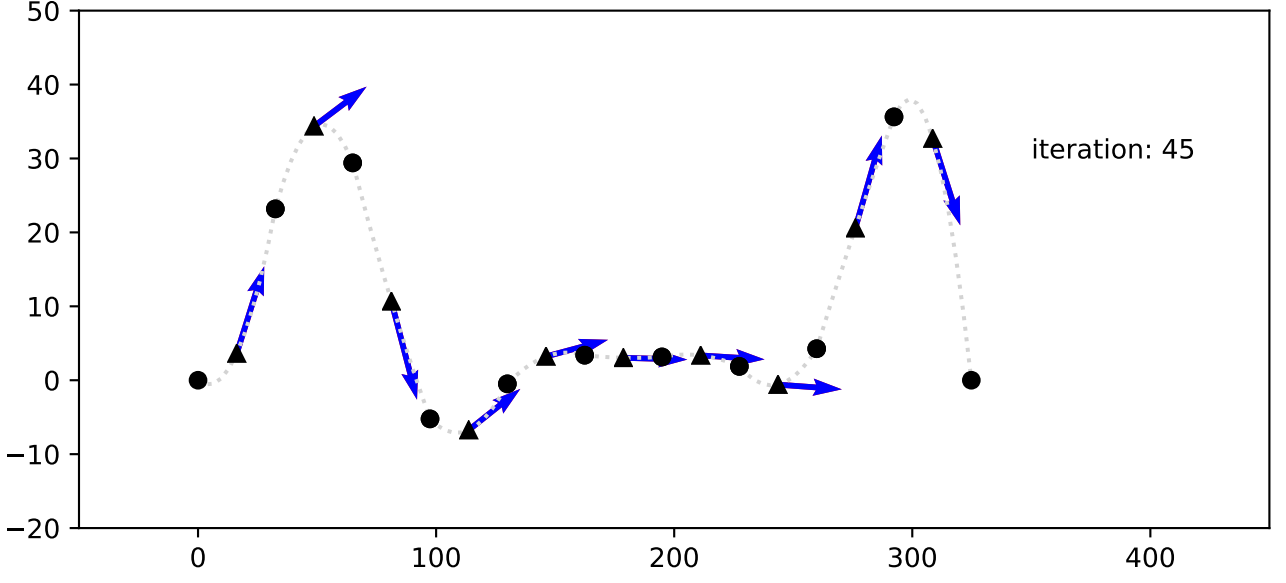Convergence of state defects over iteration history