Modelling the age of the oldest person in the world

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Abstract

The Gerontology Research Group keeps track of the oldest person alive since 1955. Our focus is on giving a modell for the continuous time process, which for any time takes the value of the age of the oldest person in the world at that time. We simplify this process by assuming that people are born according to a homogeneous Poisson point process, and they all have independent, identically distributed lifespan.

This simplified process is a Markov process, which enables us to determine its specific properties. We introduce a two-dimensional representation of the process, and using that we prove a theorem, which gives an explicit formula for the stationary distribution.

We calculate the properties of the process assuming different lifespan distribution, while observing the differences. In the end of thesis we shortly compare the real life process with the modell with a realistic lifespan distribution coming from statistical data.