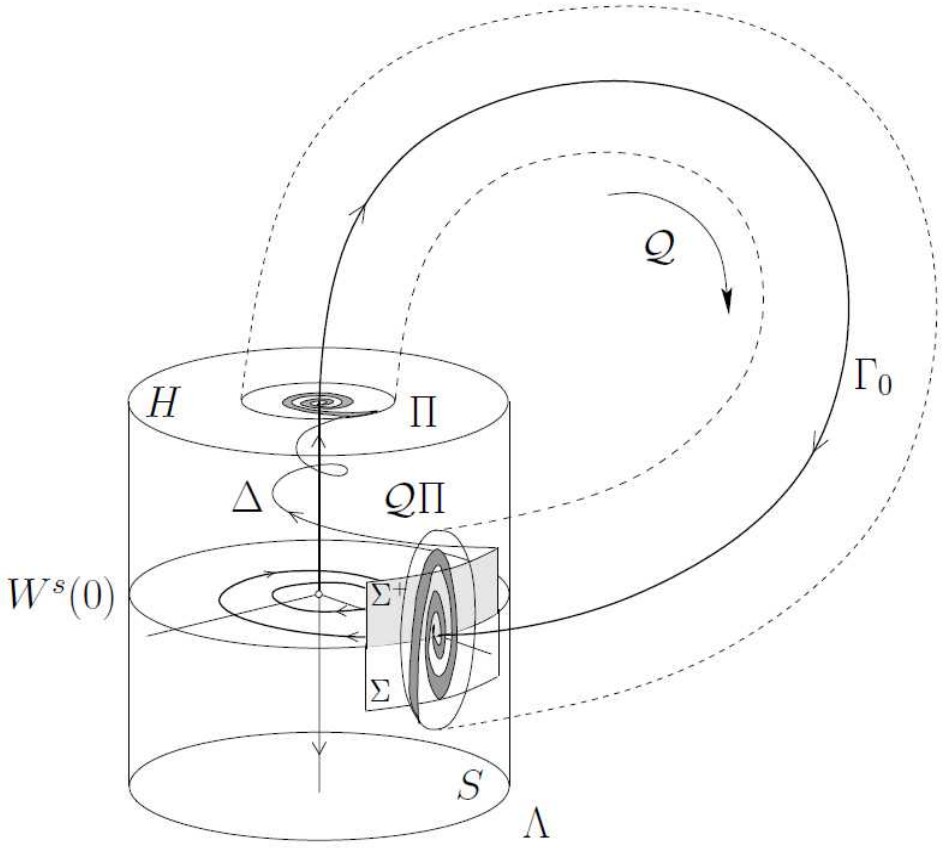
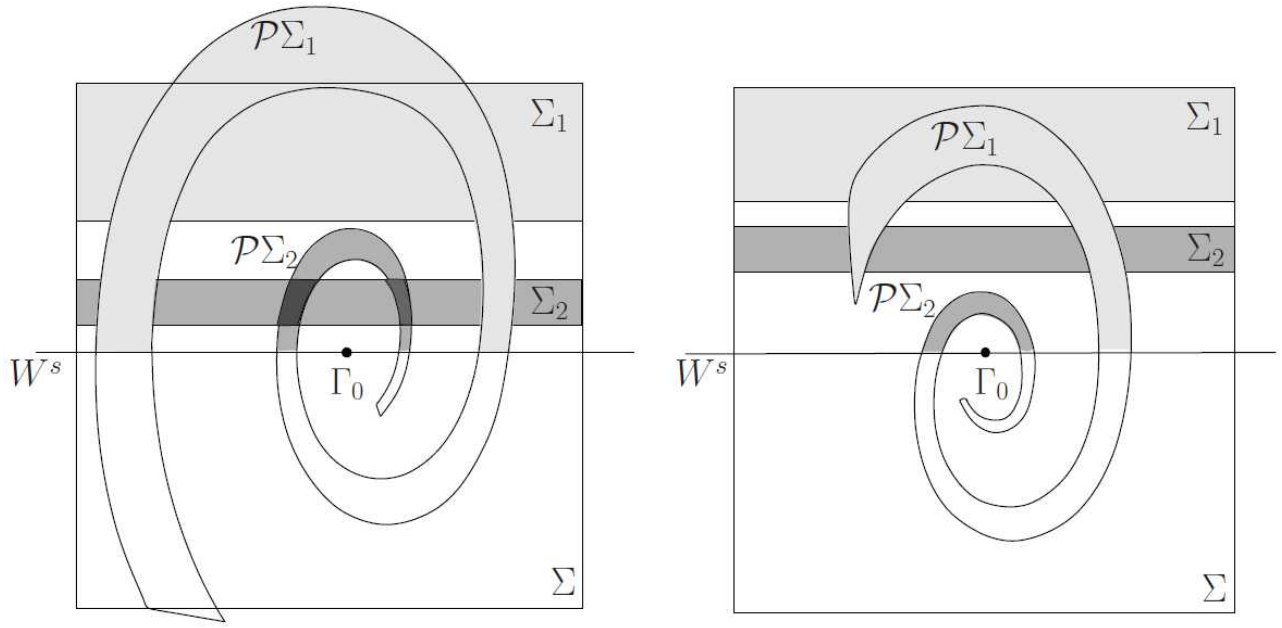
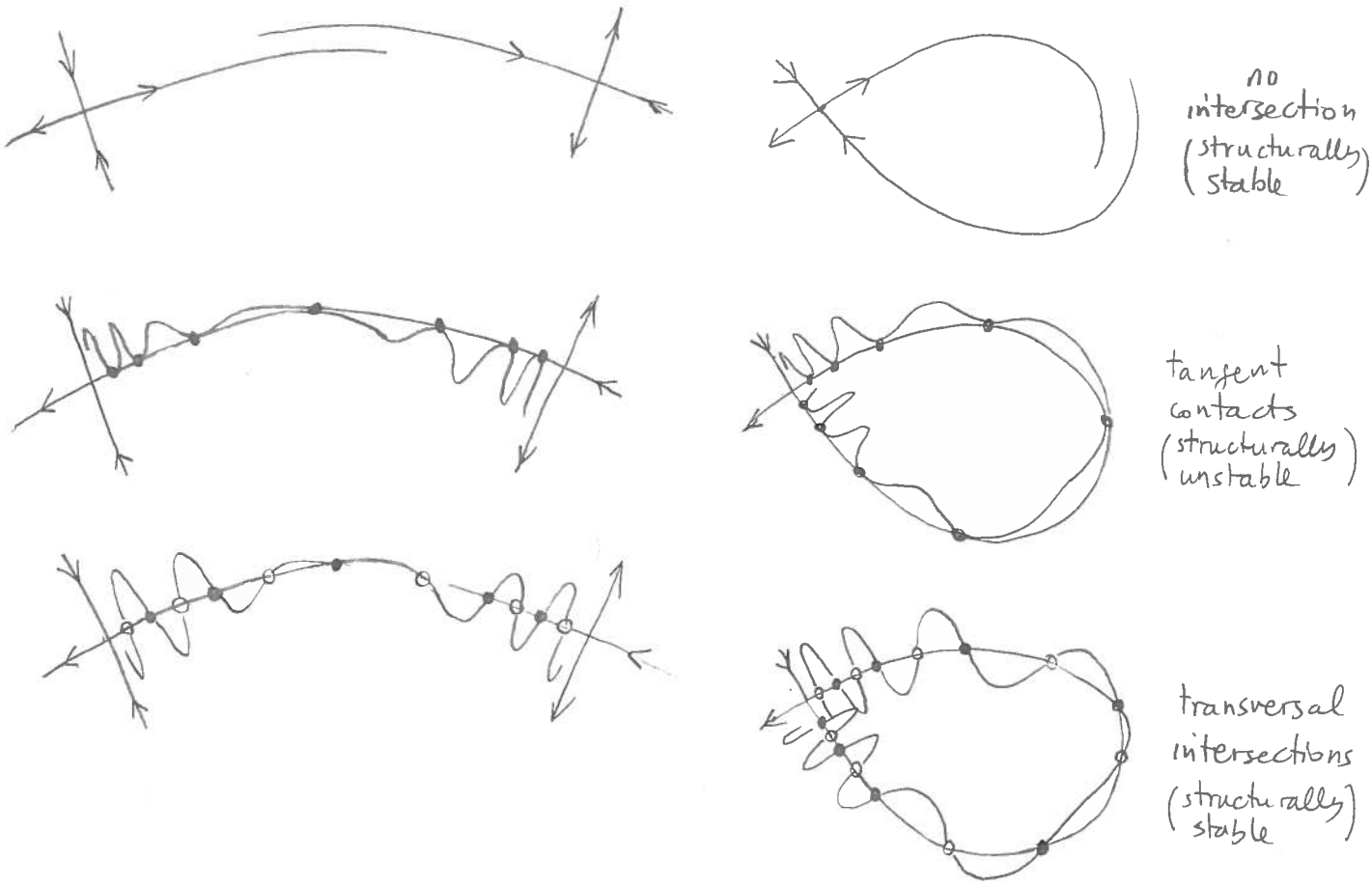


Figure 7.17: Construction of the Poincaré map $\mathcal{P}$ in the saddle-focus case.



Homoclinic and heteroclinic connections and bifurcations in d.t. (reversible) systems



Homoclinic / heteroclinic bifurcation: the tangent contact between a pair of homoclinic / heteroclinic connections

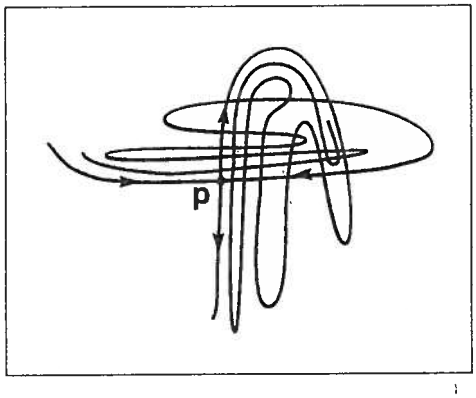


Figure 10.10 Tangle of stable and unstable manifolds implied by homoclinic points.
If the stable and unstable manifolds of a fixed-point saddle or periodic point **p** cross in one homoclinic point, then they cross infinitely many times: each forward and backward iterate of a homoclinic point is a homoclinic point.

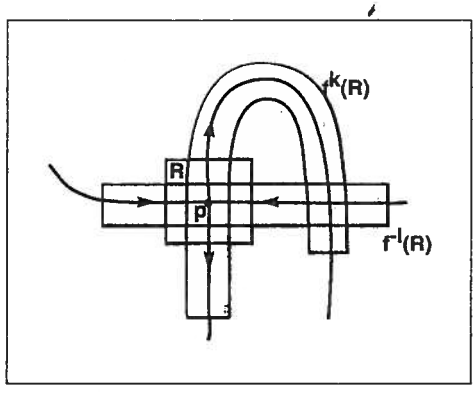


Figure 10.11 Construction of a horseshoe near a homoclinic point.
The stable and unstable manifolds of a saddle **p** intersect in a homoclinic point **x**. A rectangle R is centered at **p**. Then for some positive integers k and l, k forward iterates of R and l backward iterates of R intersect at **x**, so that $\mathbf{f}^{k+l}$ forms a horseshoe.