

- ▶ SAMSON ABRAMSKY, *Relating Structure and Power: a junction between categorical semantics, model theory and descriptive complexity*.

Department of Computer Science, University of Oxford, Wolfson Building, Parks Road, Oxford OX1 3QD, U.K..

*E-mail:* samson.abramsky@cs.ox.ac.uk.

There is a remarkable divide in the field of logic in Computer Science, between two distinct strands: one focussing on semantics and compositionality (“Structure”), the other on expressiveness and complexity (“Power”). It is remarkable because these two fundamental aspects are studied using almost disjoint technical languages and methods, by almost disjoint research communities. We believe that bridging this divide is a major issue in Computer Science, and may hold the key to fundamental advances in the field.

In this talk, we describe a novel approach to relating categorical semantics, which exemplifies the first strand, to finite model theory, which exemplifies the second. It is based on [1, 2], and ongoing joint work with Nihil Shah, Tom Paine and Anuj Dawar.

[1] Samson Abramsky, Anuj Dawar, and Pengming Wang. The pebbling comonad in finite model theory. In *Logic in Computer Science (LICS), 2017 32nd Annual ACM/IEEE Symposium on*, pages 1–12. IEEE, 2017.

[2] Samson Abramsky and Nihil Shah. Relating Structure and Power: Comonadic semantics for computational resources. In *27th EACSL Annual Conference on Computer Science Logic, CSL 2018, September 4-7, 2018, Birmingham, UK*, pages 2:1–2:17, 2018.