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**Andre Kornell\*** ([kornell@math.ucdavis.edu](mailto:kornell@math.ucdavis.edu)), Department of Mathematics, One Shields Avenue, Davis, CA 95616. *Reasoning about incomplete structures.*

Tarski's theorem expresses the incompatibility of classical reasoning with the use of truth as a predicate. This difficulty is commonly addressed by introducing a hierarchy of languages, each of which formalizes the semantics of the languages below it. Many accounts of the mathematical universe ascribed to it a similar hierarchical or indefinitely extensible character. We will formalize a system of reasoning appropriate to the consideration of structures that are indefinitely extendable or indefinitely expandable. This system of reasoning allows theories that establish Tarski's truth axioms for its formula, and that establish the correctness of their own inferences. I will sketch such a theory describing a universe of sets that is complete both horizontally and vertically, which we take to be the standard structure for ZFC. I will also sketch such a theory describing a universe of sets that is incomplete both horizontally and vertically. In the former case, we expand the standard structure of ZFC by a primitive truth predicate, which is not taken to satisfy the principle of bivalence; in the latter case, the burden of Tarski's theorem is shifted to the incompleteness of the universe. I may also mention a natural completeness principle appropriate to this latter conception. (Received September 26, 2017)