Abstract:
A Generator for the Development of Visual Languages

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Visual languages have an important role in modelling systems, in specification of software, and in specific application domains. A processor for a visual language consists of a graphical frontend attached to phases that analyse and transform the visual programs.

Hence, the construction of a visual language processor requires a wide range of conceptual and technical knowledge: from issues of visual design and graphical implementation to aspects of analysis and transformation for languages in general. The thesis presents a powerful toolset that incorporates such knowledge up to a high specification level. Editors for visual languages are generated by identifying certain patterns in the language structure and selecting a visual representation from a set of precoined solutions.

Programs of visual languages are represented by attributed abstract trees. Hence, further phases of processing the programs can be generated by state-of-the-art tools for language implementation. It is demonstrated that ambitious visual languages can be implemented with reasonable small effort and with rather limited technical knowledge. The approach is suitable for a large variety of visual language styles.