Variational analysis and optimal control

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Informally, the key question to be discussed in the talk (which is a continuation of the talk with the same title to be given in the workshop in Vienna in July) is whether the optimal control theory is a proper extension of calculus of variations.This is definitely the case in the classical setting: Pontriagin's maximum principle does not follow from the Euler-Lagrange and Weierstrass conditions. The situation is totally different for nonsmooth problems. Namely, the maximum principle and its nonsmooth extensions follow from the Euler inclusion and the Weierstrass condition for the standard problem of calculus of variations with nondifferentiable integrand satisfying some reasonable Lipschitz requirements. Moreover, the implication can be further extended to problems with state and mixed constraints.