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Haldane linearisation done right: solving the nonlinear recombination equation the easy way. (English) [Zbl 1353.92064](#)

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Summary: The nonlinear recombination equation from population genetics has a long history and is notoriously difficult to solve, both in continuous and in discrete time. This is particularly so if one aims at full generality, thus also including degenerate parameter cases. Due to recent progress for the continuous time case via the identification of an underlying stochastic fragmentation process, it became clear that a direct general solution at the level of the corresponding ODE itself should also be possible. This paper shows how to do it, and how to extend the approach to the discrete-time case as well.

MSC:

92D10 Genetics and epigenetics
34G20 Nonlinear differential equations in abstract spaces
06B23 Complete lattices, completions
39A12 Discrete version of topics in analysis

Cited in **3** Documents

Keywords:

nonlinear recombination equation; continuous and discrete time; population genetics; measure-valued equations; closed solution

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