

STRICT- Π_1^1 REFLECTION: A PROOF-THEORETIC PERSPECTIVE

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Strict- Π_1^1 reflection is a truly remarkable principle. It has been discussed in detail, for example, in Barwise [1]. However, the focus there is on the consequences of strict- Π_1^1 reflection for generalized recursion theory, definability theory, and the model theory of infinitary languages.

In this lecture we change the perspective and look at strict- Π_1^1 reflection from the point of view of proof theory. And for doing that we introduce two environments for sets and classes:

- A “tamed” version in which the interaction between sets and classes is severely limited and, as a consequence, quantification over classes can be considered as a sort of bounded quantification.
- The “full” version in which sets and classes interact as in von Neumann-Bernays-Gödel set theory.

In both cases we identify the least Σ_1 and Π_2 models of the respective theories and clarify their relationship to Kripke-Platek set theory and power Kripke-Platek. The ordinal analysis we need to achieve that builds on and extends methods recently developed in [2].

REFERENCES

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