1047-51-85   **Herbert Edelsbrunner*** (`edels@cs.duke.edu`), Duke University, and Geomagic, Research
Triangle Park, Durham, NC. *Stability of the Fold.* Preliminary report.

Think of the view of the boundary of a solid shape as a projection of a 2-manifold to R^2. Its silhouette is the projection of the critical points. Generalizing the projection to smooth mappings of an n-manifold to R^k, we get the fold (the generalized silhouette) as the image of the points at which the derivative is not surjective. Measuring difference with the erosion distance (the Hausdorff distance between the complements), we prove that the fold is stable. Specifically, we show that the erosion distance between the k-dimensional regions defined by two smooth mappings of the same n-manifold is bounded from above by the maximum Euclidean distance between corresponding image points. [Joint work with Dmitriy Morozov and Amit Patel.] (Received January 17, 2009)