



RESEARCH ARTICLE

Pragmatic Reactive Programming on Helpless Records

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Abstract— Pragmatic Reactive Programming (PRP) is an approach to reactive programming where systems are structured as networks of functions operating on signals. PRP is based on the synchronous data-flow paradigm and supports both continuous time and discrete-time signals (hybrid systems). PRP apart from most other languages for similar applications it support for systems with dynamic structure and for higher-order reactive constructs. Statically guaranteeing correctness properties of programs is an attractive proposition. This is true in particular for typical application domains for reactive programming such as embedded systems and animating applications. To that end, many existing reactive languages have type systems or other static checks that guarantee domain-specific properties. We have presented confined types allow this concern to be addressed. Implementation of PRP embedded in the confined typed language Agda, leveraging the type system of the host language to craft a confined type system for PRP. The implementation constitutes a discrete, operational semantics of PRP, and as it passes the Agda type, coverage, and termination checks.

Key Terms: - *Operational Semantics; Agda; Hybrid Systems; Signals; Semantics*

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