① Epidemics behave differently depending on whether the population is connected in a periodic lattice or a small world network. In a periodic lattice, the infection spreads slowly because it can only infect node by node as it moves along the network. It never really reaches the explosive phase because it spreads steadily. In a small world network the infection also spreads slowly, at least at first. Because most of a nodes "friends" are connected to the same people as it is, the infection would probably stay in this group until the nodes interact with nodes outside the group.

Examples help clarify this explanation. For instance, an example of an infection is the flu. A small world network could be a party. You usually hang out with your friends at a party until you meet new people. The flu could easily be spread among the friends through the air, contact, or shared drinks, etc. It could then also infect the new people that

you meet at the party through shaking hands or the air. If the new people do become infected, you can assume they'll go back to their group of friends and pass on the infection. An example of a periodic lattice is animals in a zoo. Say there were several animal cages around a large central area. Granted that the disease can infect all the animals, it would spread slowly from cage to adjacent cages and so on. The animals can't interact with other animals in cages across the way, so they could only spread the infection to their physical neighbors, who could then pass it on further.

(EC) Percolation theory is a good way to model computer viruses because there are many different features that can make computers immune to any one virus. This is an example of site percolation. All bonds are open on the network, but each site can vary greatly. For instance, there are both Macs and PCs and some computers use different antiviruses or different programs than others and so on.