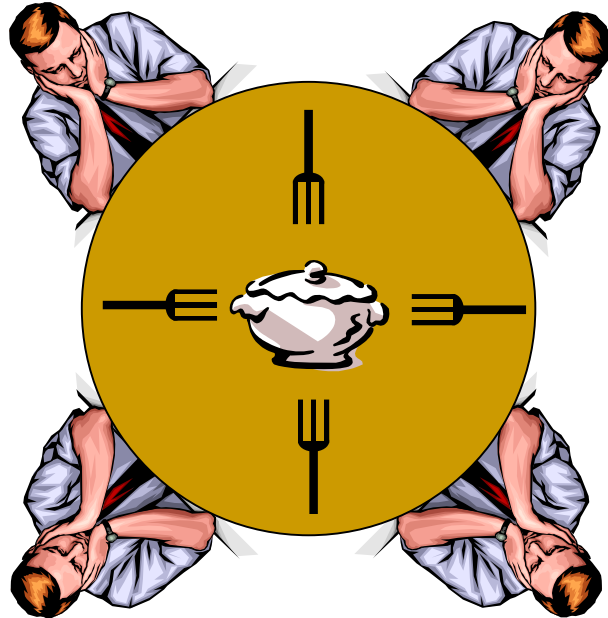


Philosophers Description

A number of philosophers sit around a circular table, in the centre of which is a large bowl of spaghetti.

The table has been laid with the same number of forks as there are philosophers, so that there is a fork between each pair of philosophers as shown in the picture. Eating spaghetti requires two forks, so a philosopher must pick up both the fork to his left and the fork to his right in order to eat. Clearly not all the philosophers can be eating at the same time.



Moreover, it is possible for a “deadlock” to occur. If each philosopher picks up the fork to his left, and then waits for the fork on his right to become available, nothing more can happen, and all the philosophers will starve.

This situation models a system in which there are multiple processes using shared resources – an example is concurrent transactions that require exclusive use of data from a shared database. In such situations it is possible for competing processes to deadlock with each other, as the philosophers can at the dinner table.

This example was originally devised by Professor Tony Hoare and is described in his book, *Communicating Sequential Processes*.