



The unknown gas is redshifted Helium!

Where λ_0 is the rest wavelength of a spectral line and λ is the measured wavelength, the Doppler Shifts caused by radial motion, v_r :

$$\frac{v_r}{c} = \frac{\Delta\lambda}{\lambda_0} = \frac{\lambda - \lambda_0}{\lambda_0}$$

c is the speed of light

A positive radial velocity denotes motion **away** from observer, **longer** measured wavelengths, and a **redshift**.

A negative radial velocity denotes motion **toward** observer, **shorter** measured wavelengths, and a **blueshift**.