

Sequential Functions on Indexed Domains and Full Abstraction for a Sub-language of PCF

Stephen Brookes Shai Geva

April 1993

CMU-CS-93-163

School of Computer Science
Carnegie Mellon University
Pittsburgh, PA 15213

To appear in Proceedings of *Mathematical Foundations of Programming Semantics*,
New Orleans, 1993 (Springer Verlag Lecture Notes in Computer Science).

Abstract

We present a general semantic framework of sequential functions on domains equipped with a parameterized notion of incremental sequential computation. Under the simplifying assumption that computation over function spaces proceeds by successive application to constants, we construct a sequential semantic model for a non-trivial sub-language of PCF with a corresponding syntactic restriction — that variables of function type may only be applied to closed terms. We show that the model is fully abstract for the sub-language, with respect to the usual notion of program behavior.

This research was supported in part by National Science Foundation grant CCR-9006064.

The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressed or implied, of NSF or the U.S. government.