

Re: Separation, Power and Countability.

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- *From:* MoeBlee <jazzmobe@xxxxxxxxxxxx>
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On Jun 20, 5:34 pm, zuhair <zaljo...@xxxxxxxxxx> wrote:

On Jun 20, 6:37 pm, MoeBlee <jazzm...@xxxxxxxxxxxx> wrote:

On Jun 20, 4:34 pm, zuhair <zaljo...@xxxxxxxxxx> wrote:

Just an intuition. Nothing else.

It's not even clear what the question MEANS given that d is not definable. How can you define a function with regard to a set that is not itself defined?

Yes, that's the beauty of the subject.

Sorry, but inspiration of beauty doesn't strike me too much from vagueness. I adore the beauty of clarity and the transformation of intuitive notions into rigorous mathematics. No transformation from intuition into mathematics, then no mathematical cigar, as it were. What is beautiful to me is the ingeniousness of finding how to express the intuitions AS mathematics and the ingeniousness of finding the logical paths of proof and construction.

Review Keith Ramsy's proof of the injective function from w to d , where d is an undefinable subset of w . It's a nice example of such an injective function from a definable set to undefinable set.

It's 'Ramsay'.

I know that proof; it's a standard proof that any infinite subset of w is denumerable. Undefinability has nothing to do with it except for

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the fact that if a subset of w is undefinable then the subset is infinite. In other words, the proof is about infinite subsets of w ; whether or not they're definable is irrelevant.

With choice, maybe some approach along these lines?:

Let $f''x$ stand for the image of f from x .

Let d be well ordered.

Let P_w be indexed by an ordinal K .

So, instead of an injection from P_w into d , find an injection from K into D ?

Maybe a function f on K by transfinite recursion?

$f(0)$ = least member of d .

$f(n+)$ = least member of $f''(n+)$

$f(L)$ = the least member of $???$, for limit ordinals L .

So, how to fill in $???$ to complete the definition of f ?

Somehow, maybe find some relation between limit ordinals L and the subsets of w that are indexed by those limit ordinals? Hmm, not enough information. I don't know...

MoeBlee