Fiza Chaudhry

Math 246 Extra Credit Project

Phase Portrait Required d/dt[x;y]=(1-a)*(RHS #1)+a*(RHS #3)

Section 9.5	Section 9.5
Problem 3:	Problem 3:

dx1 = x*(1.5 - .5* y);
 	
dy1 = y*(-.5+x)
	dx3 = x*(1-.5*x-.5* y);
	
	dy3 = y*(-.25 +.5* x);

Phase Portrait 1 show that the population for of **Problem 1** intact the reason being a=0 , There fore the population of problem 3 doesn't contribute. Prob 1 enjooys its freedom, by exbiting its own cultures, behaviors.
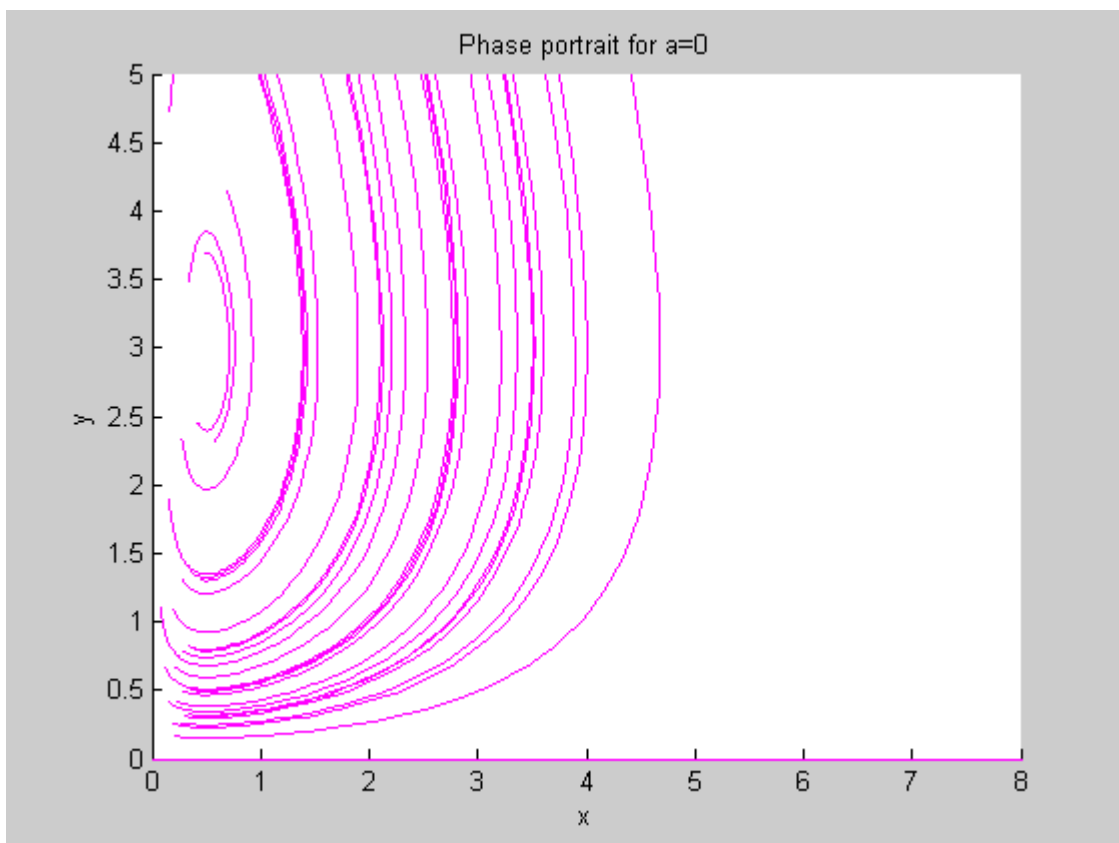
Phase Portrait 2 shows that the population for Problem 1 is effeted a little by the population of problem 3. Here the value of a=.2. Phase Portrait 2 shows that the population for Problem 1 is effeted very little by the population trends of problem 3. Here the value of a=.2, which is effection factor. Prob 1 is attacked by Prob 3, attempt failed attacking population was ensuifficient to have great effect on population trend of problem 1.
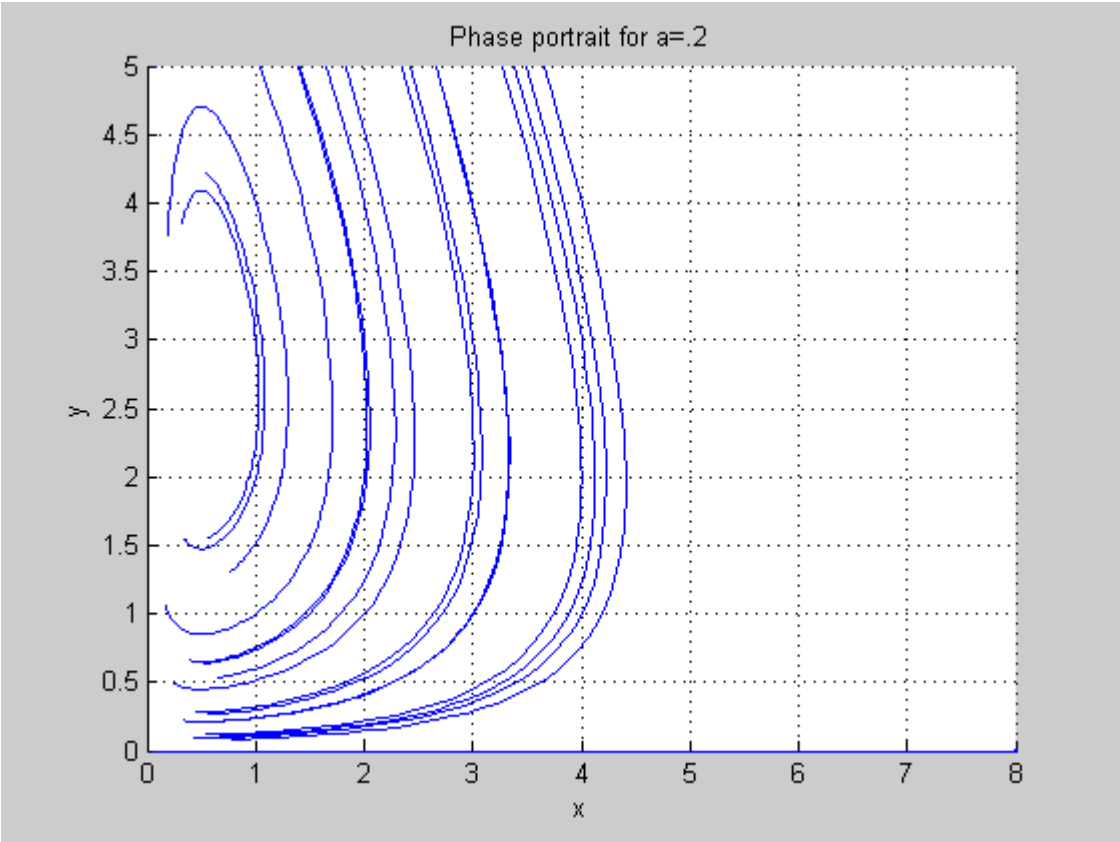

Figure 2: Phase Portrait 1 a=.2

Phase Portrait 3 shows that the population for Problem 1 is effeted a by the population of problem 3. Here the value of a=.4, which is effection factor. Prob 1 is attacked by Prob 3, attempt failed attacking population was ensuifficient to completely take over. But cultural effects are left on the behaviour of Prob 1. Pouplation cycle reflects the trends of both problems but is still dominated by prob1.
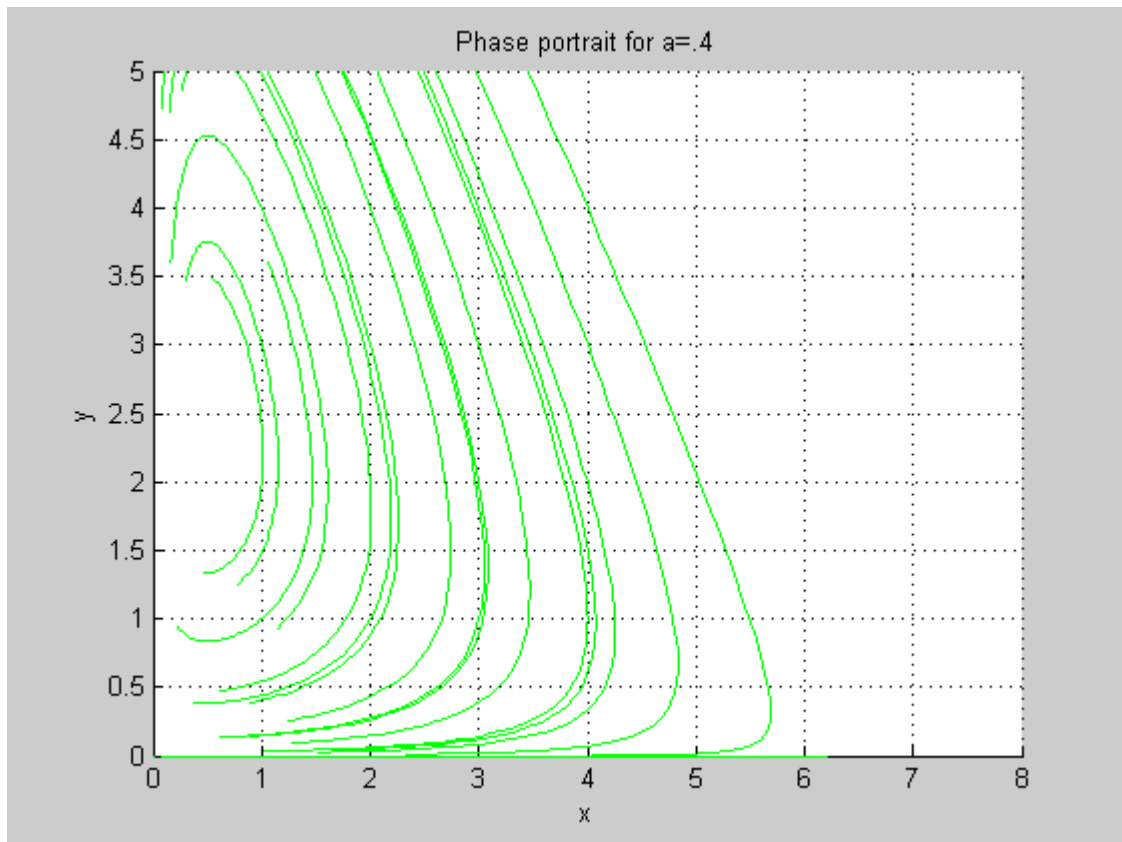

Figure 3: Phase Portrait 3 a=.4

Phase Portrait 4 shows that the population for Problem 1 is effeted a by the population of problem 3. Here the value of a=.6, which is effection factor. Prob 1 is attacked by Prob 3, attempt very much succesful. Attacking population is able to leave its population trends on Prob 1. Cultural effects are left on the behaviour of Prob 1. Pouplation cycle reflects the trends of both problems but now is dominated by prob 3.
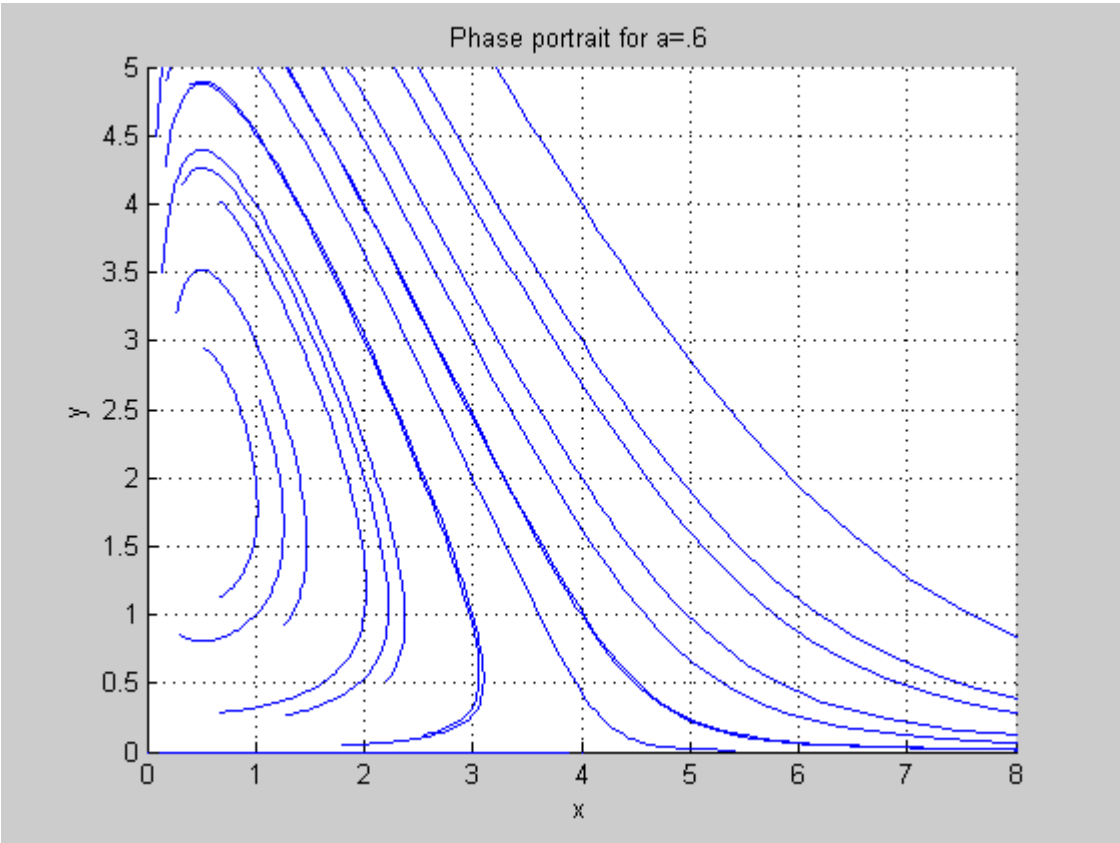

Figure 4: Phase Portrait 4 a=.6

Phase Portrait 5 shows that the population trends are dominated by Problem 3 and slightly effected by the population trends of problem 1. Here the value of a=.8, which is effection factor. Prob 1 is attacked by Prob 3, attempt very much succesful. Very so slightly are the trends of population of problem 1 remain. Pouplation cycle reflects the trends of both problems but now is very dominated by prob 3.
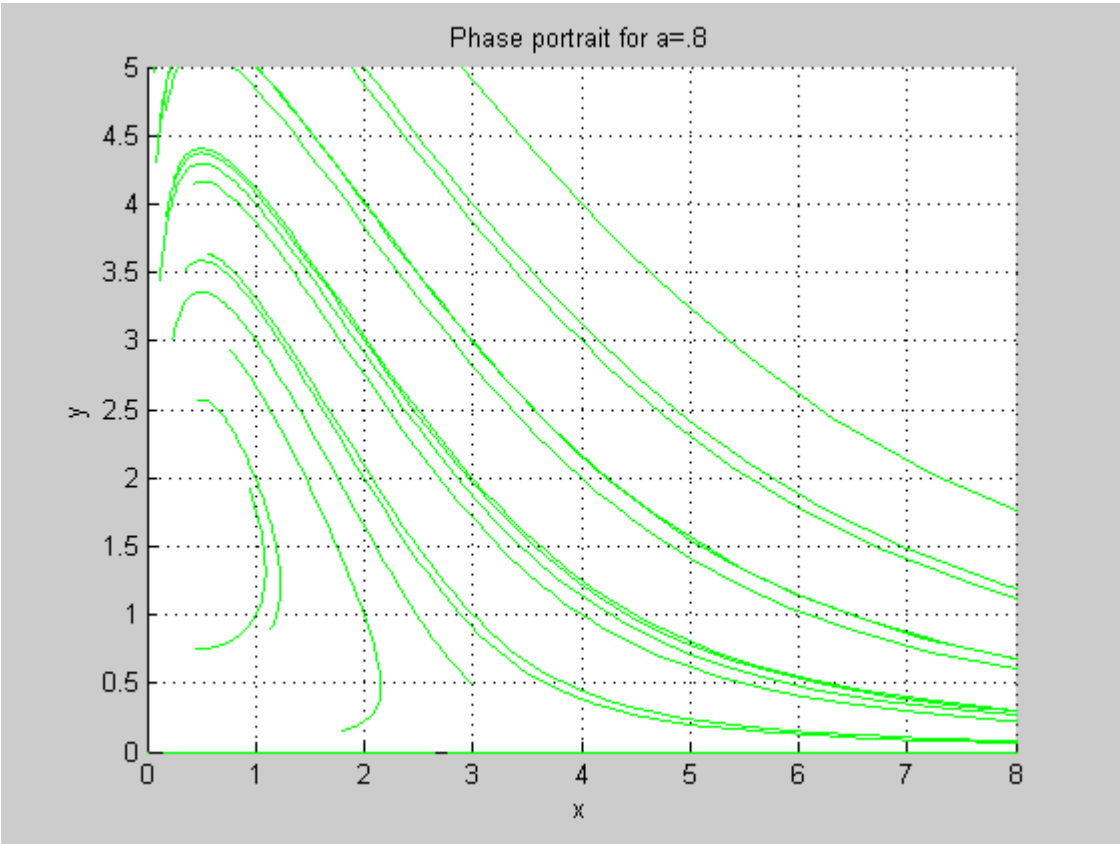

Figure 5: Phase Portrait 5 a=.8

Mission accomplished

Phase Portrait 5 shows that the population trends are that of **Problem 3**. No reflection by population trends of **problem 1**. Here the value of a=1. The Trends are completely transsformed by Problem 3 trend, Hence Mission accomplished.
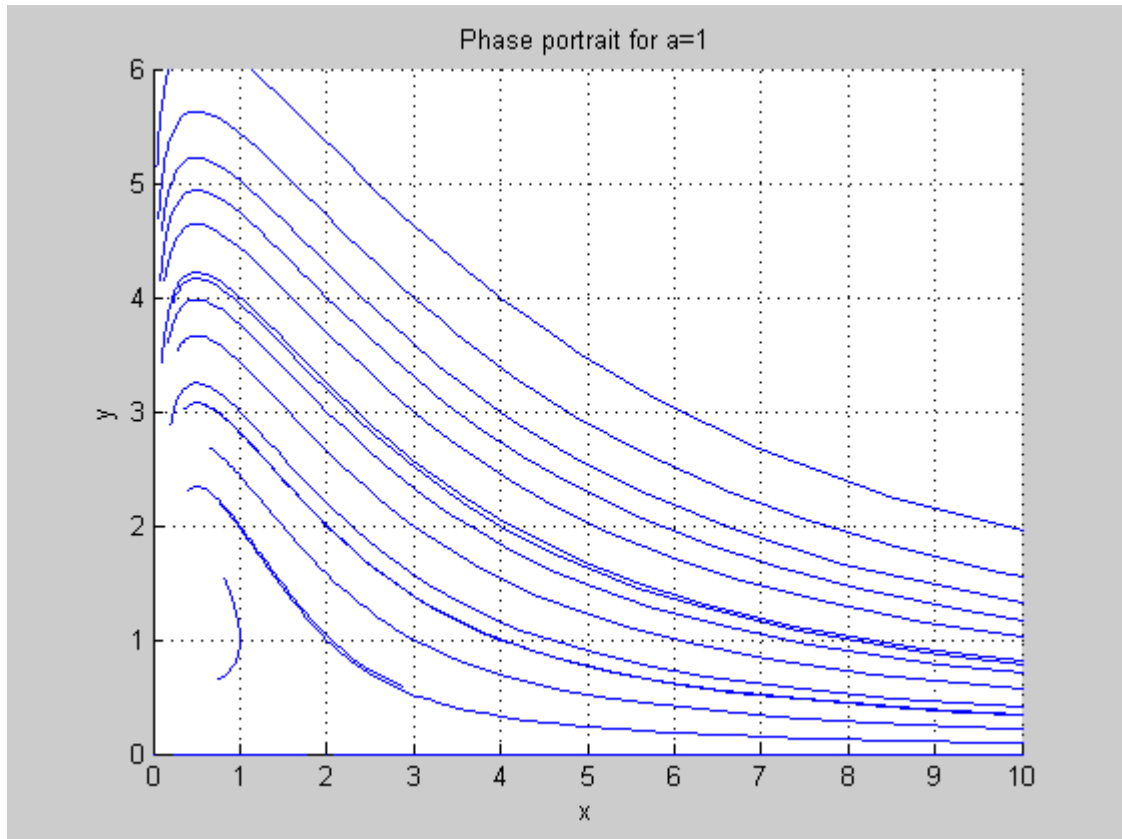

Figure 6: Phase Portrait 6 a=1