

$$\begin{aligned}
 v'_y &= \frac{dy'}{dt'} = \frac{dy}{(dt - (v/c^2)dx)\gamma} = \frac{dy}{dt(1 - v dx/c^2 dt)\gamma} = \\
 &= \frac{dy/dt}{(1 - v dx/c^2 dt)\gamma}
 \end{aligned}$$

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 v'_z &= \frac{dz'}{dt'} = \frac{dz}{(dt - (v/c^2)dx)\gamma} = \frac{dz}{dt(1 - v dx/c^2 dt)\gamma} = \\
 &= \frac{dz/dt}{(1 - v dx/c^2 dt)\gamma}
 \end{aligned}$$