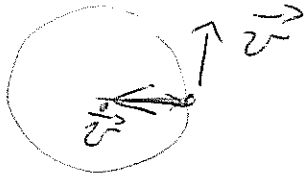
p. 53 1

Note: argument on p. 53, bottom not complete.

We showed that if a s.l.t. w/ $\vec{v} \neq 0$ exists, then $\vec{v} \cdot \dot{\vec{v}} = 0$

which says $\dot{\vec{v}} \perp \vec{v}$

which can happen



So, to complete argument, assume again $\dot{\vec{v}} \neq 0$, then

$$\dot{\vec{v}} + \frac{\vec{v}(\vec{v} \cdot \dot{\vec{v}})}{c^2 - v^2} = 0$$

now $\vec{v} \times \dot{\vec{v}} + \vec{v} \times \vec{v} \frac{(\vec{v} \cdot \dot{\vec{v}})}{c^2 - v^2} = 0$

$\vec{v} \times \vec{v} = 0$

$\Rightarrow \quad \vec{v} \times \dot{\vec{v}} = 0$.

together w/ $\vec{v} \cdot \dot{\vec{v}} = 0$ means $\dot{\vec{v}} = 0$.

(because $\dot{\vec{v}} \times \vec{v} = 0$ means component of $\dot{\vec{v}} \perp$ to $\vec{v}$ vanishes, & this is all that was allowed by $\vec{v} \cdot \dot{\vec{v}} = 0$)

$\Rightarrow$