

Introduction

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The First Workshop on the Philosophy of Information and Logic was held at the Philosophy Centre of the University of Oxford on the weekend of the 3rd and 4th of November, 2007. The Workshop was an official event of the IEG, the interdepartmental research group in philosophy of information at the University of Oxford (<http://web.comlab.ox.ac.uk/oucl/research/areas/ieg/>). The aim of the Workshop was strongly interdisciplinary in focus. Researchers from both philosophy and computer science departments were brought together for an intensive weekend of research and interaction. The Workshop attracted nearly forty participants, coming from New Zealand, North America, and Europe.

The content of the presentations was diverse within the area itself. Topics ranged from the algebra and topology of quantum information states, to logics of information flow in various contexts (a recurring theme being the information flow involved in logical reasoning procedures themselves), to dynamic information processes in multi-agent reasoning settings, and to the nature of the informational turn in logic itself.

The presentations included: Samson Abramsky (Oxford), *Towards Informational Dynamics*; Patrick Allo (Brussels), *A Two-Level Approach to Logics of Data and Information*; Alexandru Baltag (Oxford), *Reasoning about Informational Dynamics: A Logical Approach to Epistemology*; Johan van Benthem (Amsterdam–Stanford): *Logic and Information (at least) Three Views*; Marcello D’Agostino (Ferrara), *Is Propositional Logic Really Uninformative*; Luciano Floridi (Hertfordshire–Oxford), *Logical Fallacies as Informational Shortcuts*; Mark Jago (Macquarie), *Logical Information*

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is *Vague*; Edwin Mares (Wellington), *General Information*; Giuseppe Primiero (Ghent), *Becoming Informed*; Mehrnoosh Sadrzadeh (Paris Diderot), *Ockham's Razor for Reasoning about Information Flow*; Sebastian Sequoiah-Grayson (Leuven): *A Positive Information Logic*; Sonja Smets (Brussels), *Dynamic Logic meets Quantum Information*; and Chris Timpson (Oxford): *A Budget of Informations*.

All of the papers in this volume are original contributions resulting in various ways from the presentations at the Workshop, and have not appeared elsewhere.

In *From IF to BI*, Samson Abramsky and Jouko Väänänen explore the compositional semantics of logics of informational dependence. They demonstrate that the natural propositional logic carried by the semantics is BI. BI combines intuitionistic and multiplicative connectives, in particular intuitionistic implication. Intuitionistic implication has not been previously considered in logics of informational dependence, and Abramsky and Väänänen deliver several novel results for logics of information where the use of intuitionistic implication is essential.

In *Reasoning about Data and Information*, Patrick Allo reveals the distinct roles played by both cognitive states and cognitive commodities in our epistemological theories. An analysis of the difference between cognitive states and cognitive commodities is carried out in terms of infomorphisms between different classificatory procedures for states of information, information-bases, and evidential situations.

In *The Information in Intuitionistic Logic*, Johan van Benthem explores the connections between informationally interpreted intuitionistic models and contemporary models for dynamic-epistemic logic. Issues involving factual versus procedural information, and statics versus dynamics, are analysed in order to reveal what exactly it is that intuitionistic logic and procedural thinking in contemporary logic tell us about information.

In *The Enduring Scandal of Deduction*, Marcello D'Agostino and Luciano Floridi examine the issue of accounting for the informativeness of propositional logic from both semantic and proof-theoretic points of view. They demonstrate how increasing levels of informativeness of Boolean reasoning may be represented by a hierarchy of tractable propositional logics of increasing computational complexity.

In *Logical Fallacies as Informational Shortcuts*, Luciano Floridi demonstrates how the classical fallacies of Denying the Antecedent and Affirming the Consequent may be recognised as informational shortcuts, allowing for the rapid acquisition of environmental information. The key move being the translation of the classical fallacies into refined versions of Bayes' Theorem.

In *Logical Information and Epistemic Space*, Mark Jago approaches the issue of modelling inferential information gain via the elimination of possibilities. The pressing question of which possibilities are to be included in the model is addressed via a notion of fine-grained epistemic space based on epistemic possibilities that are not obviously impossible. Since obviousness is not always determinate, the resulting epistemic space is one with fuzzy boundaries.

In *General Information for Relevant Logic*, Edwin Mares distinguishes between truth conditions and information conditions in order to construct a philosophical interpretation of the recent model theory (due to Mares and Goldblatt) for Quantified Relevant Logic. The central claim is that the information condition for quantified statements essentially uses general propositions. Mares demonstrates that general propositions

are needed in order to capture general information adequately, and provides a philosophically robust explanation of them.

In *An Epistemic Logic for Becoming Informed*, Giuseppe Primiero develops a formal framework for Epistemic Constructive Information, the result being an epistemic logic for becoming informed. The framework proposes an epistemic logic based on dependent justifications. The modal version of this logic is revealed to be a weaker embedding into the logic of being informed. The key philosophical insight being that the Veridicality Thesis holds for the latter, but not for the former.

In *Ockham's Razor for Reasoning about Information Flow*, Mehrnoosh Sadrzadeh explores the extent to which we may weaken our algebraic structure with respect to reasoning about information flow. The constraint is that the information flow in multi-agent settings must remain analysable in a neatly compositional manner.

In *A Positive Information Logic for Inferential Information*, Sebastian Sequoiah-Grayson demonstrates that a non-associative information frame, corresponding to a residuated pogroupoid, underpins the information structure at work in the dynamic cognitive procedures involved in inferential information. The only remaining structural rule is Cut. The fusion connective is retained due to the operation of information application being taken as primary, with non-commutation generating double implication.

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