the evolution of binary stars

- The mass of a star determines how it will evolve and eventually die.
- In *wide binaries*, which typically have orbital periods of tens of years or more, the separation between the two stars is larger than the largest radius that either star will ever reach and hence the two stars will go through their entire life cycles independently.
- In *close binaries* (or *interacting binaries*), which have shorter orbital periods, a time will come when one star becomes a giant or supergiant and fills its Roche lobe. There is then the possibility of mass transfer and completely new evolutionary paths are opened up for the two stars.