

Regular variation: New variations on an old theme

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ABSTRACT:

We focus on the interplay between the measure-theoretic and Baire category approaches to regular variation, that run parallel in, e.g., the book by Bingham, Goldie and Teugels [BGT]. One can do them together, by working bi-topologically: reading proofs first in the usual (Euclidean) topology, and second in a refinement of it, the density topology.

Together with Adam (A. J.) Ostaszewski of the London School of Economics, we have addressed the issues left outstanding in BGT:

- (a) The foundational question (measure, category, or what? – above);
- (b) The contextual question (real analysis to start with, but where does the theory really live?);
- (c) Hard proofs. We have succeeded in eliminating these altogether.

In the process, we have also inverted the theme of J. C. Oxtoby's classic book *Measure and Category*. It is in fact category that is fundamental here. So our theme is: category and measure (and what one can do with them ...).