80T-E84 GERHARD F. KOHLMAYR, Mathmodel Consulting Bureau, Glastonbury, CT 06033.
An elementary set-theoretic proof of the inconsistency of ZFC. Part III.

Let BSC be a fragment of ZFC defined as in Abstract 779-03-11, ABSTRACTS AMS, Vol. 1 (1980) 404. Lemma (BSC). Let $F(Y)$ be a complete s-atomic field of subsets of Y and let A_F be the set of atoms of $F(Y)$. Let $\bigcup A_F$ be the union of A_F and let $\bigsqcup A_F$ be the supremum in $F(Y)$ of A_F. Then $\bigcup A_F = \bigsqcup A_F = Y$. Sketch of proof. The equality $\bigsqcup A_F = Y$ holds in $F(Y)$. Let A_P be the set of atoms of $P(Y)=\{z|z\subseteq Y\}$. There is a bijective homomorphism $s_P:P(Y)\to P(A_P)$ defined by $s_P(a)=\{t\in A_P|t\subseteq a\}$. There is a bijective homomorphism $s_F:F(Y)\to P(A_F)$ defined by $s_F(a)=\{t\in A_F|t\subseteq a\}$. Let $F(A_P)=_{df} s_P(F(Y))$ (image of $F(Y)$ under s_P). Let $s_b:F(Y)\to F(A_P)$ be defined by $\forall a\in F(Y)[s_b(a)=s_P(a)]$. Then s_b is a bijective homomorphism. Let $h:P(A_F)\to F(A_P)$ be defined by $h=_{df} s_F^{-1}\circ s_b$ (composite map of s_F^{-1} and s_b). Let $S(A_F)=_{df}\{u\in P(A_F)|u=\{t\}\wedge t\in A_F\}$. Let $e:S(A_F)\to F(A_P)$ be defined by $e=_{df} h|S(A_F)$ (restriction of h to $S(A_F)$). Then e is an inclusion map. Let $S(A_P)=_{df}\{u\in F(A_P)|u=\{t\}\wedge t\in A_P\}$. From the hypothesis $A_F\subseteq A_P$ ($F(Y)$ is s-atomic) follows $S(A_F)\subseteq S(A_P)$; therefore Range $e\subseteq S(A_P)$. Moreover, Range $e = S(A_P)$; hence e is onto. Thus e is an identity map. $S(A_F)=S(A_P) \Rightarrow A_F=A_P \Rightarrow \bigcup A_F = \bigcup A_P = Y$. Q.E.D.
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80T-E85 SAHARON SHELAH, Hebrew University of Jerusalem, Israel. Going to Canossa

The author had claimed the necessity of an inaccessible in Solovay proof of the consistency of ZF + every set of reals is measurable [has the property of Baire]. Some doubts disappear after the author proved a detailed proof of the measurability case. Unfortunately we have to withdraw the claim on the Baire property, but Th 1: If ZFC is consistent then so is ZFC + "every set of reals defined by a first order formula with real parameters has the Baire property. Subject B: Th. 2. If Namba forcing is semi proper then Chang conjecture holds. We formulate a condition forcing notions, s.t. suitable iteration of such forcings does not collapse $\aleph_1$, and it is satisfied by Namba forcing and all semi-proper forcings: Subject C: Failure of MA's for $\aleph_1$-complete forcings. Th.3: $(2^{\aleph_0}=\aleph_1)$. There is an $\aleph_1$-complete forcing notion P, such that a) $P=\bigcup_{i<\aleph_1} A_i$ and any countable subset of A_i has an upper bound b) there are dense $D_i\subseteq P(i<\aleph_2)$ such that there is no directed $G\subseteq P$, $G\cap D_i\neq\phi$ for $i<\aleph_2$. Th.4: $(2^{\aleph_0}=\aleph_1)$. Let $S=\{\delta<\aleph_2 : cf\delta=\aleph_1\}$, there are $f_\delta:\delta\to\{0,1\}$ for $\delta\in S$ such that for any $f:\omega_2\to\{0,1\}$ the following is a stationary subset of ω_2: $\{\delta\in S\{i<\delta: f_\delta(i)=f(i)\}$ is a stationary subset of $\delta\}$ Subject D: Th.5: $(2^{\aleph_0}<2^{\aleph_1})$ There is an abelian group G, of power $\aleph_1$ any endomorphism h of it is $h(x)=nx$ for some n which is $\aleph_1$-free. (Received June 16, 1980)

80T-E86 THOMAS G. KUCERA, McGill University, Montreal, P.Q. H3A 2K6 Decomposition of injective modules over a Noetherian ring. Preliminary report.

As an application of a Basis Theorem for certain totally transcendental theories [these Abstracts,] we give a model-theoretic proof of some of the classic results of Matlis [Pac. J. Math 8 (1958) p.511] on injective modules. Let Λ be a Noetherian ring with 1, T_Λ^* the theory of linearly closed left Λ-modules of Eklof and Sabbagh [Ann. Math. Logic Vol. 2 No. 3. p. 251]. All models of T_Λ^* are injective and T_Λ^* is totally transcendental. We freely confuse a left ideal P with the 1-type P over $\emptyset$ which says "Annihilator of x is P". We define an ideal P to be "prime" if the type P is strongly regular. Any two such types which are non-orthogonal are in fact equal. The set $\mathcal{P}$ of primes satisfies the hypothesis (*) of the Basis Theorem, so as a consequence we get a structure theorem for models of T_Λ^*, and a simple trick extends it to all injectives: Theorem (essentially Matlis): Let M be an injective left Λ-module. Then M has a unique decomposition $\oplus_{p\in\mathcal{P}} E(\Lambda/P)^{(\alpha_P)}$ as a direct sum of indecomposable injectives, and if $M\models T$ then $\alpha_P=\dim(P,M)$. The Basis Theorem was inspired by a study of the commutative case, where $\mathcal{P}$ is in fact the set of (real) prime ideals. This result is obtained in a different manner than those given by Garavaglia [JSL Vol. 45 No. 1 p. 155]. This work will form part of the author's Ph.D. thesis. (Received June 30, 1980)