OPTIMALITY CONDITIONS FOR LIPSCHITZ FUNCTIONS ON BANACH SPACES

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Abstract. In convex analysis, if a convex function f defined on a Banach space X attains its minimum at x_0, then $0 \in \partial f(x_0)$, the subdifferential of f at x_0. Thus we study in this paper for optimality conditions of a minimization problem of locally Lipschitz objective subject to an inequality and equality constraints with values in Banach spaces. We replace f by the Lagrangian L for a given programming problem, and prove that the Kuhn—Tucker/Fritz John multiplier rule holds. That is,

$$\theta \in \partial_x^o L(x_0, \lambda, \mu, \nu, K),$$

the generalized gradient of L with respect to $x \in X$.