FIXED POINTS OF FUNCTIONS BELOW THE LINE $y = x$

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ABSTRACT. This paper concerns fixed points of functions whose graphs lie on or below the line $y = x$. Using the Monotone Convergence Theorem we show that positive fixed points of such functions are "attracting on the right" so long as we include a couple of further assumptions about these functions near their fixed points. As an illustrative example, we confirm that this is the case for the function $y = x \sin x$; the positive fixed points of this function "attract on the right" and "repel on the left." Further, we generalize by showing that differentiability is in fact not needed to conclude that a fixed point is attracting on the right. Continuing in this direction, we identify a class of discontinuous functions whose fixed points are attracting on the right.

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