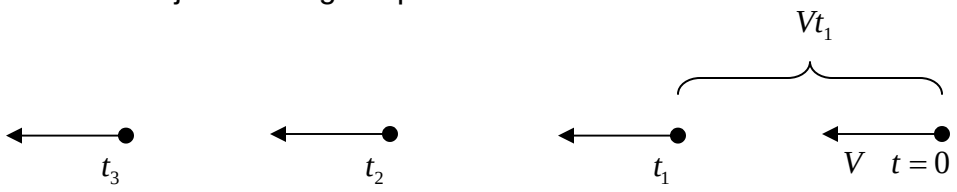
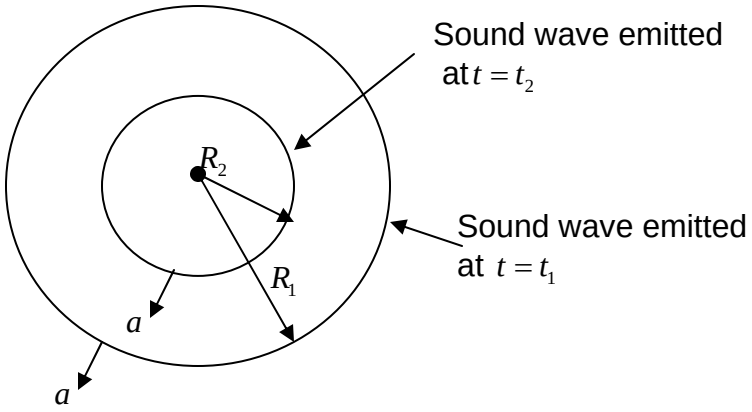
Propagation of Disturbances By a Moving Object

Consider an object moving at speed V :



Suppose that the atmospheric speed of sound is a . The body emits sound waves as it travels through the atmosphere and these wave propagate away from the body at speed a in an isotropic manner. For example, consider a stationary sound source (like a lecturer or a stereo speaker):

Sound waves at time t



$\Rightarrow R_1 = at_1$ & $R_2 = at_2$