

SEVENTH FRENCH PHILOSOPHY OF MATHEMATICS WORKSHOP

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On the naturalness of new axioms in set theory

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In this presentation we try to elucidate the notion of natural axiom in set theory. We will review the dichotomy of intrinsic-extrinsic justifications and we will find both theoretical and practical difficulties in their use. We will describe the limits of the theoretical framework, that we will call conceptual realism, where the intrinsic-extrinsic dichotomy is usually placed. In outlining our view of naturalness in mathematics, we will argue that an axiom is to be considered natural with respect to the fundamental ideas that motivate the formalization of a theory. In the case of set theory: the clarification of the notion of arbitrary set. In the end, after a brief presentation of Forcing Axioms, we will argue in favor of their naturalness as a case study for our proposal.