

# **Extinction time in branching processes with mating**

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Keywords:

Abstract:

S.M. Ulam made the following observation in his 1967 talk "How to formulate mathematically problems of rate of evolution": "... there is a very nice and simple mathematical technique for describing processes starting with a single object, which then duplicates and gives 0, 2, or 3 or more descendants. It is called the theory of branching processes. It deals with asexual reproduction and gives methods to calculate the number of existing particles, of various kinds, in future generations, and other questions of this sort. I would like to stress that a corresponding theory for branching with sex, where particles get together, say, at random and then produce offspring, i.e., combination of a binary process of mating and reproduction, is mathematically much more difficult and no exact theory exists as yet." We will discuss processes with mating and, in more detail, some questions about the distribution of the time to extinction.