UNBIASED ESTIMATORS AND MULTILEVEL MONTE CARLO

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Multilevel Monte Carlo (MLMC) and unbiased estimators recently proposed by McLeish (Monte Carlo Methods Appl., 2011) and Rhee and Glynn (Oper. Res., 2015) are closely related. This connection is elaborated by presenting a new general class of unbiased estimators, which admits previous debiasing schemes as special cases. New lower variance estimators are proposed, and they are shown to be asymptotically as efficient as MLMC, both in terms of variance and cost, under general conditions. The experiments demonstrate that the variance reduction provided by the new schemes can be substantial.