

THE STRUCTURE IDENTITY PRINCIPLE IN SET THEORY AND TYPE THEORY

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My talk will focus on only one of the several features of Univalent Foundations that I believe to be of philosophical interest. A strong form of the Structure Identity Principle (SIP) arises directly out of the Univalence Axiom (UA), a beautiful axiom of type theory originally formulated by Vladimir Voevodsky. I will give a precise statement of UA and end with a simple theorem of Homotopy Type Theory (HoTT) that expresses a version of SIP. A formal system for HoTT is a version of Martin-Löf's intensional dependent type theory together with a univalent type universe; i.e. a type universe satisfying UA. I will, very informally, review such a type theory with its Curry-Howard treatment of logic. But first I will discuss a weak version of SIP in classical set theoretic foundations and review Bourbaki's notion of structure.