71T-E15. SAHARON SHELAH, University of California, Los Angeles, California 90024. Two-cardinal and power like models: compactness and large group of automorphisms.

Let Q_i, $i < \alpha < \omega_1$, Q^i, $i < \beta < \omega_1$, be one-place designated predicates and $<$ a two-place designated predicate, and λ_i, $i < \alpha$, λ^i, $i < \beta$, be infinite cardinals. Let K be the class of models M whose language include the designated predicates, $|Q_i^M| = \lambda_i$, and $<^M$ order $(Q^i)^M$ in a λ^i-like order. Definition. K is μ-compact if: if $|T| \leq \mu$, T is a set of sentences, and every finite subset of T has a model in K, then T has a model in K. Theorem 1 (Fuhrken). If for every i, $(\lambda_i)^{\aleph_0} = \lambda_i$, $\mu_n < \lambda^i \Rightarrow \Pi_{n<\omega}\mu_n < \lambda^i$ then K is $\aleph_0$-compact. Theorem 2. If for every i, $\mu \leq \lambda_i$, $\mu < \lambda^i$ and K is $\aleph_0$-compact, then K is μ-compact (will essentially appear in Israel J. Math). Theorem 3. If K is μ-compact, $|T| \leq \mu$, T has a model in K, $|A| \leq \mu$, $<^A$ order A, then T has a model M in K, $A \subset |M|$, and every automorphism of $(A, <^A)$ can be extended to an automorphism of M. This generalizes Ebbinghaus, Abstract 70T-E68, these *Notices* 17(1970),837 which generalizes the results of Ehrenfeuch and Mostowski). Moreover in the model M at most $|T| + 2^{\aleph_0}$ types are realized by finite sequences of elements. (This generalizes a result of Ehrenfeucht.) (Received December 7, 1970.) (Author introduced by Professor Chen Chung Chang.)

71T-E16. JOHN MYHILL, State University of New York at Buffalo, Amherst, New York 14226. Reducibility and R.E.T.'s.

Notation is as in Dekker and the author's monograph "Recursive equivalence types", Univ. California Publ. Math. 3(1960). α and β are infinite recursively enumerable sets. In the monograph (p.121) it is proved that Req $\alpha' \leq$ Req $\beta' \rightarrow \alpha R_1 \beta$. We prove (1) the converse proposition is false; (2) Req $\alpha' \leq$ Req $\beta' \Leftrightarrow \alpha R_1 \beta$ by a function with recursive range; (3) $\alpha R_m \beta \Leftrightarrow$ R Req $\alpha' \leq$ R Req β'. Proofs of (2) and (3) are elementary; (1) follows from (2) by a result of R. W. Robinson (see Rogers "Theory of recursive functions", McGraw-Hill, New York, 1967, p. 101). (Received December 14, 1970.)

71T-E17. KENNETH KUNEN, University of Wisconsin, Madison, Wisconsin 53706. A partition theorem. Preliminary report.

Let $\varkappa$ be a real-valued measurable cardinal and μ a normal measure on $\varkappa$. Let $A \subseteq [\varkappa]^2$. Then either (i) there is a subset, $X \subseteq \varkappa$, such that $\mu(X) > 0$ and $[X]^2 \subseteq A$, or (ii) for all countable ordinals α, there is an $X \subseteq \varkappa$ such that X has order type α and $[X]^2 \cap A = 0$. The proof uses a generalization of the zero-one law. (Received December 14, 1970.)

71T-E18. KENNETH A. BOWEN, Syracuse University, Syracuse, New York 13210. Cut elimination in transfinite type theory.

Using ZF as metalanguage, for any ordinal $\mathcal{O} \geqq 1$, a system $TT^{\mathcal{O}}$ of monadic cumulative, simple transfinite type theory is formulated in Gentzen's sequentzen style. Theorem 1. $TT^{\mathcal{O}}$ is consistent. A nonextensional semantics is provided for each $TT^{\mathcal{O}}$. Theorem 2. $TT^{\mathcal{O}}$ is complete relative to the given semantics. A semivaluation is a mapping from a subset of the formulae of $TT^{\mathcal{O}}$ to $\{t, f\}$ which reflects the usual definition of truth