be documented explicitly. This helps to detect remaining interaction problems. For the formalism Z, we show how we can structure requirements into modules and document dependencies. We propose a small extension for Z that allows hierarchical grouping, and interfaces. Interfaces restrict the access to changing parts of the requirements.