

# A Note on Katzner's "Arbitrary Definitions"

Jonathan Barzilai

Dalhousie University  
Halifax, Nova Scotia  
Canada  
Email: Barzilai@dal.ca

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## Mathematical Definitions Are Not Arbitrary

In a previous defense of mathematical economics' fundamental errors, Katzner [4] relied on a second kind of ordinal utility that has had widespread acceptance among economists. This is not a valid defense, for there is only one kind of ordinal utility and, even if there is more than one, there is only one kind of differential calculus which applies to any kind of utility (see [1–3] for details). This invalid defense is now replaced by Katzner, in the latest version of his paper [5], with the claim that

“All definitions of concepts, including mathematical ones, are arbitrary.”

The claim that *all mathematical definitions are arbitrary* merits a response. Is the definition of addition and multiplication arbitrary? Does  $2+3$  equal any arbitrary number? Definitions are the starting points of mathematical theories. If the definitions are arbitrary, the theories are arbitrary and meaningless. Thus, according to Katzner's sweeping statement, mathematics in its entirety is arbitrary and meaningless. And since mathematical economics is part of mathematics, it is arbitrary and meaningless as well – according to Katzner – in which case his defense of mathematical economics does not achieve its purpose.

If, according to Katzner, mathematics in its entirety is arbitrary and meaningless, does he advocate removing it from the curriculum? Together with all the scientific disciplines that depend on it? Does he advocate removing mathematical economics from the curriculum?

The education of economists will be better served if neoclassical economists strive to correct their theory rather than defend its errors.

## References

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<http://www.paecon.net/PAERReview/issue68/Barzilai68.pdf>
- [3] Jonathan Barzilai, “Inapplicable Operations on Ordinal, Cardinal, and Expected Utility,” *Real-World Economic Review*, No. 63, pp. 98–103, 25 March 2013.
- [4] Donald W. Katzner, “Ordinal Utility and the Traditional Theory of Consumer Demand,” *Real-world Economics Review*, No. 67, pp. 130-136, May 2014.
- [5] Donald W. Katzner, “A Neoclassical Curmudgeon Looks at Heterodox Criticisms of Microeconomics,” *World Economic Review: paper review*, September 7, 2014.