2d redshift space correlation

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$$\xi_S(r_p, \pi)$$

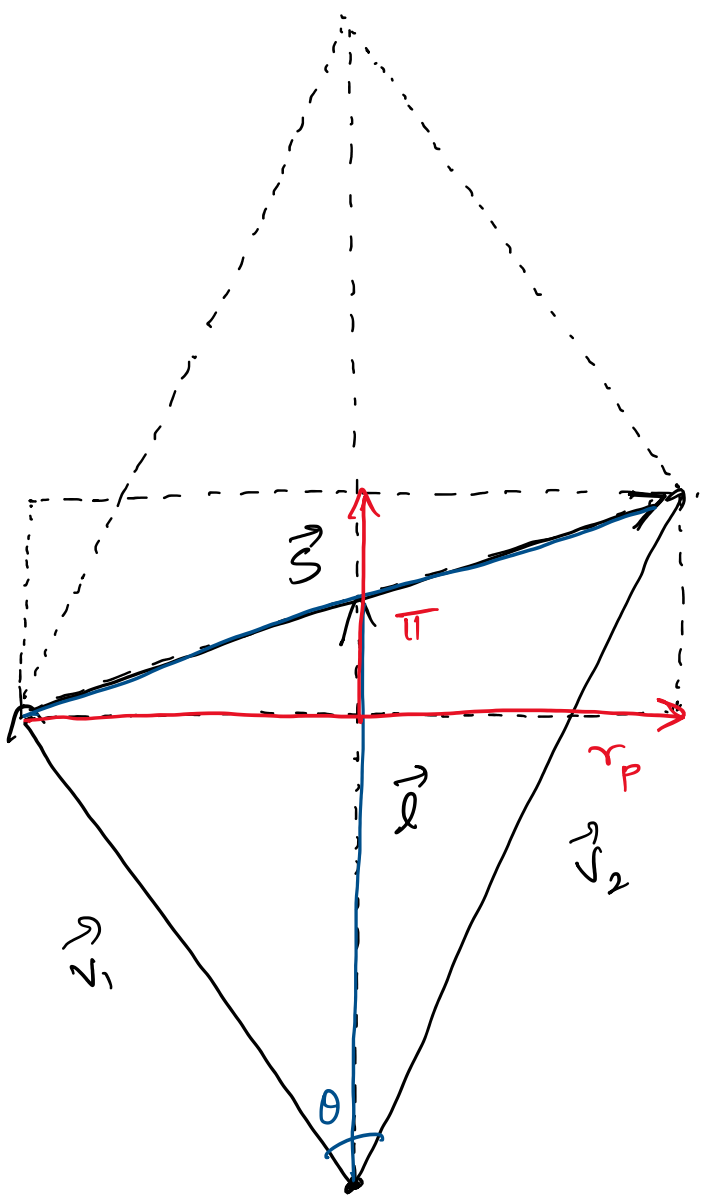
What we have from data is Red shift positions of the quasars. Say $\vec{v}_1$ and $\vec{v}_2$

$$\vec{s} = \vec{v}_2 - \vec{v}_1$$

$$\vec{l} = \frac{1}{2}(\vec{v}_1 + \vec{v}_2)$$

Now $$\pi = \frac{\vec{s} \cdot \vec{l}}{|\vec{l}|}$$

$$r_p = \sqrt{\vec{s} \cdot \vec{s} - \pi^2}$$



Want redshift of v_1 and v_2 and angular seperation θ. z_1, z_2 and θ_{12}