R2BC: Tool-Based Requirements Preparation for Delta Analyses by Conversion into Boilerplates

Konstantin Zichler\textsuperscript{1} and Steffen Helke\textsuperscript{2}

Abstract: Automotive OEMs and suppliers negotiate different documents before they sign contracts for a product development. This includes the Component Requirements Specification (CRS), which is submitted by the OEM. The CRS describes the characteristics of the product to be developed in detail and is therefore the basis for the development effort estimation of a supplier. If the specified component is a successor of an already available product, the requirements specifications of both the successor and the predecessor products can be compared to estimate the development effort for the new component. This activity is called delta analysis. Due to a lack of sufficient tool support, the delta analysis is still a predominantly manual task. The main reason for this is, that the documents to be compared are structurally too different. In this work, we introduce a new method for an automated conversion of an OEMs unstructured or otherwise structured CRS into a structured language used by the supplier. The process uses established NLP tools to analyze CRS and then translates the OEMs requirements into supplier-specific boilerplates using a newly developed technique. The concept is implemented with the R2BC prototype, which demonstrates the feasibility of the approach and enables the processing of first real CRS.

\textsuperscript{1} HELLA GmbH & Co. KGaA, Lippstadt, Germany, konstantin.zichler@hella.com
\textsuperscript{2} Brandenburg University of Technology, Cottbus-Senftenberg, Germany, steffen.helke@b-tu.de