

# Workshop: Logic, Conditionals and Probabilities

JULIANA BUENO-SOLER\*

University of Campinas, Campinas-SP, Brazil and Chapman University, Orange-CA, USA

WALTER CARNIELLI†

University of Campinas, Campinas-SP, Brazil and Chapman University, Orange-CA, USA

JULIO M. STERN‡

University of São Paulo, São Paulo-SP, Brazil

**Keywords:** probability , conditionals, logic, induction

This workshop aims to bring together researchers and practitioners to explore the intersections of logical systems, probabilistic reasoning, and conditionals in philosophy and language. Our intention is to provide an exciting platform to discuss foundational, theoretical, and applied advancements in these fields, which play a crucial role in understanding decision-making, artificial intelligence, and formal reasoning. We invite contributions within the following topics (but not limited to):

- Logical Foundations of Conditionals: Analyzing the nature and structure of conditionals in various logical systems, including classical, non-classical, and paraconsistent logics, including their relation to conditional probability
- Probabilistic Reasoning and Logic: Integrating probability theory with logical frameworks, including Bayesian inference, probabilistic logics, and decision theory.
- Conditionals and Causality: Exploring the relationship between conditionals and causal reasoning in both philosophical and computational contexts, including counterfactuals.
- Non-Classical Logics and Probability: Investigating non-classical logical systems (e.g., many-valued logic, intuitionistic logic, paraconsistent logics) and their interactions with probabilistic models.
- Induction versus Probability: Philosophical implications on the relationship between inductive reasoning and probability, especially in the context of scientific discovery and reasoning under uncertainty.
- Extended Bayesian network models: conditional dependency and independency in non-classical logics
- Probabilistic Satisfiability over diverse logical systems
- Applications in AI and Machine Learning: how logic, conditionals, and probabilities contribute to reasoning under uncertainty, decision-making processes, and probabilistic programming.

We encourage submissions that advance both the theoretical understanding and practical applications of logic in conjunction with probability theory and conditionals. Contributions from a broad spectrum of discipline - including philosophy, computer science, mathematics, and artificial intelligence - are highly welcomed.

---

\*jbuensolo@unicamp.br

†carnielli@chapman.edu

‡jsimeusp@gmail.com

## References

- [1] Carnielli, W., Bueno-Soler, J. (2024). Where the Truth Lies: A Paraconsistent Approach to Bayesian Epistemology. *Stud Logica* (advanced publication) <https://doi.org/10.1007/s11225-024-10144-y> Available at <https://doi.org/10.1007/s11225-024-10144-y> , accessed 11/01/2025.
- [2] Égré, P.;Rossi,L; Sprenger, J. (2021a), De Finettian Logics of Indicative Conditionals. Part I: Trivalent Semantics and Validity. *Journal of Philosophical Logic* 50: 187–213, 2021.
- [3] Fitelson, B., (2006). Inductive Logic. In S. Sarkar and J. Pfeiffer (Editors). *The Philosophy of Science: An Encyclopedia* New York: Routledge, Volume 1 A-M, pages 384–394, 2006.
- [4] Pearl, J. *Causality: Models, Reasoning, and Inference*. Cambridge University Press,2000.
- [5] Popper, K. *Objective Knowledge: An Evolutionary Approach*. Oxford University Press, 1972.
- [6] Stalnaker, R. Probabilities and Conditionals.*Philosophy of Science* 37: 64–80, 1970.
- [7] Stern, J. M., Pereira,C.A.B. Bayesian Epistemic Values: Focus on Surprise, Measure Probability. *Logic Journal of the IGPL* 22: 236–254, 2014.
- [8] J.M. Stern, J.M.; Izbicki,R.; Esteves. R. L.G.; Stern, R.B. (2018). Logically-Consistent Hypothesis Testing & the Hexagon of Oppositions. *Logic Journal of the IGPL* 25: 741–757, 2018.