

# Corrective interpretation of real numbers

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**From:** Eckard Blumschein ([blumschein\\_at\\_et.uni-magdeburg.de](mailto:blumschein_at_et.uni-magdeburg.de))

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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". So I do not share the widespread lack of understanding. I just would like to suggest a corrective interpretation of real numbers. Let me exemplify 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.
- 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.
- 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.

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

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surreal numbers in order to correct for unreasonable consequences of the standard analysis.