

The thesis examines a model for representing the number of claims after merging or splitting different lines of business of an insurance company. The model is based on counting processes, the Poisson and the renewal processes are considered in particular. The operations of superposition and thinning are the proposed solution to this problem. We present the well-known results that the Poisson processes are closed under superposition and several types of thinning and explore the necessary conditions for this statement to also hold for renewal processes. Specifically, the previous work on the superposition of renewal processes is studied and further clarified, and an original result is derived for two types of thinning of a renewal process. The theoretical results are then used to analyze real insurance data in a model situation when an insurance company wants to estimate the future number of claims after merging two of its lines of business.