An Extensible Metamodel for Program Analysis

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Abstract—Software maintenance tools for program analysis and refactoring rely on a metamodel capturing the relevant properties of programs. However, what is considered relevant may change when the tools are extended with new analyses, refactorings, and new programming languages. This paper proposes a language independent metamodel and an architecture to construct instances thereof, which is extensible for new analyses, refactorings, and new front-ends of programming languages. Due to the loose coupling between analysis, refactoring, and front-end components, new components can be added independently and reuse existing ones. Two maintenance tools implementing the metamodel and the architecture, VIZZANALYZER and X-DEVELOP, serve as proof of concept.

Index Terms—Programming environments, program analysis, metamodels.

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