

# Re: Cantor Confusion

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*Source:* <http://sci.tech-archive.net/Archive/sci.math/2006-12/msg05373.html>

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  - *Date:* Mon, 18 Dec 2006 08:06:43 +0100
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mueckenh@xxxxxxxxxxxxxxxxxxxx wrote:

William Hughes schrieb:

mueckenh@xxxxxxxxxxxxxxxxxxxx wrote:

William Hughes schrieb:

mueckenh@xxxxxxxxxxxxxxxxxxxx wrote:

William Hughes schrieb:

mueckenh@xxxxxxxxxxxxxxxxxxxx  
wrote:

William  
Hughes  
schrieb:

mueckenh@xxxxxxxxxxxxxxxxxxxx  
wrote:

Virgil  
schrieb:

(It  
is  
contained  
in  
the  
union  
of  
all  
lines,  
but  
the  
union  
of

all  
lines  
is  
not  
a  
line)

That  
is  
a  
void  
assertion  
unless  
you  
can  
prove  
it  
by  
showing  
that  
element  
by  
which  
the  
union  
differees  
from  
all  
the  
lines.

Not  
quite.  
In  
order  
to  
achieve  
that  
the  
diagoal  
is  
not  
in  
any  
linem  
all  
that  
is  
required

is:  
Given  
any  
line  
there  
is  
an  
element  
of  
the  
diagonal  
not  
in  
THAT  
line.  
It  
is  
not  
requires  
that:  
There  
is  
an  
element  
of  
the  
diagonal  
that  
is  
not  
in  
any  
line.

For  
linear  
sets  
you  
cannot  
help  
yourself  
by  
stating  
that  
the  
diagonal  
differs  
from  
line

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A  
by  
element  
b  
and  
from  
line  
B  
by  
element  
a,  
but  
a  
is  
in  
A  
and  
b  
is  
in  
B.  
This  
outcome  
is  
wrong.

Therefore  
your  
reasoning  
"there  
is  
an  
element  
of  
the  
diagonal  
not  
in  
THAT  
line.  
It  
is  
not  
required  
that:  
There  
is  
an  
element  
of  
the

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diagonal  
that  
is  
not  
in  
any  
line."  
is  
inapplicable  
for  
linear  
sets.  
You  
see  
it  
best  
if  
you  
try  
to  
give  
an  
example  
using  
a  
finite  
element  
a  
or  
b.

In  
every  
finite  
example  
the  
line  
that  
contains  
the  
diagonal  
is  
the  
last  
line.

Every  
example

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with  
natural  
numbers  
(finite  
lines)  
is  
a  
finite  
example.

Your  
claim  
is  
that  
there  
is  
a  
line  
which  
contains  
the  
diagonal.

Because  
a  
diagonal  
longer  
than  
any  
line  
is  
not  
a  
diagonal.

Call  
it  
L\_D.  
Question:  
"Is  
L\_D  
the  
last  
line?"

There  
is

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no  
last  
line

Then, there  
is a line that  
comes after  
L\_D.

Therefore  
:L\_D does  
not contain  
every  
element  
that can be  
shown to  
exist in the  
diagonal.

All elements that can be  
shown to exist in the  
diagonal can be  
shown to exist in one single  
line. [(P1)]

This proposition P1 has \_not\_ yet been proved (shown).

Call it L\_D

L\_D contains a largest element. n.

L\_D is not the last line, so there is  
a line with element n+1,

Element n+1 can be shown to exist in the  
diagonal.

Element n+1 can be shown to exist in L\_D (which is  
obviously a line  
containing n+1).

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No.  $L_D$  is bounded. The largest element of  $L_D$  is  $n$ .  
 $L_D$  does not contain  $n+1$ .

You misinterpret  $L_D$ .  $L_D$  is that line which contains all numbers contained in the diagonal.

The Diagonal is unbounded thus any \_assumed\_  $L_D$  is not bounded, too.  
Hence  $L_D$  cannot be a line of the list (meaning: cannot be \_in\_ the list) for any line in the list is bounded (proof by induction).

Hence contradiction to P1. P1 must be dropped.

If your  $L_D$  does not contain them, then you have the wrong  $L_D$ .

Upto now we have no line  $L_D$  at all since P1 has not been proved.

F. N.

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