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Bifurcation delay and the entry-exit relation

In planar systems of the form $\dot{x} = \epsilon f(x, z, \epsilon)$, $\dot{z} = g(x, z, \epsilon)z$, where $f(x, 0, 0) > 0$ and $xg(x, 0, 0) < 0$ for $x \neq 0$, the phenomenon of "bifurcation delay" is that the limiting attracting and repulsion points are given by the so-called entry-exit function. This phenomenon has been observed in certain classes of predator-prey models, including the systems that have two predators competing exploitatively for the same prey in constant environment, and a diffusive version of Holling-Tanner predator-prey model. Using the Exchange Lemma in Geometric Singular Perturbation Theory, I will show a new and transparent proof of the bifurcation delay.