► MARCELLO D'AGOSTINO, RICARDO O. RODRIGUEZ, AND ALEJANDRO SOLARES-ROJAS, *Depth-bounded intuitionistic propositional reasoning.*
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Tractable models of logical reasoning are useful in areas accounting for bounded rationality. D'Agostino et al. have proposed models for approximating classical propositional reasoning [1], which provide a natural measure of the *depth* of inferences: An inference's depth corresponds to the number of nested uses of hypothetical case-analysis needed to draw it. Inferences which can be obtained within a certain depth are associated with a subsystem in a hierarchy that increasingly approximates the full logic. Each of these subsystems is tractable whenever the depth of inferences is bounded above by a fixed natural number and the set of formulas on which the hypotheses are allowed is suitably parameterized.

In this talk, we extend the approach to intuitionistic propositional logic. We replace the idealized forcing relation of the Kripke semantics with a hierarchy of *depth–bounded forcing relations* $\Vdash_k$, $k \in \mathbb{N}$, measuring the available inferential depth. The 0-depth subsystem is characterized by a sort of non-deterministic tables for the connectives specifying *local* constraints, and a *global* forcing requirement for the conditional that further constrains the non-deterministic entries of its table. Forcing relations of greater depth are characterized by recursively allowing a form of hypothetical case reasoning over a bounded space of formulas. The proof-theoretic characterization of the 0-depth logic is a system consisting of introduction and elimination rules involving only the use of information actually possessed by the agent. While logics of greater depth are characterized by the iterated applications of a unique branching rule governing the use of hypothetical information and implementing a generalization of the principle of bivalence (see [2]).

[1] D'Agostino, M., Gabbay, D., Larese, C. and Modgil, S., ***Depth-bounded Reasoning. Volume 1: Classical Propositional Logic***, College Publications, 2024.

[2] Solares-Rojas, A., Baldi, P., Rodriguez, R. O., *Labeled KE for Intuitionistic Propositional Logic*, [Manuscript submitted for publication], 2025.