Merging Sequence Diagrams Based Slicing

Authors : Bouras Zine Eddine, Talai Abdelouaheb

Abstract : The need to merge software artifacts seems inherent to modern software development. Distribution of development over several teams and breaking tasks into smaller, more manageable pieces are an effective means to deal with the kind of complexity. In each case, the separately developed artifacts need to be assembled as efficiently as possible into a consistent whole in which the parts still function as described. Also, earlier changes are introduced into the life cycle and easier is their management by designers. Interaction-based specifications such as UML sequence diagrams have been found effective in this regard. As a result, sequence diagrams can be used not only for capturing system behaviors but also for merging changes in order to create a new version. The objective of this paper is to suggest a new approach to deal with the problem of software merging at the level of sequence diagrams by using the concept of dependence analysis that captures, formally, all mapping and differences between elements of sequence diagrams and serves as a key concept to create a new version of sequence diagram.

Keywords : system behaviors, sequence diagram merging, dependence analysis, sequence diagram slicing

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