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PreLog - The Logical Science: How logics prove their worth through successful predictions

We humans use logical inferences in all areas of our lives: to evaluate political arguments, construct mathematical proofs, and test scientific theories. In doing so, we assume that we possess the logical knowledge required to reliably use these inferences. But, amazingly, no detailed and plausible account of how we justify our logical beliefs currently exists. Further, whilst we use logic to form beliefs in all areas of life, from solving technological problems to developing intricate public policy decisions, we now have many competing logics at our disposal to do so, all of which would lead us to reasoning differently in certain situations. Yet, due to the absence of a detailed understanding of the epistemology of logic, we lack the explicit criteria needed to resolve these theoretical disputes in logic. Possessing an adequate account of logical justification is, thus, now of paramount importance. PreLog will address these problems by: (i) developing and testing a radical account of how we justify logical claims, logical predictivism, according to which logical theories are justified by a similar means to empirical theories in the sciences, through possessing greater predictive success and explanatory power than competitors; and, (ii) employing predictivism to develop concrete criteria for theory choice in logic, which can subsequently be used by researchers to judge the relative success of rival logics, aiding to settle live logical disputes. To develop this much needed and long overdue account of logical justification, PreLog will employ a highly innovative practice-based approach, which uses logicians' actual practice to elucidate the underlying methodology by which we justify logical claims. PreLog's findings are important not only in constructing a much-needed account of logic's epistemology capable of providing concrete criteria to evaluate logics' relative success, but in presenting an innovative methodology with which to evaluate candidate epistemologies of logic.