

Re: A simple undiagonalisable list – ILLUSTRATED

Source: <http://sci.tech–archive.net/Archive/sci.logic/2005–05/msg00163.html>

- *From:* "george" <greeneg@xxxxxxxxxx>
 - *Date:* 14 May 2005 08:23:30 –0700
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HERC777 wrote:

> i.e. the property should hold for all
> permutations of elements of the
> list.

Well, it doesn't.

SOME properties (like being what you call "saturated") hold for all permutations of a list, but most (including "being a contender") don't. Somebody on another thread has also raised an important point about infinitary permutations. These have the property that they can disturb the "connectedness" or ordinality of the list. Initially, everything on the list is only finitely far away from the top. If you allow infinite permutations, then some things could become infinitely far down. You could for example, starting at time $t=1/2 = 1 - (2^{-1})$, swap the first element of the list with the 2nd. Then, you could at time $t=3/4 = 1 - (2^{-2})$, swap the 2nd (NOW 2nd, originally 1st) element with the 3rd. And at $t=7/8$ you could swap the 3rd (originally 1st) element with the 4th. If you do this "all the way" (infinitely many times) until $t=1$, then you get a "list" of order-type $w+1$ where the last (w -th or ∞ -th) element comes after the infinitely many elements $2,3,\dots$ of the original list. By the usual definitions this is NOT even a "list" at all... it is ESPECIALLY not a "countable list" because, UNlike the set of counting/natural numbers, IT HAS A LAST ELEMENT.

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- *Follow-Ups:*
 - ◆ ***Re: A simple undiagonalisable list – ILLUSTRATED***
 - ◇ *From:* HERC777

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