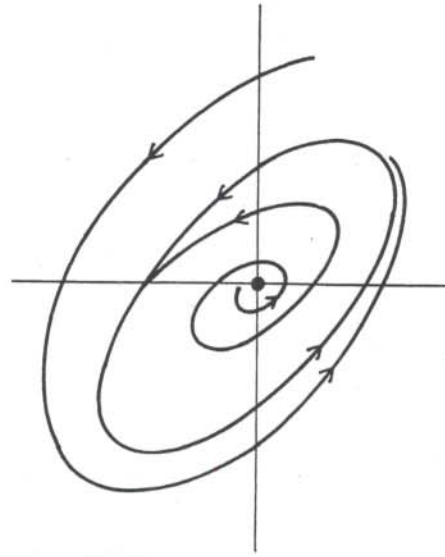


a) the  $\alpha$ -limit cycle



b) the  $\omega$ -limit cycle



c) A group formation process by the  $\alpha$ -limit cycle



d) A group dissolution process by the  $\alpha$ -limit cycle

Figure 8. Limit cycles and the metaphor of the group formation-dissolution processes through the Hopf bifurcation.