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Specialist-v-generalist host-parasite interactions: influence on the stochastic dynamics of bacteria-phage infection

The main models of the genetics underlying host-parasite infections are the matching-alleles (MA) and the gene-for-gene (GFG) models. These can be interpreted as two extremes of a continuum that ranges from one-to-one specific matching in all host-parasite pairs (MA) to many-to-one generalist interactions in some of these (GFG). We have incorporated this variable degree of generalism into a simple epidemiological model of the infection of bacteria by lytic phages, adopting a fully stochastic description of the population dynamics and analyzing the different dynamical regimes that appear along the MA-to-GFG continuum.