▶ SATORU KURODA, *On Takeuti-Yasumoto forcing.*
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In late 1996, G.Takeuti and M.Yasumoto [1] published a paper on applications of forcing method for nonstandard models of bounded arithmetic.

In this talk, we will give a reformulation of their forcing construction in terms of two-sort bounded arithmetic. In particular, we will construct Boolean algebras on which generic extensions are models for theories for subclasses of PTIME such as NC^1 or NL. For instance, let $\mathbb{B}$ be the Boolean algebra whose underlying set consists of Boolean formulas over n inputs where n is a fixed nonstandard number. Then a generic subset of $\mathbb{B}$ constitutes a generic extension which is a model of $\mathbf{VNC}^1$.

It turns out that such generic extensions have close connections with separation problems of complexity classes in the ground model. Namely let $\mathfrak{M} \models \mathbf{V}^1$ be a countable nonstandard model which is not closed under exponentiation. Then we can show that $\mathfrak{M} \models (NC^1 = P)$ if and only if any generic extension based on Boolean algebra for NC^1 is a model of $\mathbf{VP}$.

We will also discuss the problem of relating propositional provability in the ground model and the generic extension.

[1] G.Takeuti and M.Yasumoto, Forcing on Bounded Arithmetic. Lecture Notes in Logic Volume 6, Cambridge University Press. 1996, pp.120-138.