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Title: Fixation in large populations: a continuous view of a discrete problem

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Abstract: We study fixation in large, but finite, populations with two types, and dynamics governed by birth-death processes. By considering a restricted class of such processes, which includes many of the evolutionary processes usually discussed in the literature, we derive a continuous approximation for the probability of fixation that is valid beyond the weak-selection (WS) limit. Indeed, in the derivation three regimes naturally appear: selection-driven, balanced, and quasi-neutral — the latter two require WS, while the former can appear with or without WS. From the continuous approximations, we then obtain asymptotic approximations for evolutionary dynamics with at most one equilibrium, in the selection-driven regime, that does not preclude a weak-selection regime.