

THE CARRYING SIMPLEX IN NON-COMPETITIVE POPULATIONS

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For some competitive Kolmogorov systems, there is a Lipschitz invariant manifold called the *carrying simplex* which is an attractor in the positive orthant; in fact, all trajectories are asymptotic to one on this manifold [2]. Many other properties of the carrying simplex have been proven such as how its convexity affects the behaviour of the system [1, 3]. This carrying simplex exists in types of competitive Lotka-Volterra population models where it is the boundary of the basin of repulsion of the origin and contains all non-trivial limit sets. Our work explores non-competitive systems, investigating whether this manifold still exists and which properties still hold. In the phase plane, a clear boundary of the basin of repulsion of the origin can still exist for some parameters and we find multiple methods for plotting this in 2D and 3D.

References

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