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Importance sampling and weak convergence in population genetics

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Importance sampling algorithms are used in population genetics to estimate small probabilities of gene configurations. In order to prove the efficiency of these algorithms, it is necessary to determine the asymptotic behaviour of the sampling probabilities. As a first step in this direction, we show weak convergence for a sequence of coalescent processes and the corresponding mutation processes, as the sample size goes to infinity. Time is scaled and convergence of semigroups is proved. The limiting process consists of a deterministic part and of conditionally independent Poisson processes with varying intensity. This is a work in progress with H.Hult (KTH).

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