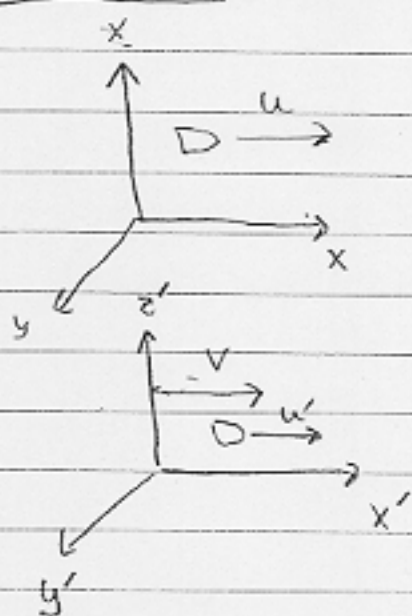


Last time



Earth Observer makes measurements of the rocket
 t, x, y, z, u

For instance the position of the rocket vs. time

$$x = ut$$

u = The velocity of the rocket

The observer on Jupiter which is moving with respect to earth in the x direction measures different coordinates and velocities

$$t' = t$$

$$x' = x - vt$$

$$y' = y$$

$$z' = z$$

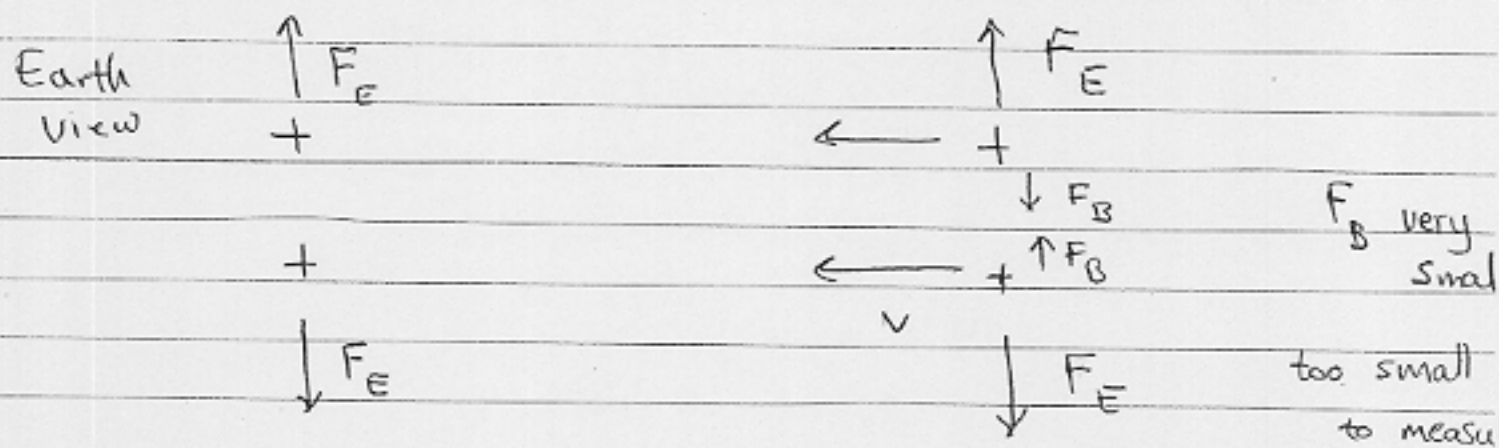
$$u' = u - v$$

The Rules of Physics are supposed to be the same on jupiter and earth

For example $F = ma$ $F' = m'a'$

$$u = \frac{\Delta x}{\Delta t} \quad u' = \frac{\Delta x'}{\Delta t'}$$

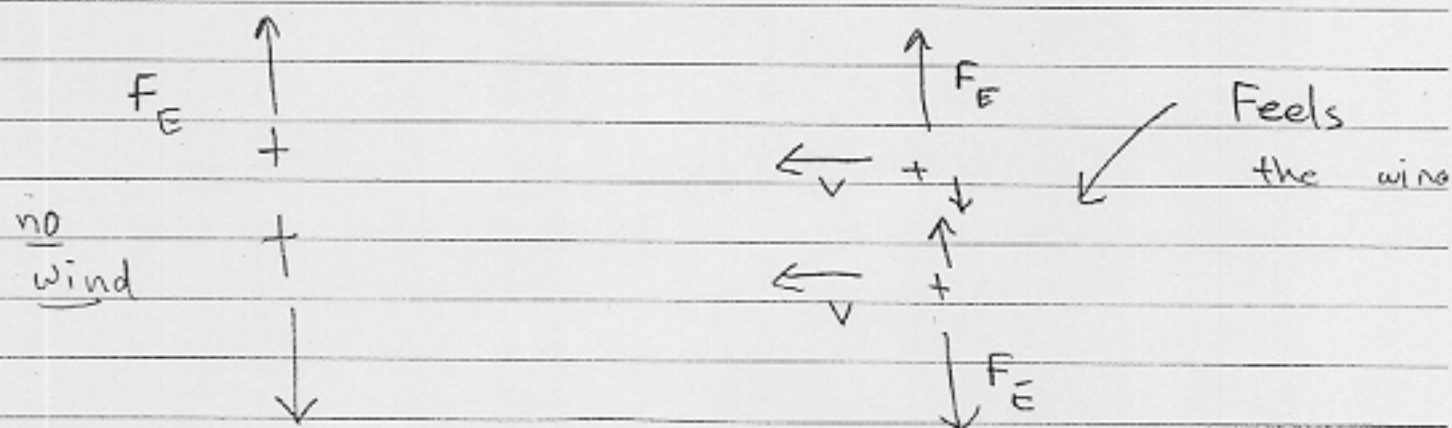
But: $E \neq M$ Doesn't seem to work



Maxwell's answer:

- Based on the thought that light is a disturbance of some medium aether
- Kind of like sound is a disturbance of air. Then there is a preferred frame, namely the frame where the aether is at rest.

- For instance if you throw a ball straight up when your standing still you get a different answer than if you throw a ball straight up in a convertible car, because of wind



- Need to move near the speed of light to feel the wind

ether

- There could be a ^ wind all the time

