$$\frac{x^{t_{1}}}{f} = \frac{H}{X + \Delta x} \text{ and } \frac{z^{t} + \Delta x^{t}}{f} = \frac{H}{X}$$

$$\Rightarrow \Delta x^{t} = fH(\frac{1}{X} - \frac{1}{X + \Delta x})$$