1011-58-258   **Robert L Jerrard*** (`rjerrard@math.toronto.edu`), Department of Mathematics, 40 St George Street, Toronto, ON M5S 2E4, Canada. *Lagrangian cartesian currrents and weak continuity of the determinant of the Hessian.*

We define and study the class of lagrangian cartesian currents. These can be thought of as a space of generalized graphs in the product space $\Omega \times \mathbb{R}^n$ of *gradients* $Du : \Omega \to \mathbb{R}^n$ satisfying a certain integrability condition. Here Ω is a bounded, open subset of $\mathbb{R}^n$ and u denotes a scalar function. We prove that such a current is uniquely determined by the associated scalar function u, and we use this fact to deduce some results about weak continuity of the map $u \mapsto \operatorname{Det} D^2 u$. No familiarity with geometric measure theory will be assumed. (Received August 29, 2005)