REGENERATIVE MUTATION PROCESSES RELATED to the SELFDECOMPOSABILITY of SIBUYA DISTRIBUTIONS

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 The Sibuya distribution is a discrete probability distribution on the positive integers which, while Poisson-compounding it, gives rise to the discrete-stable distribution of Steutel and van Harn. We first address the question of the discrete self-decomposability of Sibuya and Sibuya-related distributions. Discrete self-decomposable distributions arise as limit laws of pure-death branching processes with immigration, translating a balance between immigration events and systematic ageing and ultimate death of the immigrants at constant rate. Exploiting this fact, we design a new Luria-Delbrück-like model as an intertwining of a coexisting two-types (sensitive and mutant) population. In this model, a population of sensitive gently grows linearly with time. Mutants appear randomly at a rate proportional to the sensitive population size, very many at a time and with Sibuya-related distribution; each mutant is then immediately subject to random a