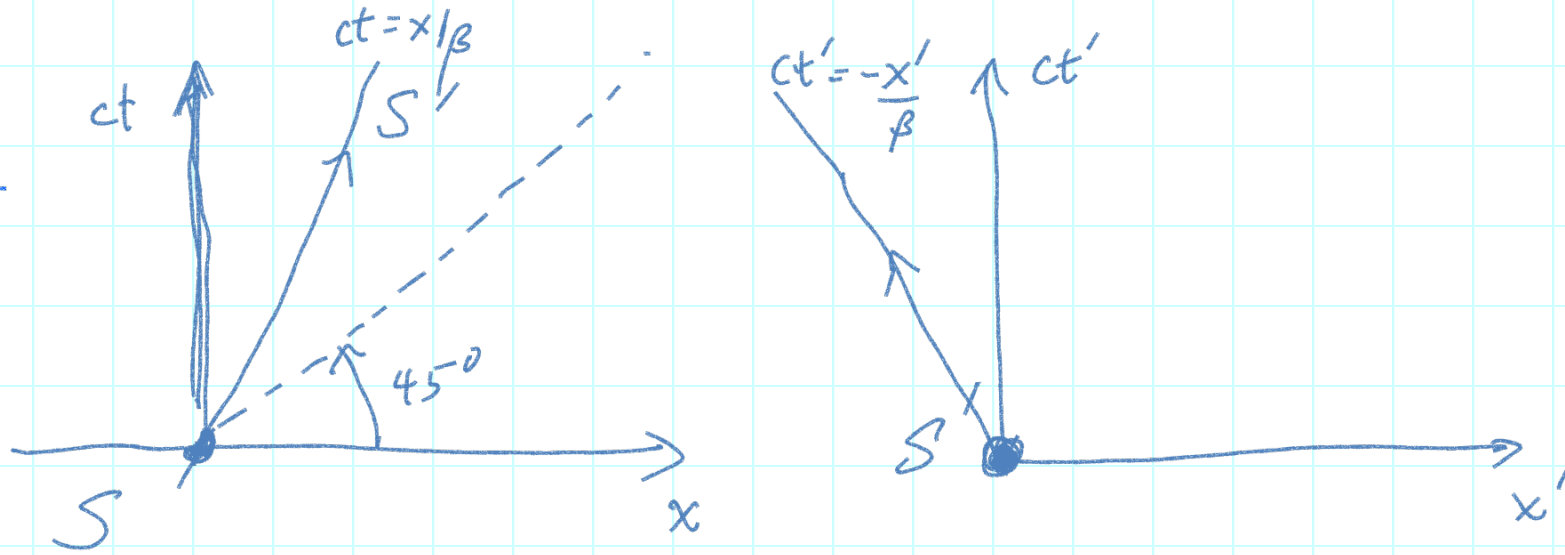


University of Utah
Introduction to Relativity and
Quantum Mechanics

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<http://www.physics.utah.edu/~detar/phys3740>



S' moves in $+x$ direction
with speed $v/c = \beta$

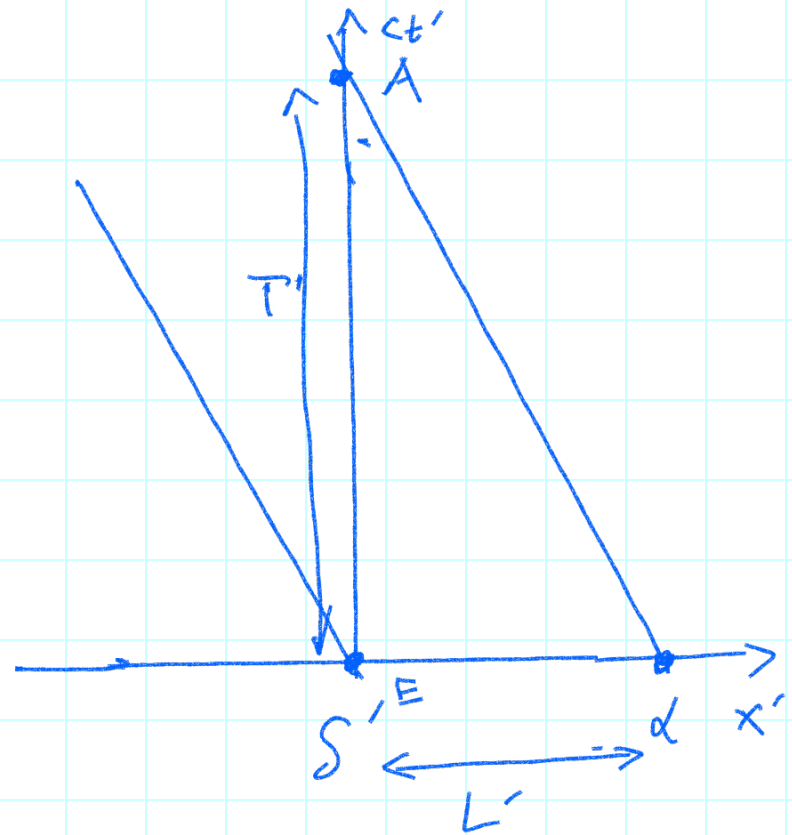
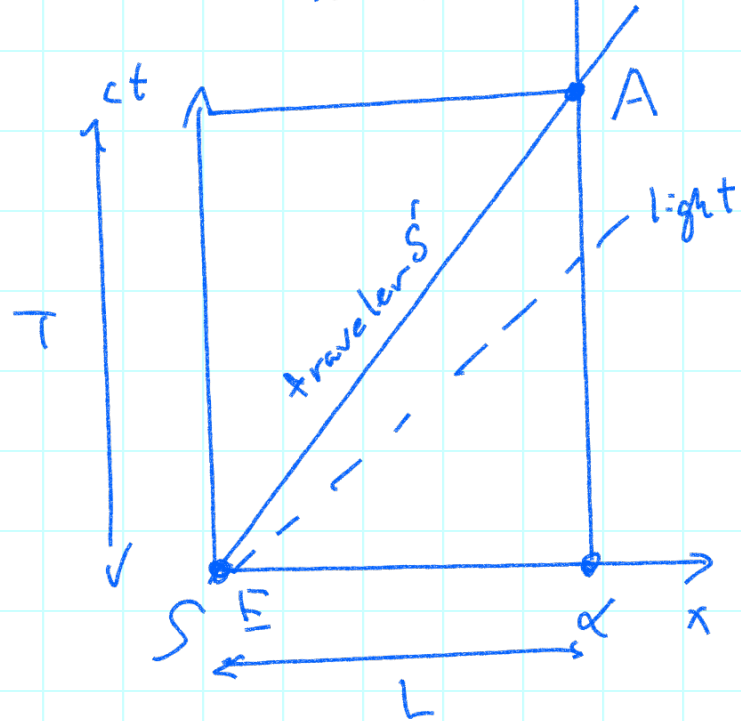
$$\boxed{ct = x/\beta}$$

$$ct = \beta x$$

$$x = vt = v/c \, ct = \beta ct$$



Travel to α -Centauri



$$\gamma = \frac{1}{\sqrt{1 - \beta^2}}$$

$$\beta = v/c$$

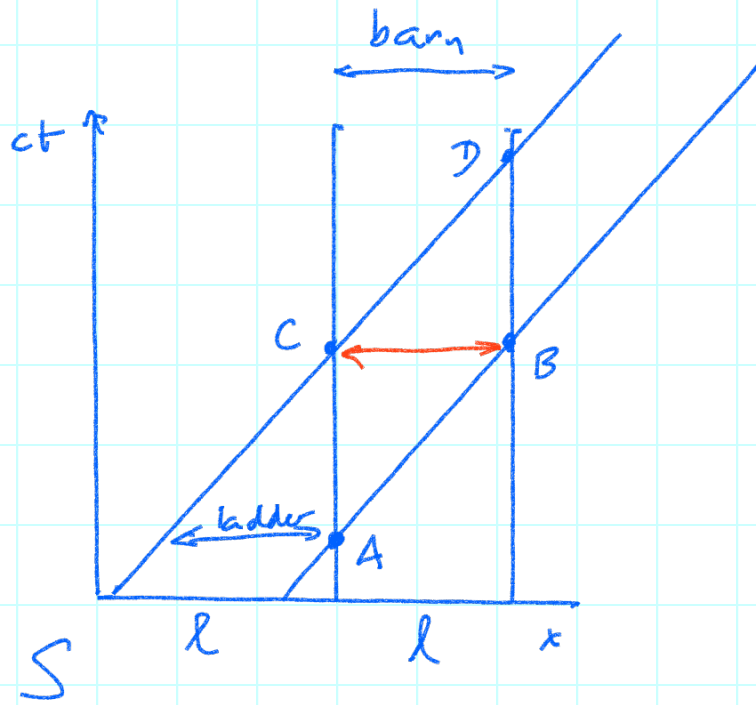
T' = traveler's time
 T = Earth time
 L = Earth distance
 L' = traveler's distance

$$T = T' \gamma$$

$$L' = L / \gamma$$



Ladder/barn paradox



$$\gamma = 2$$

