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E Cabral Balreira* (ebalreir@trinity.edu), One Trinity Place, Department of Mathematics, San Antonio, TX 78212. *Global Stability of Higher Dimensional Monotone Maps*. Preliminary report.

We discuss a new notion of monotonicity for maps on \mathbb{R}^k called normal monotonicity. This notion extends the classical definition of competitive planar maps and geometrically captures the dynamics of a competitive system in higher dimensions. Namely, a map $F : \mathbb{R}^k \rightarrow \mathbb{R}^k$ is monotone at p if for any hypersurface Γ containing \mathbf{p} with $\eta_\Gamma(\mathbf{p}) > 0$, we have $\eta_{F(\Gamma)}(F(\mathbf{p})) > 0$. Here η denotes the normal vector at a hypersurface. The main result is that under this new idea, we can establish global stability for monotone maps beyond planar maps. We illustrate our ideas in the three dimensional Leslie-Gower and Ricker Competition maps. (Received July 29, 2015)