

Geographically subdivided populations: An application of block matrices  
 Goals: Apply block matrices to analyze a geographically subdivided population.

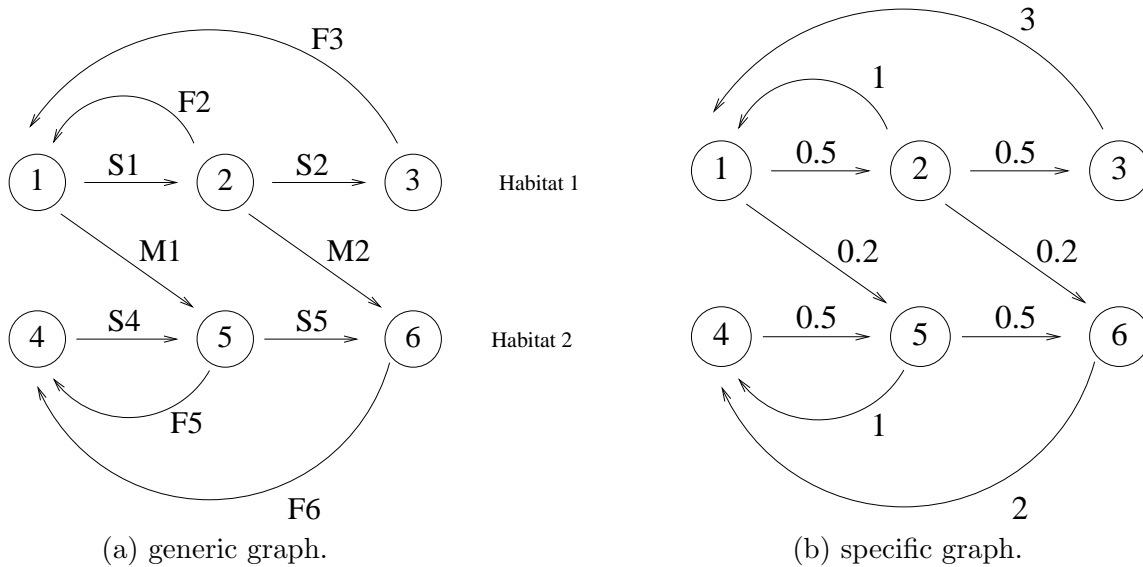


Figure 1: Graphs for Geographically subdivided populations.

1. Create the projection matrices,  $P$  for the figure 1(a) and  $A$  for figure 1(b).
2. Find the eigenvalues of  $A$  and the eigenvalues of the two diagonal blocks.
3. Which block contains the dominant eigenvalue?
4. Find the eigenvector corresponding to the dominant eigenvalue.
5. What does this say biologically?
6. Change  $F5$  to 1.5 and  $F6$  to 3 and answer question (1)-(5).