

# Reading Assignment Special Relativity, part 3

$$\begin{aligned} X' &= X & L' &= L \\ Y' &= \beta \left( Y - \frac{v}{c} N \right) & M' &= \beta \left( M + \frac{v}{c} Z \right) \\ Z' &= \beta \left( Z + \frac{v}{c} M \right) & N' &= \beta \left( N - \frac{v}{c} Y \right) \end{aligned}$$

Case of  $X' = Y' = Z' = 0$ :

Then  $L' = L$   $m' = \beta M$   $N' = \beta N$

and  $0 = X$   $0 = \beta \left( Y - \frac{v}{c} N \right)$   $0 = \beta \left( Z + \frac{v}{c} M \right)$

$$\downarrow$$

$$X = 0$$

$$\downarrow$$

$$Y = \frac{v}{c} N$$

$$\downarrow$$

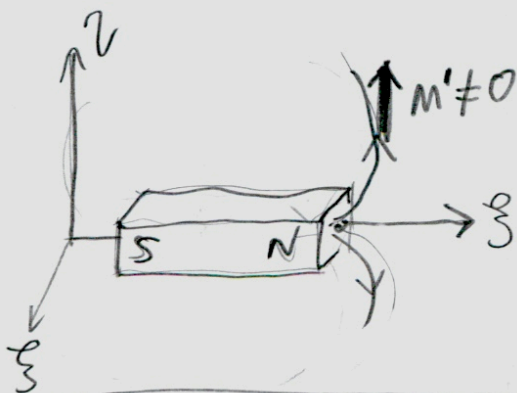
$$Z = -\frac{v}{c} M$$

Non-zero since

$$N = \beta N' \neq 0$$

$$M = \frac{1}{\beta} M' \neq 0$$

magnet at rest in  $k$



magnet moves in  $K$

