

Workflow Streams: A Means for Compositional Workflow Adaptation in Process-Oriented CBR

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Abstract. This paper presents a novel approach to compositional adaptation of workflows, thus addressing the adaptation step in process-oriented case-based reasoning. Unlike previous approaches to adaptation, the proposed approach does not require additional adaptation knowledge. Instead, the available case base of workflows is analyzed and each case is decomposed into meaningful subcomponents, called workflow streams. During adaptation, deficiencies in the retrieved case are incrementally compensated by replacing fragments of the retrieved case by appropriate workflow streams. An empirical evaluation in the domain of cooking workflows demonstrates the feasibility of the approach and shows that the quality of adapted cases is very close to the quality of the original cases in the case base.

Keywords: process-oriented case-based reasoning, compositional adaptation, workflows

Resubmission of Müller, G., Bergmann, R.: Workflow Streams: A Means for Compositional Workflow Adaptation in Process-Oriented CBR. In Lamontagne, L., Plaza, E. (Eds.) Case-Based Reasoning Research and Development, 22th International Conference on Case-Based Reasoning, ICCBR 2014, Cork, Ireland, Proc. LNCS, vol. 8765, Springer (2014)

Acknowledgements. This work was funded by the German Research Foundation (DFG), project number BE 1373/3-1.

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