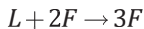


The other students go back into the theatre to listen to the next lecturer, but we continue to sit at the table. Madeleine emphasizes that when only one ant found food and left pheromone for the others, this would often evaporate before the others could follow the trail. ‘If we think of finding food like catching a virus – it would take at least two ants to infect another,’ she says. As soon as she says it, I realize: the chemical reaction for ants recruiting each other to food must be something like



It takes two ants which have found food ( $F$ ) to recruit one ant that is looking ( $L$ ) for food. Two ants who have found the food convert one ant who is looking for it. This is the ‘it takes two’ reaction.

We add one further reaction



which says that, over time, ants which have collected food eventually retire ( $R$ ). This is similar to recovery in an epidemic model, and we assume that ants retire without consulting the others. ‘They drift off and find something else to do,’ explains Madeleine.