

9. Juni 2008

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Radek Honzík

It is a pleasure to write in favour of my doctoral student Radek Honzík. For his doctoral thesis, Radek chose to work in large cardinal forcing, a sophisticated area which has already been extensively developed by Gitik, Magidor, Cummings, Foreman, Woodin and others. The main result of Radek's Ph.D. thesis presents a version of Easton's theorem in the presence of measurable cardinals. Whereas any "Easton function" can be realised as the continuum function of some cofinality-preserving generic extension (of a ground model satisfying GCH), this is not the case if one also demands that some cardinals of the ground model remain measurable in the extension. This is for two reasons: One is that more than measurability is needed to kill the GCH at a measurable, and the other is that the reflection implies that the value of the continuum function at a measurable cardinal is restrained by its values at cardinals below.

Radek's dissertation contains the nearly optimal result that if F is an Easton function, κ is $F(\kappa)$ -hypermeasurable and the latter is witnessed by an embedding $j : V \rightarrow M$ such that $F(\kappa) \leq j(F)(\kappa)$, then F can be realised in a cofinality-preserving generic extension in which κ remains measurable (and the forcing to achieve this is independent of κ). By work of Gitik, the first hypothesis of $F(\kappa)$ -hypermeasurability is nearly optimal, and by reflection arguments, so is the second hypothesis. The techniques for obtaining this result are striking and new. The hardest case is where $F(\kappa)$ is singular in V with cofinality greater than κ^+ , but regular in the ultrapower M . In this case, the required generic over M , needed to lift the embedding j to an embedding of the generic extension, is obtained as the direct limit over a "rectangle" of size $\text{cof}(F(\kappa)) \times \kappa^+$ whose entries are mutually compatible conditions in M ; although each entry of this rectangle belongs to M , none of its rows or columns do. This is the first example of a lifting argument in large cardinal theory which builds a generic not linearly, but over a two-dimensional template.

Radek has technical power, imagination and great potential. He has written an excellent Ph.D. thesis and I am proud to have had him as my doctoral student.

Sincerely yours,



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