

# Re: Corrective interpretation of real numbers

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Eckard Blumschein wrote:

> *Do not get me wrong. If I mention that Weierstrass's notion of a limit  
> does never permit delta to be zero, I am fully aware of the fact that  
> this notion is the decisive basis not merely for a most rigorous picture  
> but rather for something fundamentally different from Peirce's  
> description: "A continuum is precisely that every part of which has  
> parts".*

The above description is useless for doing mathematics. Did Peirce have anything more precise to offer?

> *So I do not share the widespread lack of understanding. I just  
> would like to suggest a corrective interpretation of real numbers. Let  
> me exemplary explain why.  
>  
> As long as we neglect the potentiality of infinity, and we do so with  
> great success, we cannot avoid some unreasonable consequences.  
> - Let e.g. any number  $x$  cut  $\mathbb{R}$ . Then there is no consensus whether  $x$   
> belongs to the smaller or the larger numbers. For  $x=0$ , both  $\mathbb{R}^+$  and  $\mathbb{R}^-$   
> need a neutral element of addition and should offer the option of  
> reunification.*

Perhaps if you defined what a "cut" is it would help. If you don't know which, if either, branch contains  $x$ , your definition is lacking.

> *- Buridan's donkey is suffering starvation between two full mangers  
> because of lacking preference for the left or the right one.  
> - "Correctness" demands to graphically represent  $|\text{sign}(x)|=0$  like a  
> singular point.*

Correctness demands logical consistency. Graphical representations may be useful. Note: however, that 0 is neither positive nor negative.

> *- Practice would appreciate to be released from obligation to always  
> carefully distinguish in  $\mathbb{R}$  between open and closed intervals just for  
> unspecified "mathematical" reasons even if such distinction does  
> obviously not make any sense.*

Huh? You think there is no distinction between an element being or not being in a set? What gave you that idea?

- > *Common sense provides the only reasonable elucidation and corrective*
- > *interpretation of real numbers if applied before or after calculating*
- > *with mathematics based on Weierstrass's notion as usual:*
- >
- > *Imagine delta equal to zero: Now, any single number  $x$  does not matter*
- > *any more. Infinitely many are required as to change a function  $f(x)$  by*
- > *addition or removal of numbers. Singularities only belong to*
- > *distributions. Equality of two irrational numbers tends to evade*
- > *numerical examination. When mathematicians like Stifel and Weyl used*
- > *profane terminology like fog or sauce as to express the essence of an*
- > *untamed continuum, then perhaps they did know why.*
- >
- > *The alluded simple "external" reinterpretation can be used without any*
- > *scruples but with much ease and success as compared to hyperreal or*
- > *surreal numbers in order to correct for unreasonable consequences of the*
- > *standard analysis.*

Perhaps the above is supposed to be building on other posts you've made that I haven't read, but it completely fails to stand on its own. Could you fill in a few details?

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