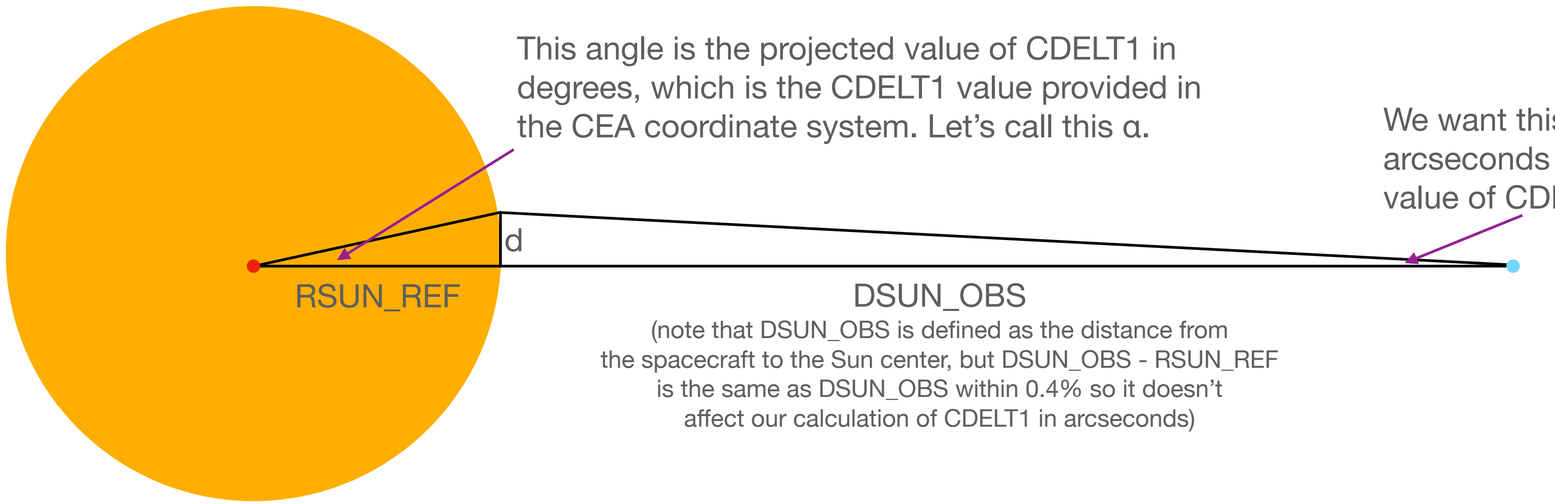
Converting CDELT1 from degrees in CEA coordinates to arcseconds



RSUN_REF is the solar radius
DSUN_OBS is the distance from the solar surface to the spacecraft (could be SDO or SoHO).
d is the length of a pixel
The red dot is the center of the Sun. The blue dot is the spacecraf. This is not to scale!

Step 1: Determine d

sin α = (d/RSUN_REF)
make a small angle approximation
α = d/RSUN_REF
α * RSUN_REF = d

Note that α is in degrees.

Step 2: Determine CDELT1 in arcseconds

tan β = (α * π /180 * RSUN_REF) / (DSUN_OBS)
β = arctan [(α * π /180 * RSUN_REF) / (DSUN_OBS)]

This gives β in radians.

To convert β from radians to arcseconds, multiply by (180/π)*3600:
β = arctan [(α * π /180 * RSUN_REF) / (DSUN_OBS)]*(180/π)*3600