Some contributions to the class of controlled two-sex branching processes

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SUMMARY

Inside the general context of stochastic modelling, the branching process theory provides mathematical models to describe the probabilistic evolution of systems whose components after certain life period reproduce and die. It is an active research area of both theoretical interest and applicability to several fields. In particular, with the purpose to model the probabilistic evolution of populations where females and males coexist and form couples, some classes of two-sex branching processes have been studied, see for details [1] or [2]. It can be stated that significant efforts have been made regarding controlled branching processes with asexual reproduction. Now similar efforts should be made to develop controlled processes where reproduction is bisexual. In an attempt to contribute some solution to this problem a new class of controlled two-sex branching processes has been introduced in [3]. In addition to its theoretical interest, this class of processes also has clear practical implications, especially in population dynamics. In this work, we continue the research about such a class of two-sex processes. We investigate several probabilistic questions and we consider some inferential questions. By way of illustration, simulated examples are presented.

Keywords: Branching processes, two-sex processes, controlled processes.

AMS Classification: 60J80

References

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