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*The Augmented Phase-Plane for Analyzing Discrete Planar Models*

After showing why phase plane analysis has not been particularly useful for analyzing discrete planar models as it is for planar ordinary differential equations, it will be shown how to augment the phase plane by not only considering the direction field and the nullclines, but by also including curves that we call the next iterate root-curves associated with the nullclines. These root curves determine on which side of the associated nullcline the next iterate lies. We demonstrate this method on e.g., a predator-prey model and a well-known Lotka-Volterra type discrete model. This provides an elementary method to obtain some global properties of the dynamics. This is joint work with Sabrina Streipert.