

Functorial Models, Generic Sets, and Recursion Urlements

Cyrus F Nourani

Fragment consistent models and Urlements are applied to computable KPU recursion and Peano models since Platek's Stanford 1966, towards computability. Admissible and descriptive sets indicate recursive definitions lifted to other domains than integers, for example admissible sets, there are equivalence breakdowns, e.g., there being two competing notions of r.e. and admissible sets. Author's functorial models 1996, and the Keisler fragment K_A , we have models on admissible sets and rudimentary fragment, SLK, Leeds, 1997 and on functorial computing on generic models, ICM, Berlin 1996, and ASL-LA 1998, there are L-admissible models for PA at which well-known computational complexity questions are not independent.

K_A is admissible iff it is definable with an admissible fragment $S \subseteq K_A$. The genericity concept in the Ambos-Spies 1984 was on unary sets and there were no forcing properties stated nor where there forcing mentions. This author had presented forcing and applications to predictive computing at the same time on forcing at SLK- Manchester 1984, inspired he wrote Positive Forcing and Complexity there.

Based only on the arithmetic hierarchy:

Lemma 1 P-generic sets are definable with K_A .

Lemma 2 P-generic sets are definable with θ in K_A such that θ is Σ_1 is closed.

Lemma 3 P-generic sets are rudimentary.

Theorem 1 P-generic sets are K_A admissible.

Corollary 1 P-generic sets are L-admissible.

Corollary 2 P-generic sets are admissible computable.

Theorem 2 There are models, in particular PA models obtained definable by P-generic sets, where the r.e. set independence questions can be addressed.

The author posed hierarchy questions since 1999, Hattingen-www.esf.org. The model questions as far as the P-generic sets are in part answered here. The above On Admissible Computable sets and P-genericity, written SLK, Helsinki, communicated to Heidelberg 2003 not published.

*Affiliations Academia. USA California

Academic Email: cyrusfn@alum.mit.edu