

Establishing the Connection Between Software Traceability and Data Provenance

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Abstract:

Researchers and practitioners alike agree that software traceability is important to software development. Despite its recognized utility, software traceability has largely been infeasible in practice due to the high costs involved and the low benefits obtained. In the first part of this survey, we identify the difficulties that hinder end-to-end software traceability, and we analyze these difficulties from economic, technical, and social perspectives. We also discuss current approaches that attempt to address the identified difficulties. In the second part of this survey, we highlight striking similarities between software traceability and the concept of data provenance in e-Science. We investigate whether data provenance techniques can potentially address the difficulties of implementing end-to-end software traceability. Inspired by data provenance techniques, we provide insights for improving software traceability.