E. Szathmary and M. Smith (1997) represent the model of prebiological evolution by the equation for the concentration of molecules $\frac{dx}{dt} = kx^p$ (SMS model). Well established examples of non-exponential growth give global demography ($p = 2$) and some molecular replicator systems ($p = \frac{1}{2}$). It is not always clear why non-exponential growth is observed in reality. We show that SMS model can be understood within the frameworks of inhomogeneous population models.

**Theorem.**

1) Any SMS equation describes the total size of inhomogeneous frequency-dependent model $\frac{dl(t,a)}{dt} = \frac{ka(l(t,a))}{N(t)} = kaP(t,a)$ with Gamma-distributed parameter $a$ at the initial moment; 2) Additionally, any hyper-exponential equation with $p > 1$ describes the total population size of inhomogeneous density-dependent model $\frac{dl(t,a)}{dt} = kal(t,a)$ with Gamma-distributed parameter $a$ at the initial moment; The results can be extended to the model of a community composed of non-exponential populations and (partly) to Lifsons’ theory (1999) of prebiological evolution, which deals with competitions of replicators for extrinsic resources. (Received September 22, 2011)