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Damir D Dzhafarov* (damir@math.uconn.edu), Department of Mathematics, University of Connecticut, 341 Mansfield Road, U-1009, Storrs, CT 06269. *The Reverse Sorites*.

Sorites is an ancient piece of paradoxical reasoning pertaining to sets with the following properties: (Supervenience) elements of the set are mapped into some set of “attributes”; (Tolerance) if an element has a given attribute then so are the elements in some vicinity of this element; and (Connectedness) such vicinities can be arranged into pairwise overlapping finite chains connecting two elements with different attributes. Obviously, if Supervenience is assumed, then (1) Tolerance implies lack of Connectedness, and (2) Connectedness implies lack of Tolerance. Using a very general but precise definition of “vicinity”, Dzhafarov and Dzhafarov (2010) offered two formalizations of these mutual contrapositions. Mathematically, the formalizations are equally valid, but in this paper, we offer a different basis by which to compare them. Namely, we show that the formalizations have different proof-theoretic strengths when measured in the framework of reverse mathematics: the formalization of (1) is provable in RCA_0 , while the formalization of (2) is equivalent to ACA_0 over RCA_0 . Thus, in a certain precise sense, the approach of (1) is more constructive than that of (2). (Received January 28, 2019)