

The sub-project B3 of the CRC "On-The-Fly Computing" is concerned with the model-based analysis of service compositions created by sub-project B2. The properties of interest include both functional ones, like deadlock freedom and protocol conformance, and non-functional ones, like mean response time and scalability.

Since different formalisms like layered queueing networks or process algebras are used to analyse these properties, B3 has to develop multiple complex transformations of a service composition model into these formalisms.

In this talk, we present an approach to transformation development which allows to simplify and improve the quality of the developed transformations via the exploitation of the languages' structures.

The approach is based on context-free graph grammars and transformations defined by pairing productions of source and target grammars in a certain way. We have shown that such transformations exhibit three important characteristics: they are sound, complete, and deterministic.