

Re: November 25 is Infinite Clause day!!

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In sci.logic, herc777@hotmail.com

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wrote

on 21 Nov 2004 14:17:40 -0800

<1101075460.302763.81790@z14g2000cwz.googlegroups.com>:

> *-Not to mention HERC777's understanding. The question is not whether*

> *-the diagonal number's digits are within the list (most likely,*

> *-they are*

>

> *this is your 1st error, you overlook the fact all digit sequences to*

> *infinite length are computable the conclusion of Cantor's proof relies*

> *on the existence of a new sequence of digits which is clearly non*

> *existent.*

Not sure all infinite digit sequences are computable. One problem:
the set of IDS is a power set (10^N); $\text{card}(10^N) > \text{card}(N)$.

Since all UTMs depend on integer codes (usually broken down into instructions), this yields digit sequences that cannot be generated by a TM.

>

>

> *-We also need to construct Diag. This is fairly simple,*

> *-and one can have many variants, so we need just pick one:*

> -

> *-if $\text{List}(N,N) = 4$ then $\text{Diag}(N) = 5$ else $\text{Diag}(N) = 4$*

>

> *this is your second error, your construction can never be realised.*

Correct, it's non-computable. This doesn't mean it can't exist;
there are a large number of non-computable functions out there.

> *its like saying construct the set of all sets that don't contain*

> *themselves, if its a member of itself its not a member, if its not a*

> *member of itself its a member. you can theorise the construction but*

> *you cannot refute your basic premises of set theory because of one*

> *theorem, regardless if a contradiction is formed.*

- >
- > *this is all you are doing.*
- > *let $R = 1, 2, 3, 4...$*
- > *let $p \leftrightarrow R1, p \leftrightarrow R2, p \leftrightarrow R3...$*
- > *therefore R is incomplete.*
- >
- > *your claim that p is a valid construction but its not rigorous.*

Neither p nor Diag is a valid construction as such (in the sense that it can be realized by a TM). Diag merely needs to exist in some form. Cf. Cantor's first proof.

- >
- > *Its like your Godel proof, you are trying to prove ! ($\text{proof}(X) \leftrightarrow X$)*
- > *$\text{proof}(X) \Leftrightarrow \text{Exists a proof of } X$.*
- >
- > *so you allow this theorem, $G \leftrightarrow ! \text{proof}(G)$ but you don't allow this*
- > *meta-consistency theorem $X \leftrightarrow \text{proof}(X)$. Either of these theorems will*
- > *work but they are mutually exclusive, no one here has shown a PROOF*
- > *that ! ($\text{proof}(X) \leftrightarrow X$).*

That's because there is no such proof. All Godel proved is that there are true unprovable statements.

- > *In AI the meta-consistency theorem is called*
- > *Truth Maintenance, only proven facts are allowed and never need to be*
- > *revoked. The alternate system is called belief revision. Godel's*
- > *proof only works in one automated theorem system.*
- >
- > *Same with the set of reals, assume all possible combinations of digits*
- > *are present in a countable list, with $\text{UTM}(n, 0)$ they actually are. Now*
- > *examine the construction of diag , it is a flawed construction! QED.*

That it is. Diag cannot be constructed using a UTM. However, that doesn't mean it's not a real.

- >
- >
- > *-Does an N exist such that for every positive M in J ,*
- > *- $\text{Diag}(M) = \text{List}(N,M)$?*
- > -
- > *-The answer clearly is no (if $M=N$ $\text{Diag}(N) \neq \text{List}(N,N)$ by*
- > *construction).*
- >
- > *This is your 3rd error. Why is it when I write 'obviously' it gets*
- > *picked up yet everyone uses 'clearly' around here. What you all*
- > *actually mean by 'clearly' is "clearly it's in the text book!" Your*
- > *construction breaks the premise of a complete list, it doesn't*
- > *contradict it.*

So you're stating that another member in the list is actually equal to Diag?

Which one, then? Or are you hypothesizing that List is not a denumerable mapping?

>
> *An infinite number of people toss a coin RANDOMLY an infinite number of*
> *times. After 10 people have tossed a coin 5 times each, the 1st 3*
> *places in the sequence are (tend to be) all covered.*
>
> *hhh..*
> *hht..*
> *hth..*
> *htt..*
> *thh..*
> *tht..*
> *tth..*
> *tth..*
>
> *there are 2 duplicates due to random spread.*
>
> *After several million people have tossed a coin 30 times each, by the*
> *binomial distribution, all combinations have been covered up to 15*
> *tosses.*
>
> *00000000000001..010101010*
> *000000000000010..010101010*
> *000000000000011..010101010*
> *000000000000100..010101010*
> *000000000000101..010101010*
> *000000000000110..010101010*
> *000000000000111..010101010*
> *000000000001000..010101010*
> ...
> *11111111111110..010101010*
> *11111111111111..010101010*
>
> *<- - - - - - - - ->/<- - - - - - - - ->*
> *all combinations still random*
> *covered*
>
> *The number of coins that get covered increases without bound,*
> *logarithmically. The length of 'covered combinations' is approx.*
> *log(people doing coin tosses). As the countable list approaches*
> *infinite length..*
>
> *As #people $\rightarrow \infty$, number of digits covered $\rightarrow \log(\infty)$.*
>
> *Therefore an infinite list contains all sequences of {H, T} of infinite*
> *length.*

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>
> 1 HTHTHTHTHT
> 2 HHHHHHHHHH
> 3 TTTTTTTTTT
> 4 THTHTHTHTHT
> ..
>
> Take the diagonal! HHTH..
> Invert it! TTHT..
>
> ALL SEQUENCES ARE PRESENT, TTHT.. is not a new sequence.
>
> INFINTIE people toss coins infinite times each, can you with 100%
> certainty form a NEW {H, T} sequence? CLUE : NO!! Inverting the
> diagonal is not a new sequence of tosses, and modifying the real
> diagonal does not a new real make.

OK, dumb question. Are you hypothesizing that $\text{card}(2^{\mathbb{N}}) = \text{card}(\mathbb{N})$?
 $2^{\mathbb{N}}$ can be mapped to the set of all fractional expansions, where
the n 'th digit is 0 if n is not in the set S , and 1 if n is.
(Recall that the set S is in $2^{\mathbb{N}}$, therefore a *subset* of \mathbb{N} .)

>
> Herc
>

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#191, ewill13@earthlink.net
It's still legal to go .sigless.