

Re: Dedekind Cuts, Fundamental Sequences: why?

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- *From:* Hatto von Aquitanien <abbot@xxxxxxxxxxxxxxxx>
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Bob Kolker wrote:

Hatto von Aquitanien wrote:

What is the step of logic which leads one to seek an extension of the rational numbers to the real numbers?

Very simple. You want every set of numbers bounded from below to have a greatest lower bound and every set of numbers bounded from above to have a least upper bound. While rational numbers are dense in their ordering they lack the closure of boundedness, hence real numbers are invented to extend the rationals.

This is the motivation stated by Pickert and Görke, but it is not clear to me why it matters. Nor is it completely clear what it means to say that the field of rational numbers does not exhibit the closure property of boundedness.

For every rational number I can very easily divide the rational numbers into two disjoint sets by asserting that every rational number greater than the selected number is a member of the set whose lower bound is the selected number. Likewise for the symmetrically opposite case. I then arbitrarily chose one side of the bifurcation to include the chosen rational number.

Every definition I have consulted for supremum and infimum begins with the real numbers. So to tell me that the reason we need to extend the rational numbers to the real numbers is so that the domain of numbers has suprema and infima assumes the real numbers to be defined already.

http://www.cuyamaca.edu/bruce.thompson/Fallacies/circ_justification.asp

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http://www.dailymotion.com/video/x1ek5w_wtc7-the-smoking-gun-of-911-updated
<http://911research.wtc7.net>
<http://vehme.blogspot.com>

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Virtus Tutissima Cassis

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