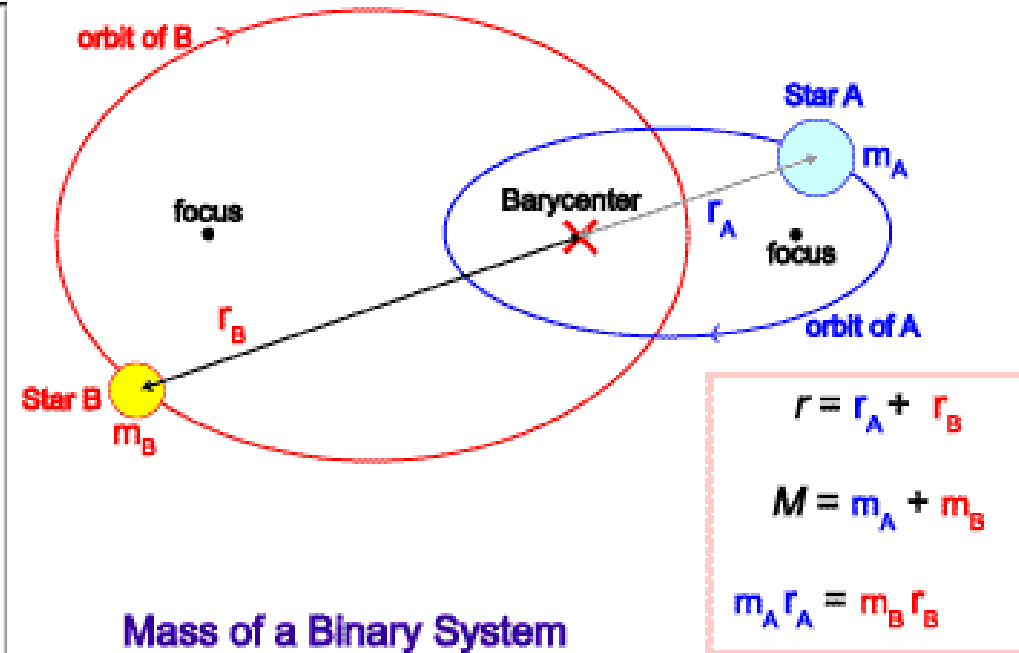
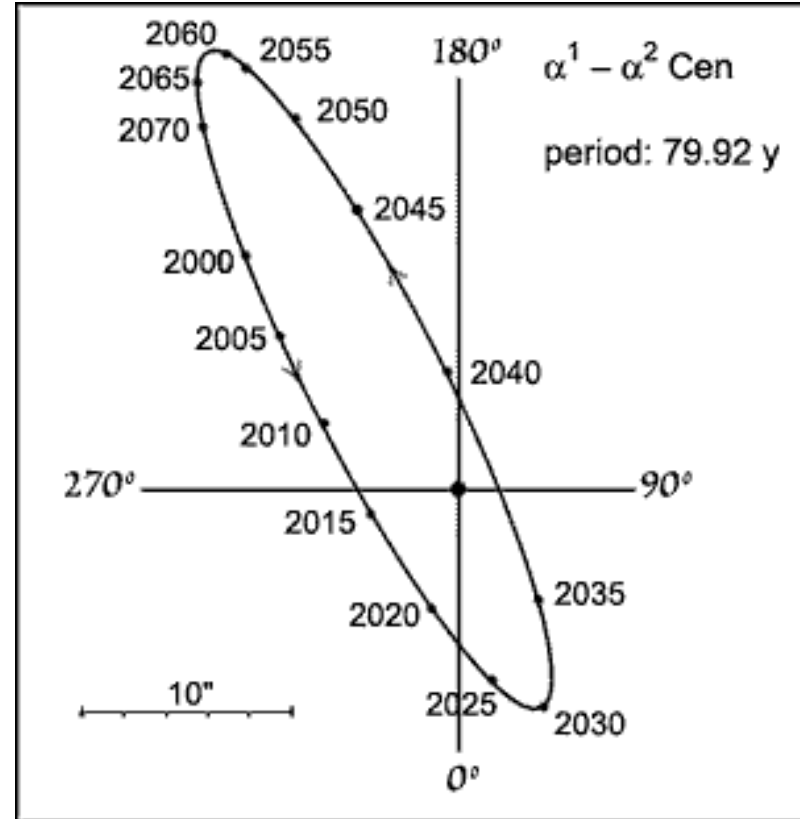
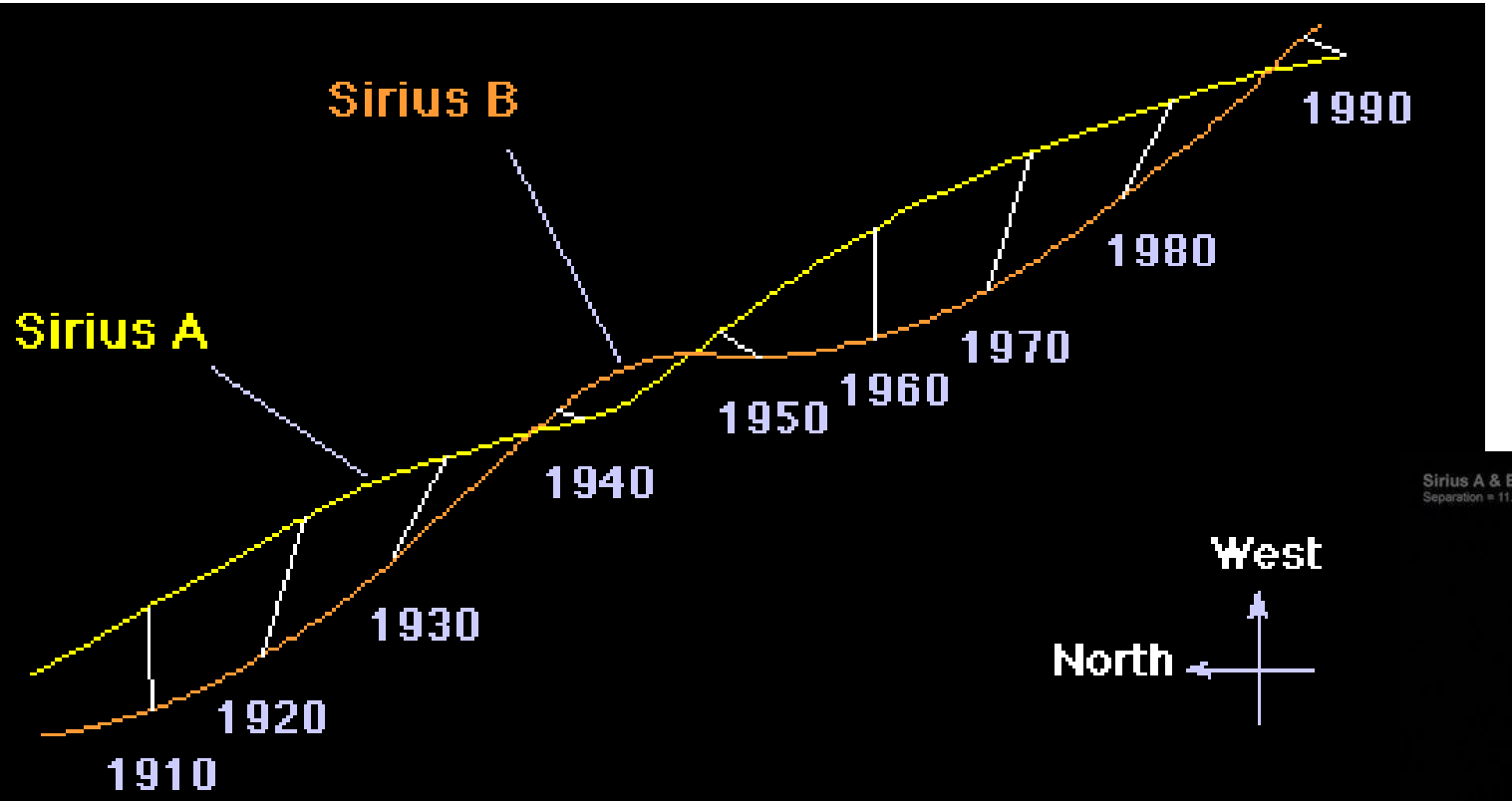


# Visual Binaries



Physical binary system

# Astrometric Binaries



Sirius A & B  
Separation = 11.2"

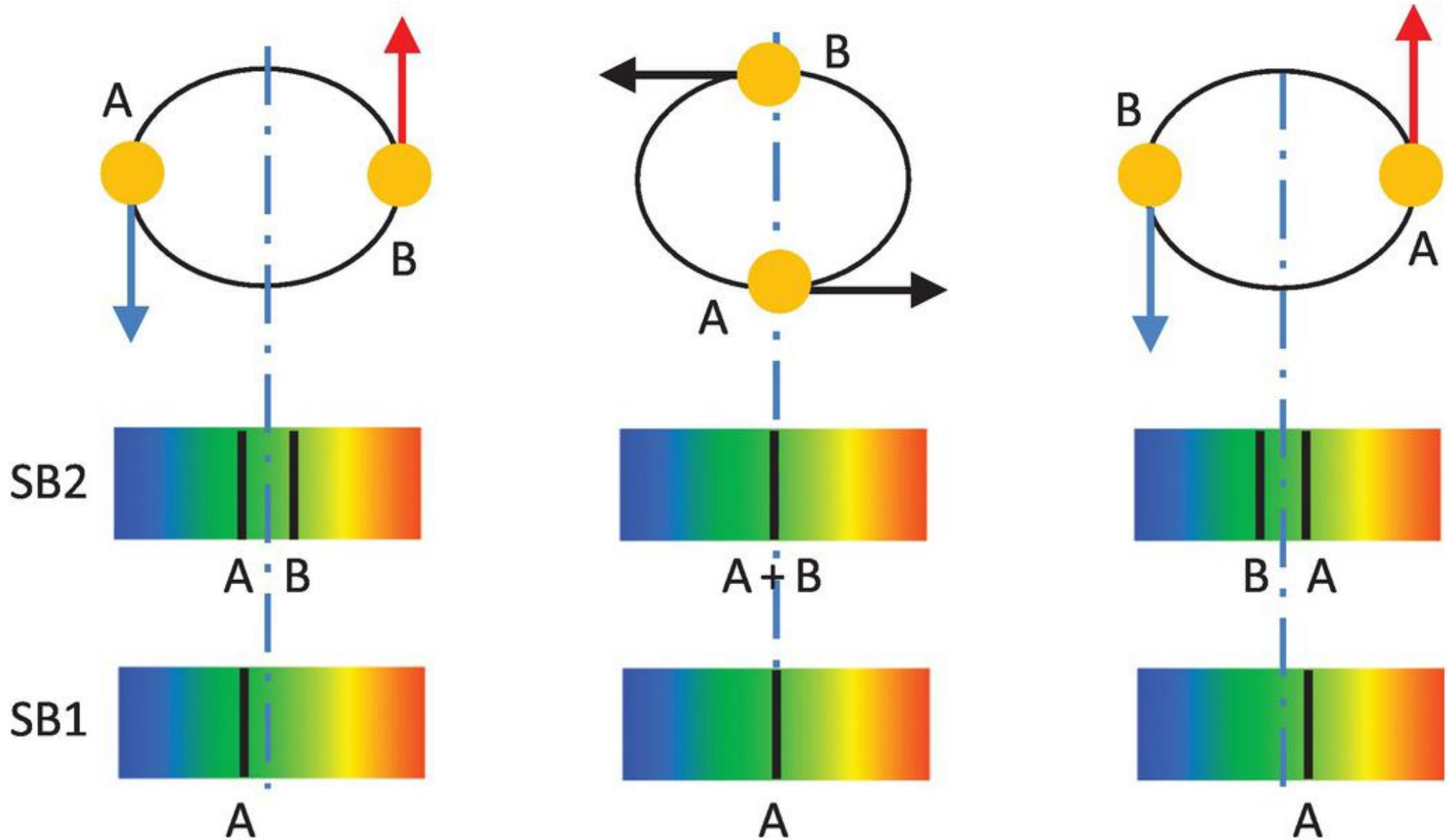


# Eclipsing Binaries

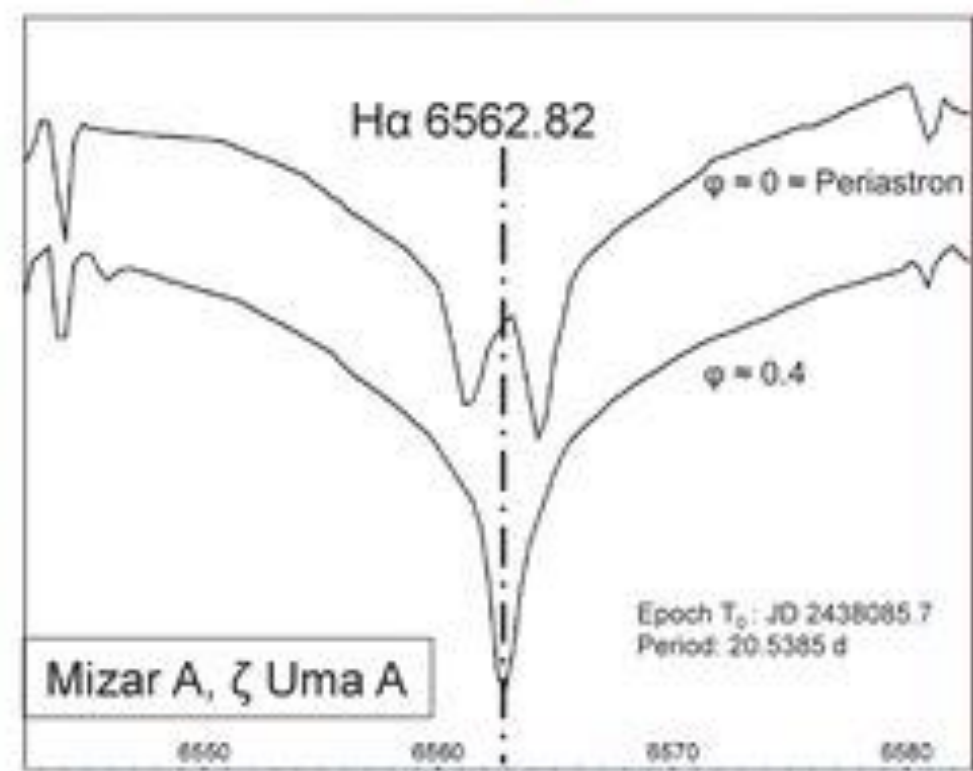
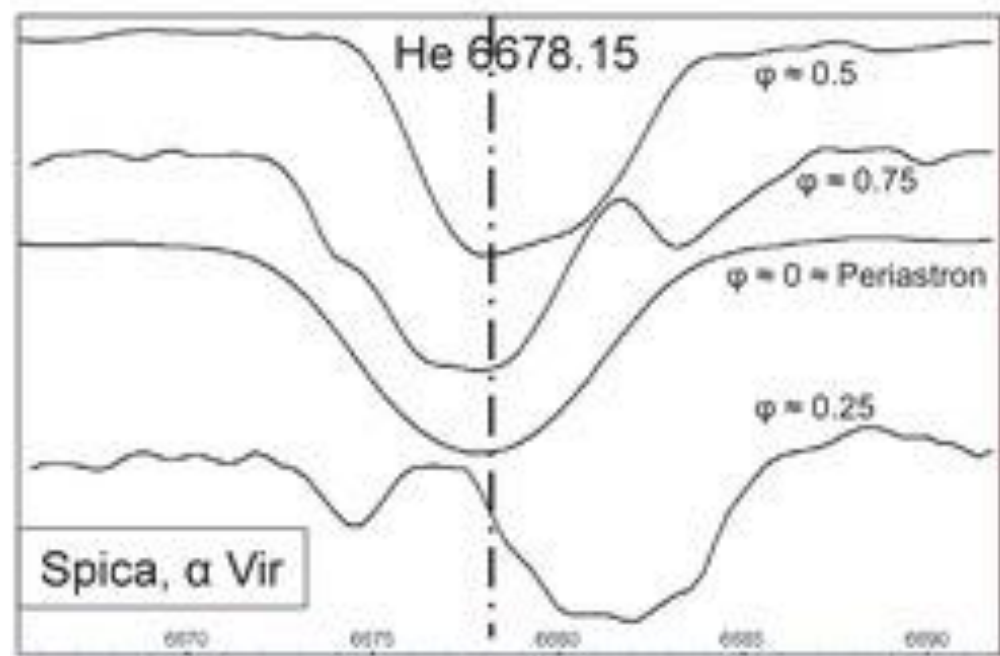
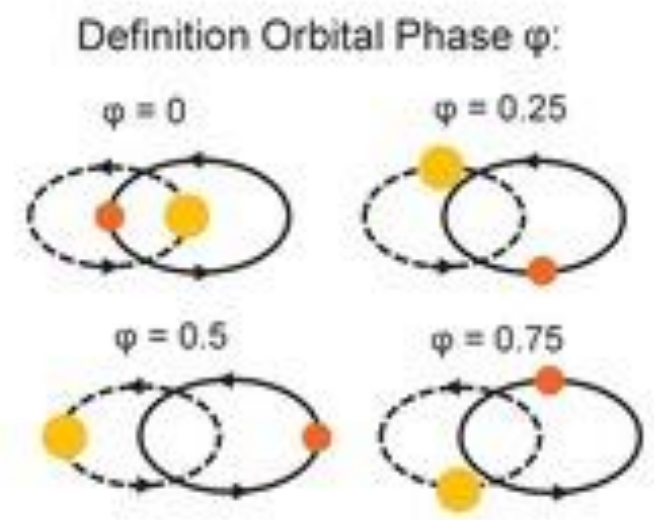
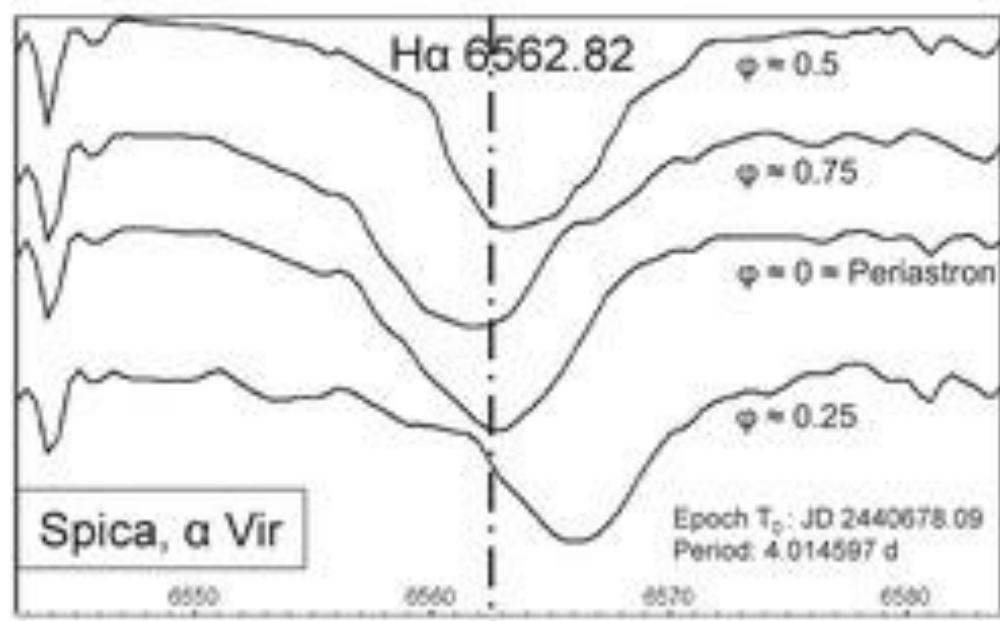


[www.eso.org](http://www.eso.org)

# Spectroscopic Binaries

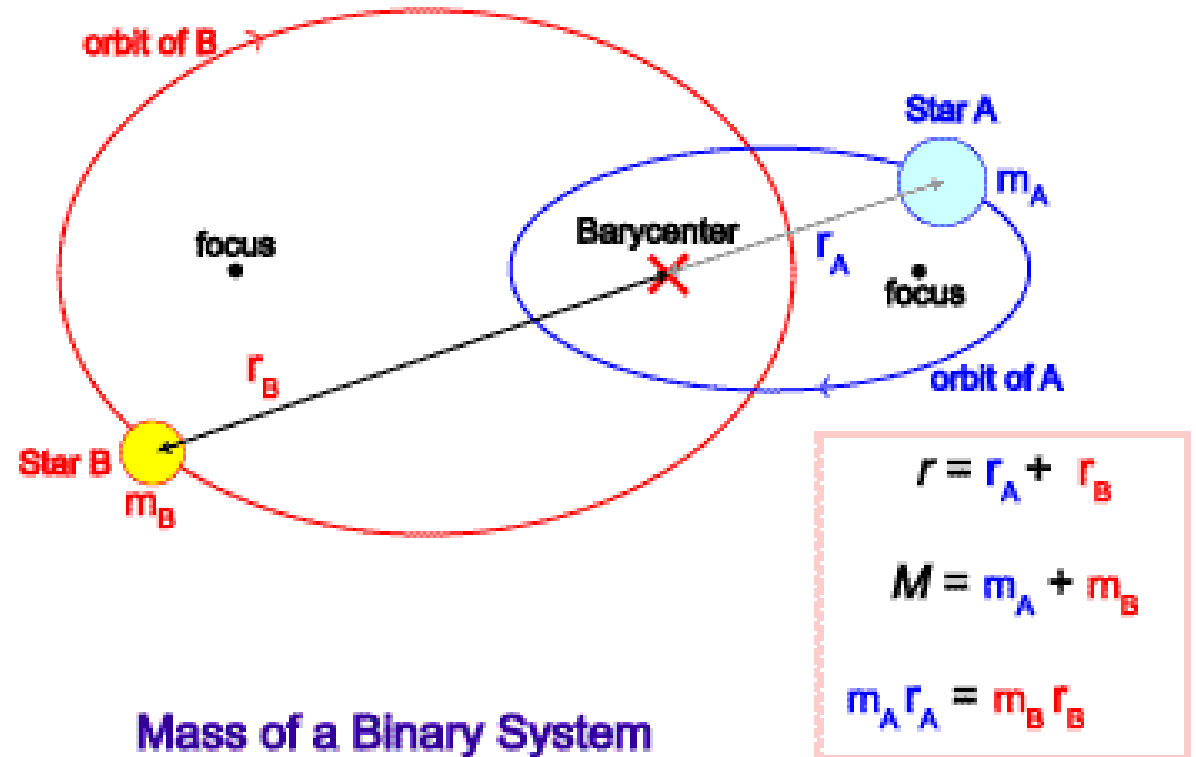
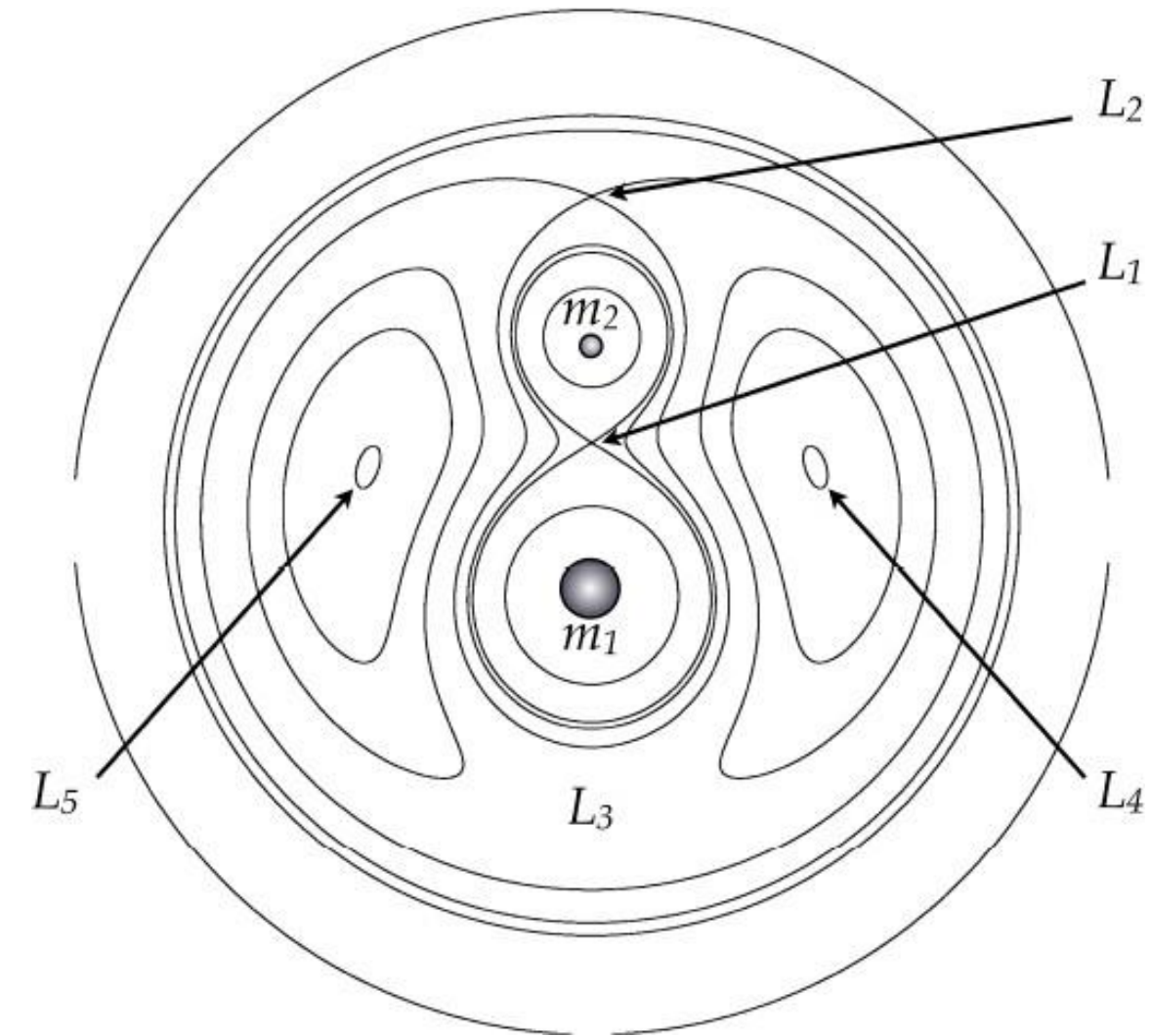


# Doppler Shift in Spectroscopic SB2 Binary Systems



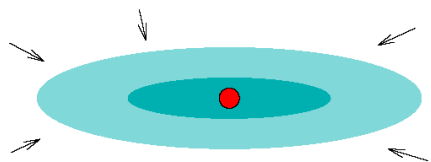
# Close – Wide Binaries

Depends if they fill their Roche Lobes or not

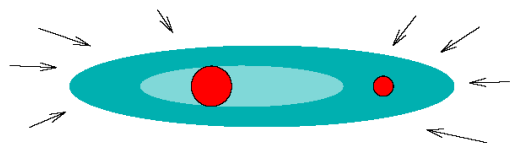


# Formation - Binaries

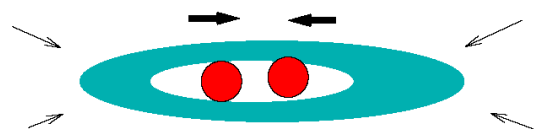
## Disk instability



1. Primary component forms in over-density and grows



2. Accretion burst de-stabilizes the disk, secondary companion forms

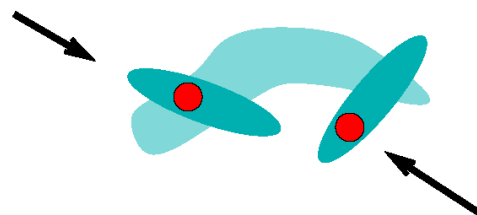


3. Both stars grow and migrate inward

## Core fragmentation



1. Two independent protostars

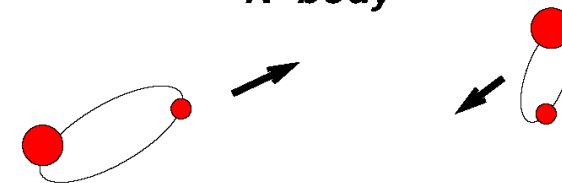


2. Approach and interaction

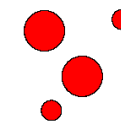


3. Both stars grow and migrate inward

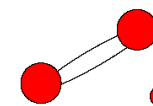
## N-body



1. Encounter of 3 or 4 stars



2. Chaotic motion



3. Ejection, eccentric binary/triple left