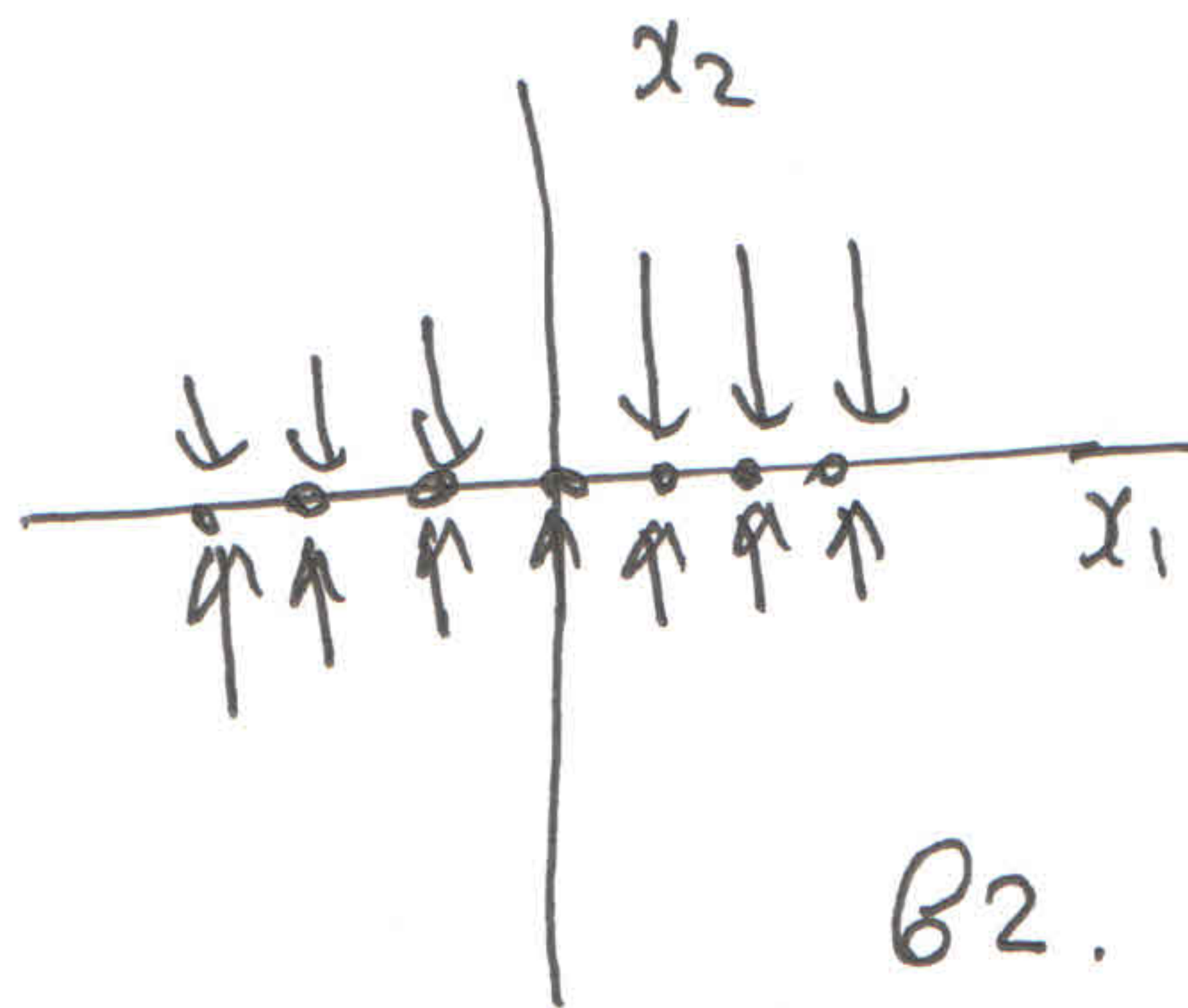
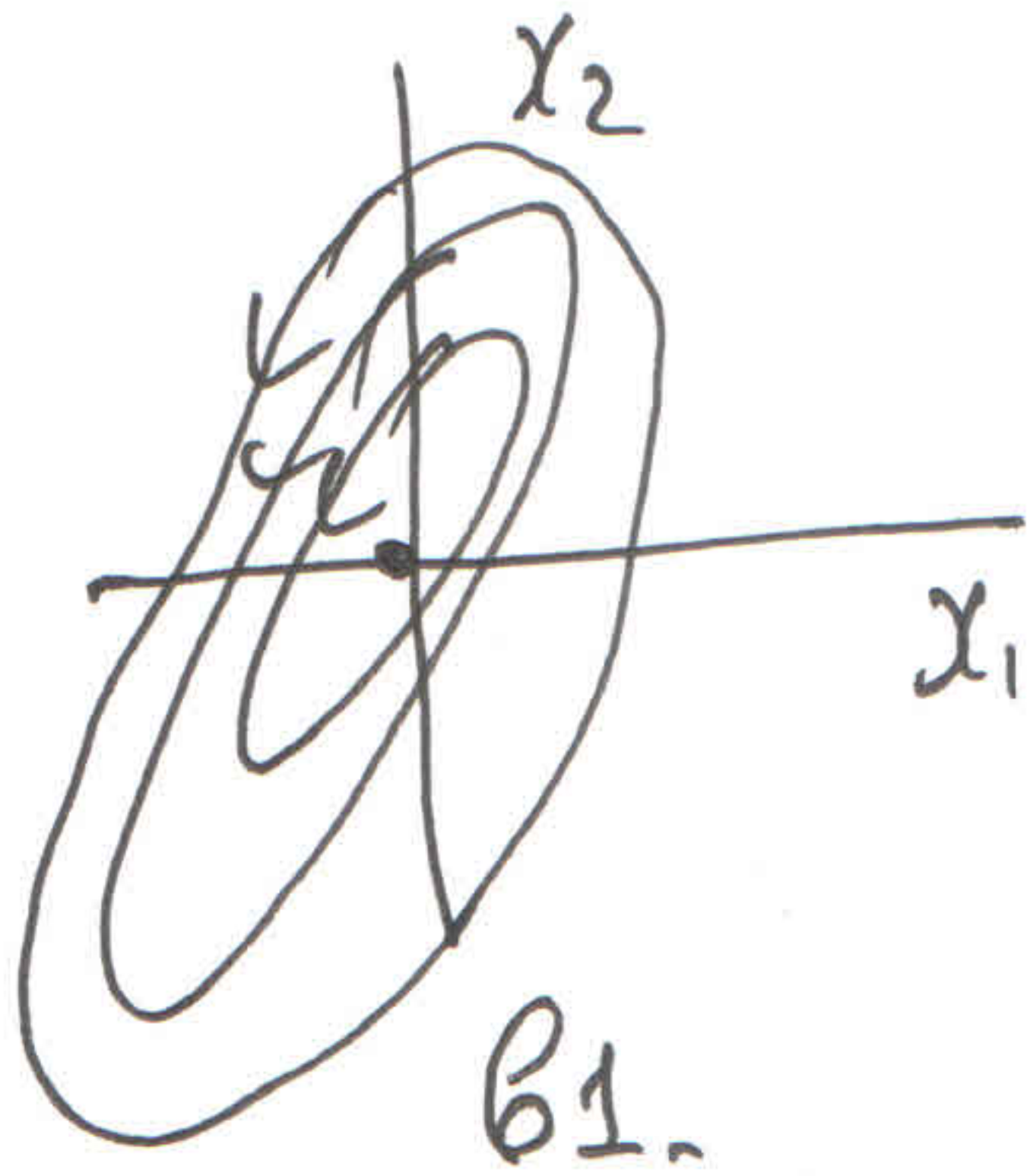
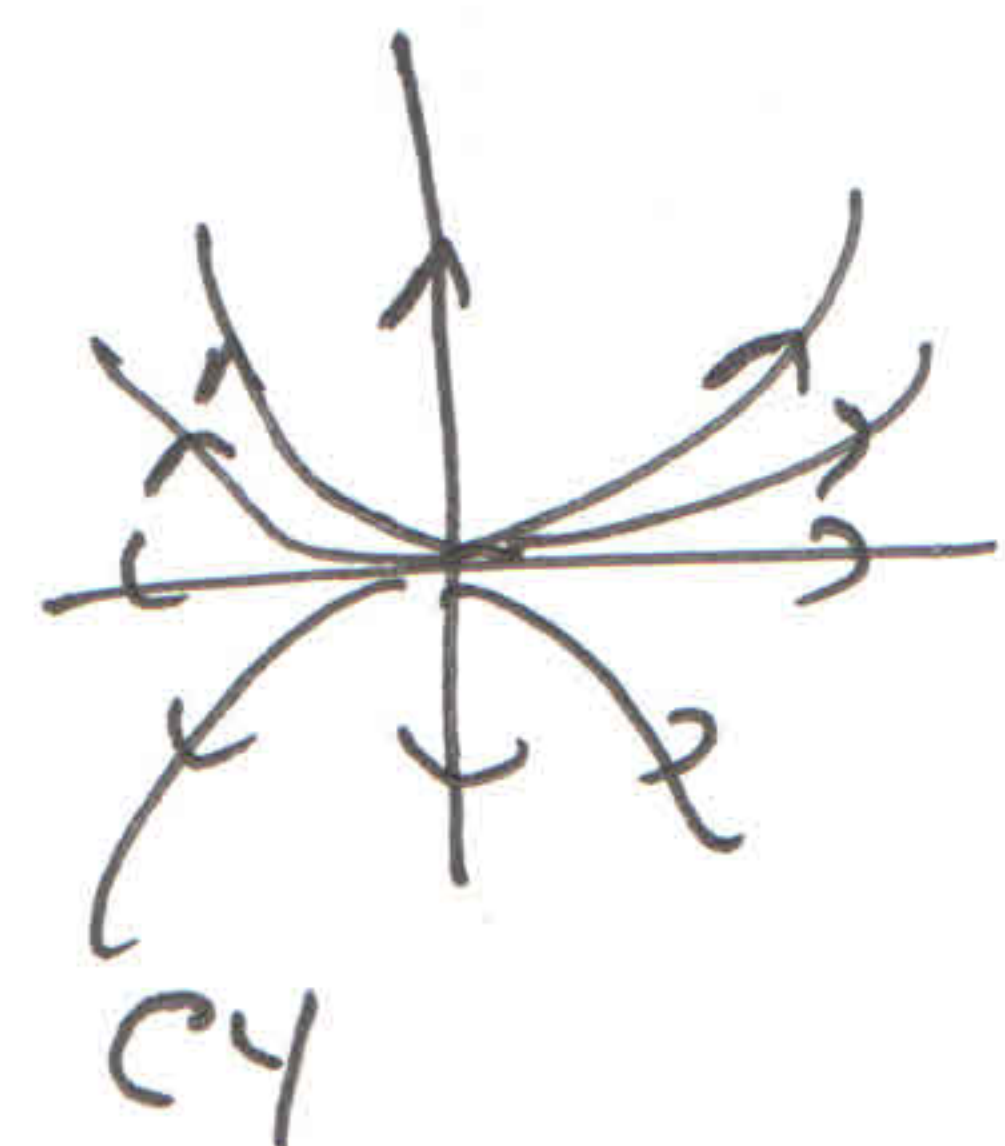
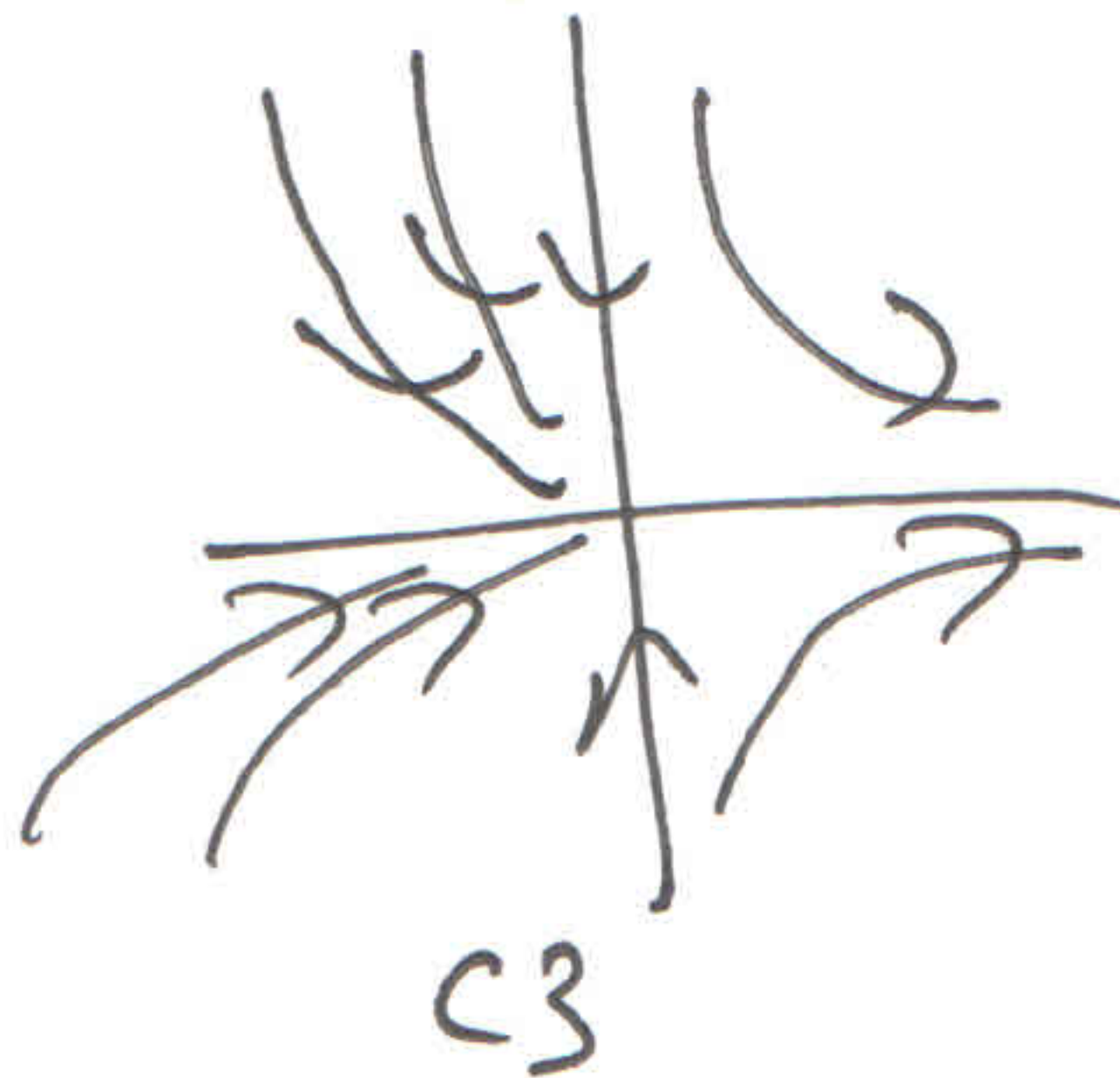
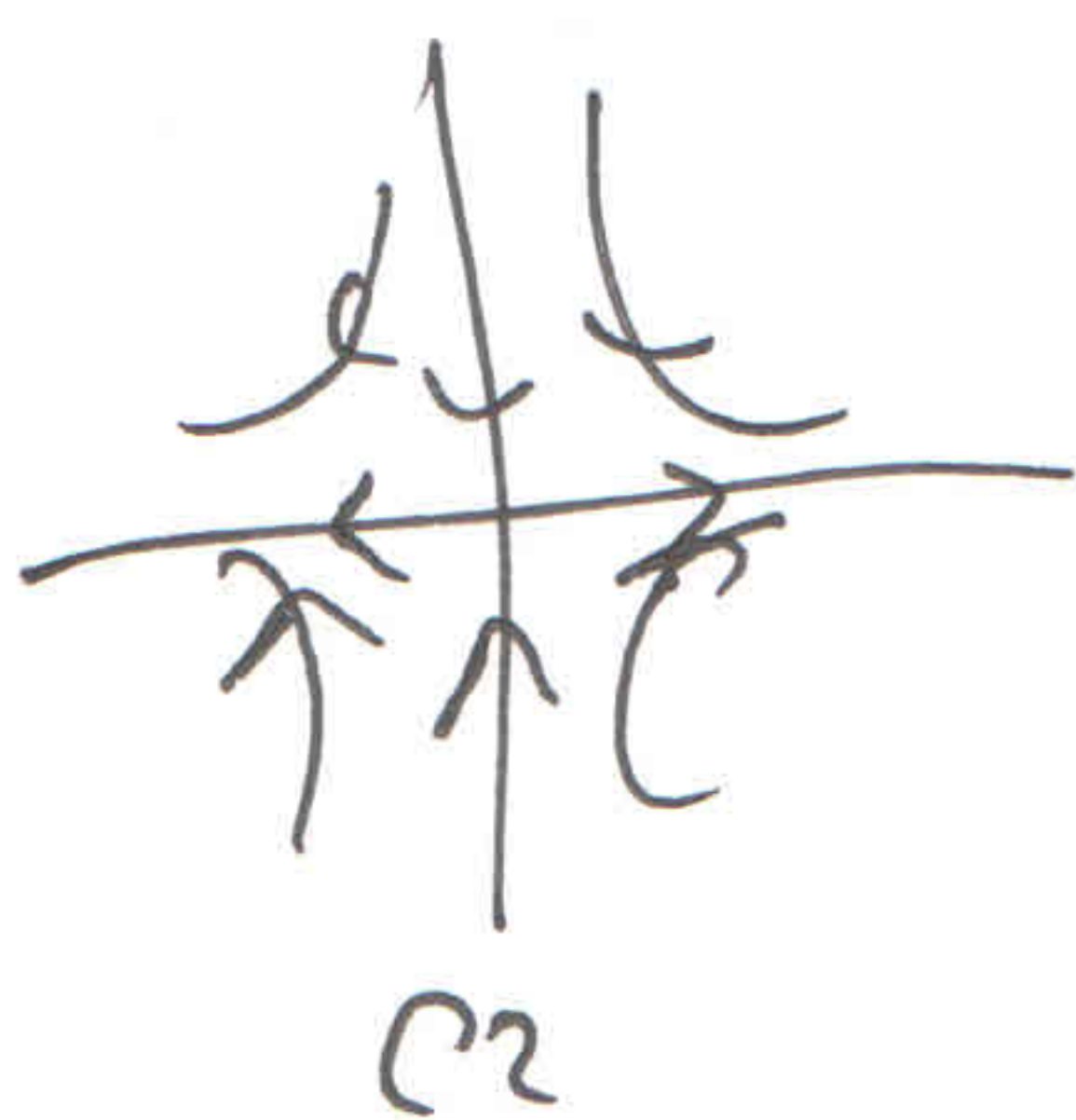
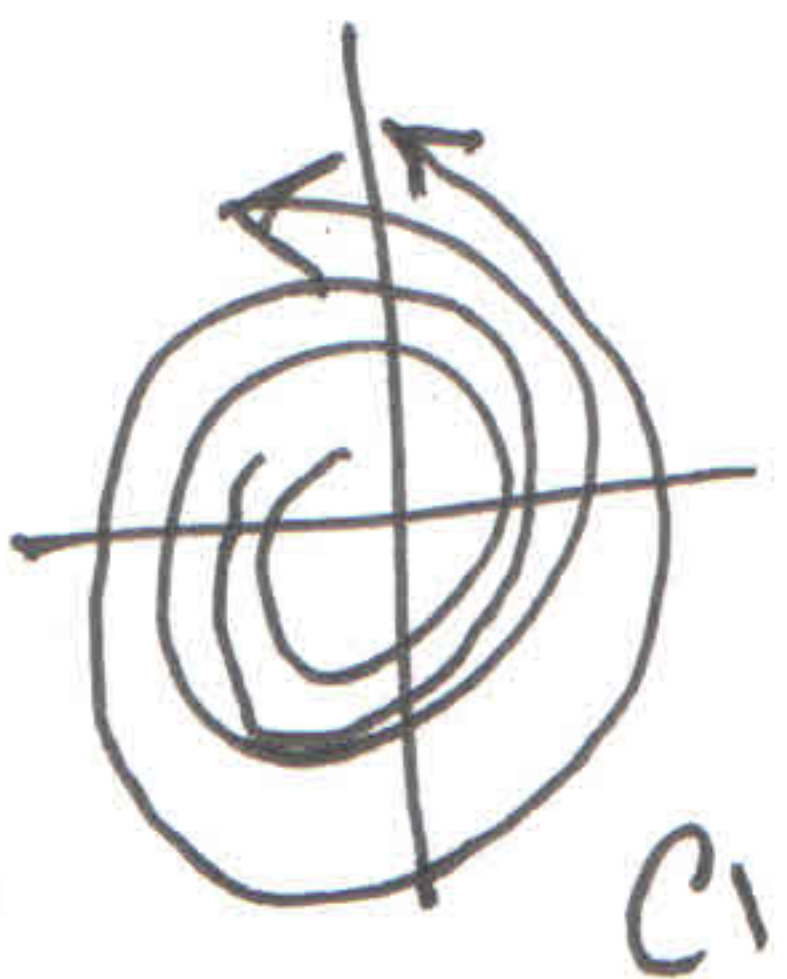


a1, a2 The origin $(0,0)$ is asymptotically stable equilibrium point.



b1, b2 The origin $(0,0)$ is stable by Lyapunov, but not asymptotically stable (in case b2 it is so for any singular points: there is a line, $x_2=0$, of singular points)



c1, c2, c3, c4 The equilibrium point $(0,0)$ is not stable by Lyapunov

fig. 9.1 Stable and unstable equilibrium points

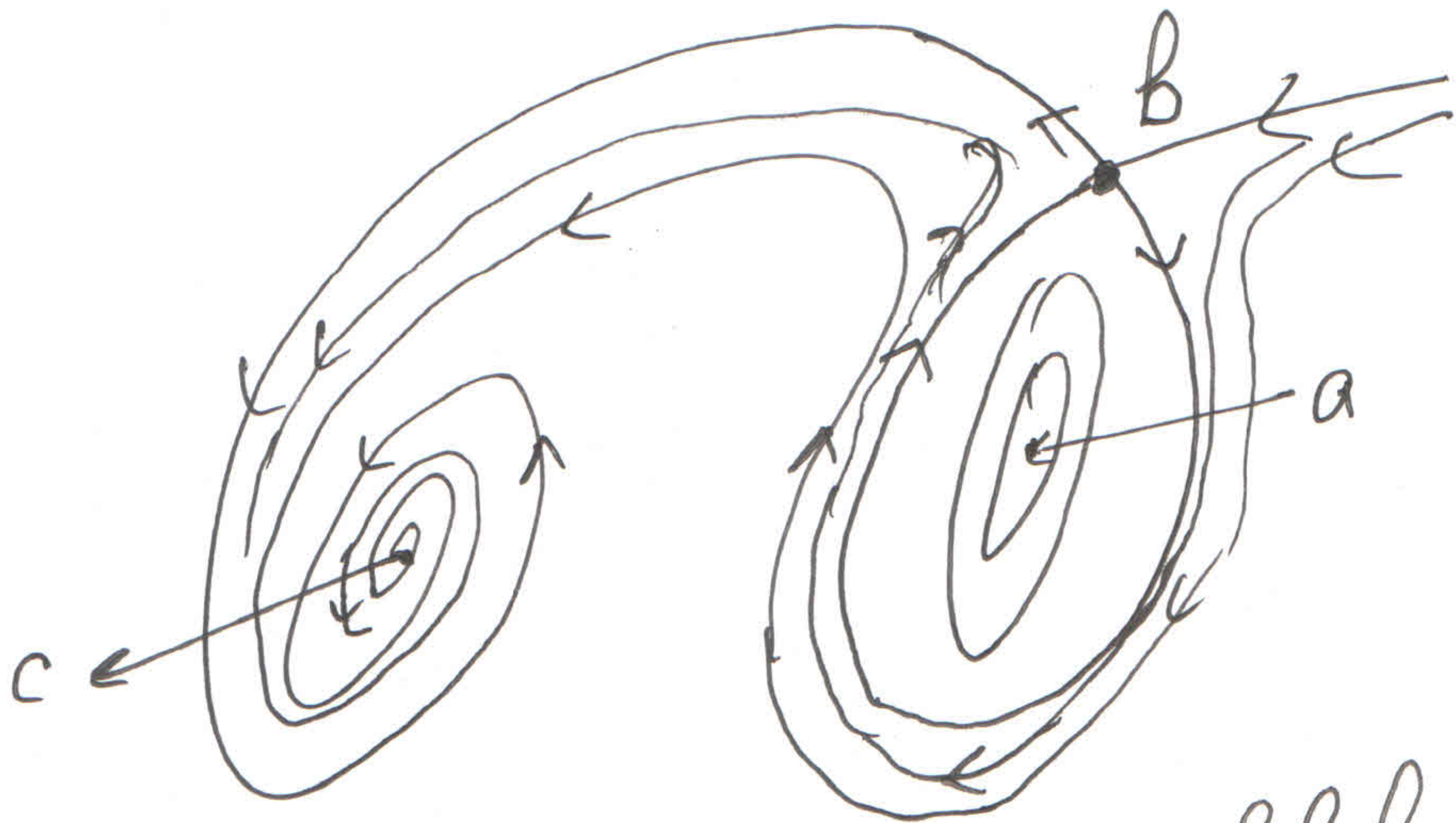


fig. 9.2 A part of global phase portrait.
 The equilibrium point b is non stable.
 The equilibrium point c is asymptotically stable.
 The equilibrium point a is stable by Lyapunov,
 but not asymptotically.

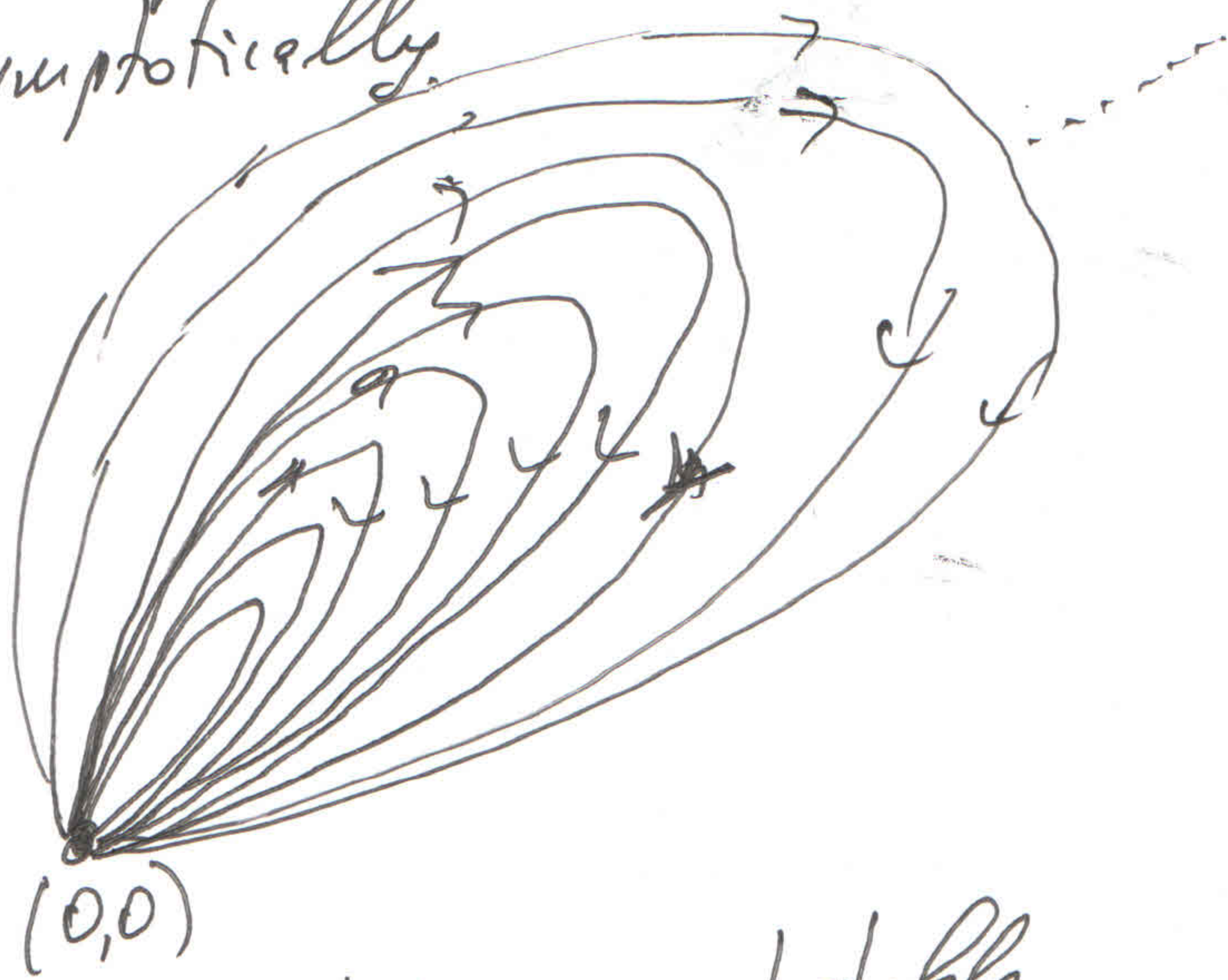


fig. 9.3. The point $(2,0)$ is not stable
 by Lyapunov (and consequently not asymptotically
 stable) even though any solution tends to $(2,0)$
 as $t \rightarrow \infty$.