

The Influence of Dependent Types (Keynote)

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Abstract

What has dependent type theory done for Haskell? In this talk, I will discuss the influence of dependent types on the design of programming languages and on the practice of functional programmers. Over the past ten years, the Glasgow Haskell compiler has adopted several type system features inspired by dependent type theory. However, this process has not been a direct translation; working in the context of an existing language has lead us to new designs in the semantics of dependent types. I will take a close look at what we have achieved in GHC and discuss what we have learned from this experiment: what works now, what doesn't work yet, and what has surprised us along the way.

Categories and Subject Descriptors D.1.1 [*Programming Techniques*]: Applicative (Functional) Programming; D.3.3 [*Programming Languages*]: Language Constructs and Features

Keywords Dependent Types, Functional Programming, Haskell

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Biography

Stephanie Weirich is a Professor of Computer and Information Science at the University of Pennsylvania, having received tenure in 2008 and the rank of full professor in 2015. She received her B.A. in Computer Science from Rice University and her Ph.D. from Cornell University. She has published broadly in the areas of functional programming, type systems, machine-assisted theorem proving and dependent types.

Dr. Weirich has served as the program chair of the 15th ACM SIGPLAN International Conference on Functional Programming, ICFP 2010, and the 2009 Haskell Symposium. She also is an editor of the Journal of Functional Programming. Her recent awards include a 2016 Microsoft Outstanding Collaborator award, the 2016 Most Influential ICFP Paper award (for 2006), and the 2016 ACM SIGPLAN Robin Milner Young Researcher Award.

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