



Figure 4: (h, u) -bifurcation diagrams. Blue dots are stable equilibria, red dots are unstable equilibria, and large red circles indicate saddle-node bifurcations. *Left:* $r = -1$. (Phase space topologies for other $r < 0$ are equivalent). *Center:* $r = 0$. *Right:* $r = 1$. (Phase space topologies for other $r > 0$ are equivalent).

2 Imperfect bifurcations