76. Let the frequencies of sound heard by the person from the left and right forks be f_l and f_r, respectively.

(a) If the speeds of both forks are u, then $f_{l,r} = fv/(v \pm u)$ and

$$\begin{aligned} f_{\text{beat}} &= |f_r - f_l| = fv\left(\frac{1}{v-u} - \frac{1}{v+u}\right) = \frac{2fuv}{v^2-u^2} \\ &= \frac{2(440\,\text{Hz})(30.0\,\text{m/s})(343\,\text{m/s})}{(343\,\text{m/s})^2 - (30.0\,\text{m/s})^2} \\ &= 77.6\ \text{Hz}\ . \end{aligned}$$

(b) If the speed of the listener is u, then $f_{l,r} = f(v \pm u)/v$ and

$$f_{\text{beat}} = |f_l - f_r| = 2f\left(\frac{u}{v}\right) = 2(440\,\text{Hz})\left(\frac{30.0\,\text{m/s}}{343\,\text{m/s}}\right) = 77.0\ \text{Hz}\ .$$