

Generating domain-specific visual language tools from abstract visual specification.

Abstract

Domain-specific visual languages support high-level modeling for a wide range of application domains. However, building tools to support such languages is very challenging. We describe a set of key conceptual requirements for such tools and our approach to addressing these requirements, a set of visual language-based meta tools. These support definition of meta models, visual notations, views, modeling behaviors, design critics, and model transformations and provide a platform to realize target visual modeling tools. Extensions support collaborative work, human-centric tool interaction, and multi platform deployment. We illustrate application of the meta tool set on tools developed with our approach. We describe tool developer and cognitive evaluations of our platform and our exemplar tools, and summarize key future research directions.

Keyword: Metatool; Domain-specific visual language; Software tool; Model driven engineering.