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Reflected Dynamics: Viscosity Analysis for L^∞ Cost, Relaxation and Abstract Dynamic Programming

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Abstract: We study an optimal control problem consisting in minimizing the L^∞ norm of a Borel measurable cost function, in finite time, and over all trajectories associated with a controlled dynamics which is reflected in a compact prox-regular set. The first part of the presentation provides the viscosity characterization of the value function for uniformly continuous costs. The second part is concerned with linear programming formulations of the problem and the ensued by-products as, e.g., dynamic programming principle for merely measurable costs.