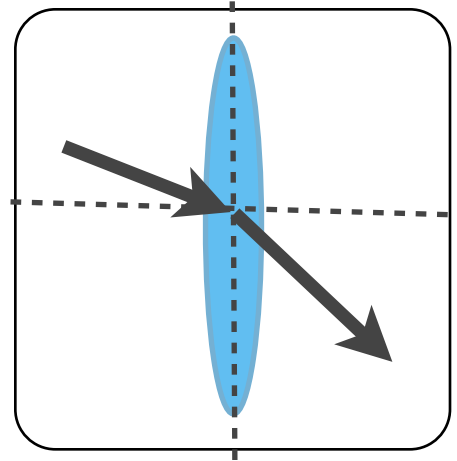


Images in Lenses

Converging Lens	Diverging Lens
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- Light is actually refracted twice when it goes through a lens. It refracts a first time when it enters the lens (as it goes from air to glass) and a second time when it leaves the lens (goes from glass to air).
 - But we use a shortcut when drawing ray diagrams! Draw a dashed line through the middle of the lens and this allows to show the light being refracted one time.



Converging Lens

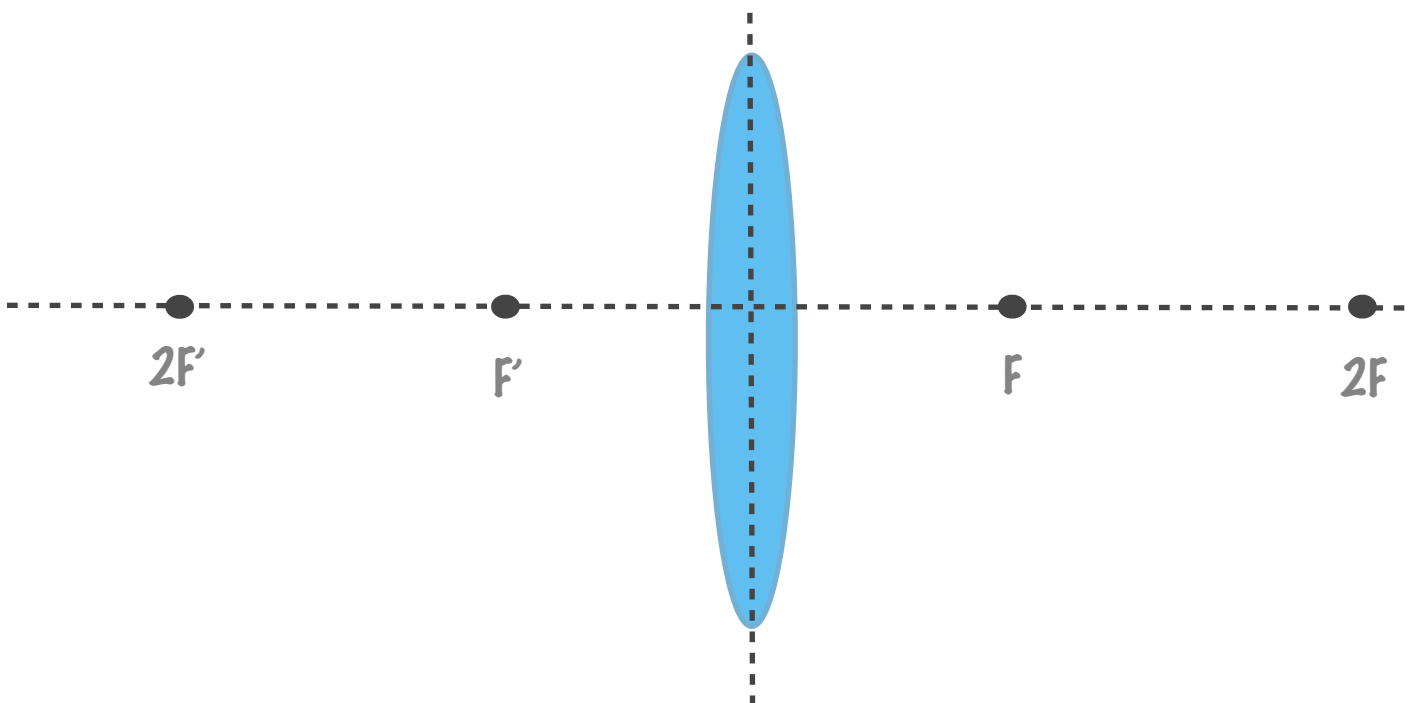
Optical Centre:

Principal axis:

Principal focus:

- Light can strike a lens from either side and both sides of the lens can focus parallel light rays. So you can get two focus points.

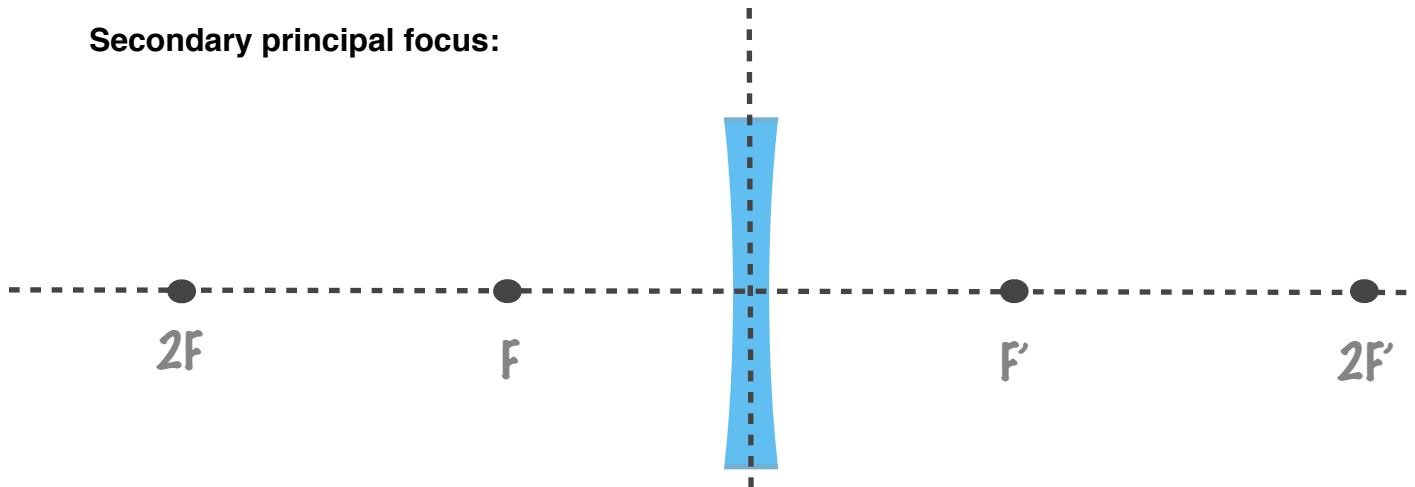
Secondary principal focus:



Diverging Lens

Principal focus:

Secondary principal focus:

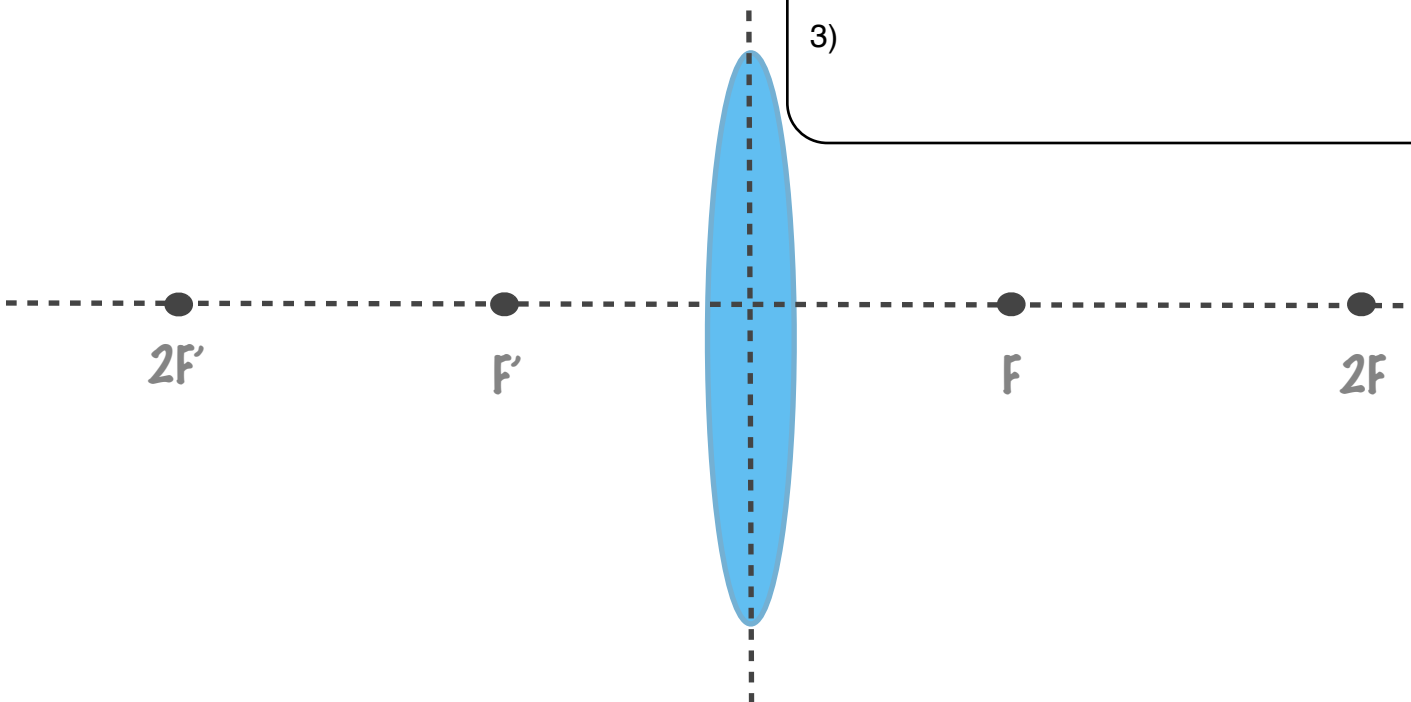


Emergent Rays:

Images in Lenses Converging

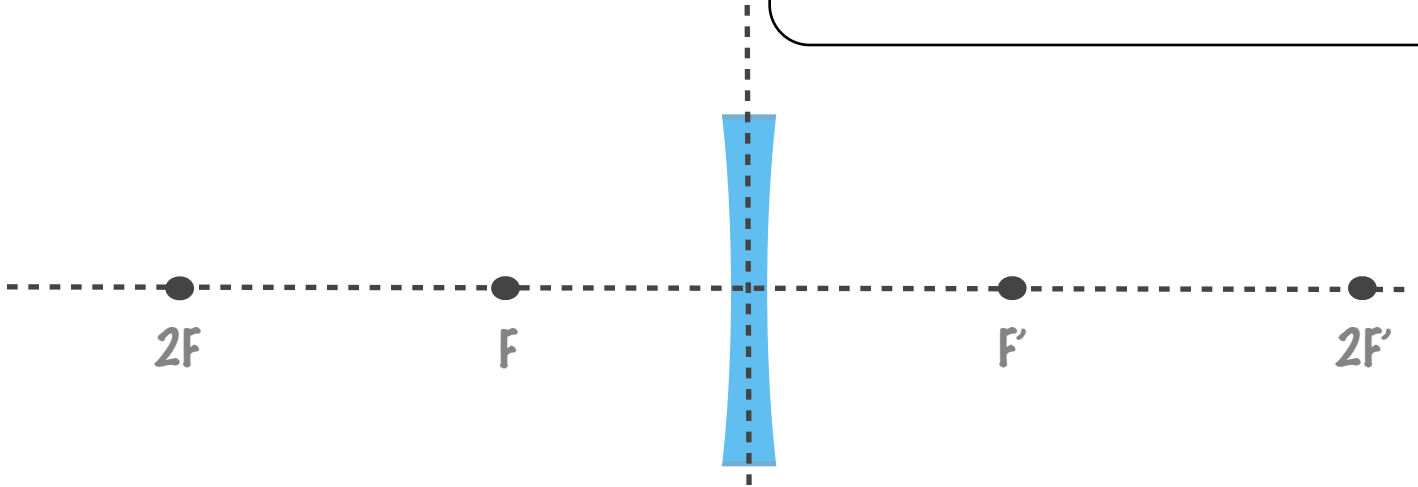
3 Rules for Finding Images is Converging:

- 1)
- 2)
- 3)



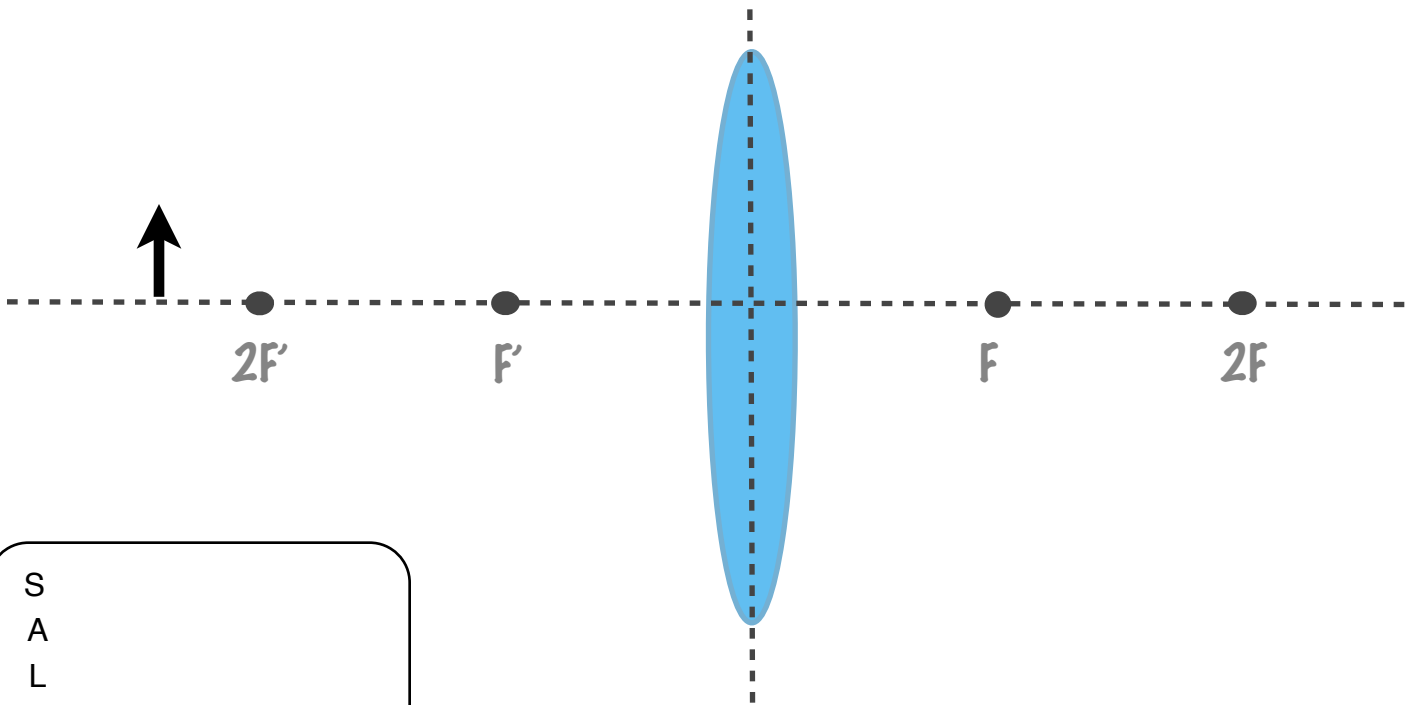
Images in Lenses Diverging

3 Rules for Finding Images is Diverging:
1)
2)
3)



Images in Lenses

Converging Image A: Beyond 2F'



S
A
L
T

Image B: At $2F'$

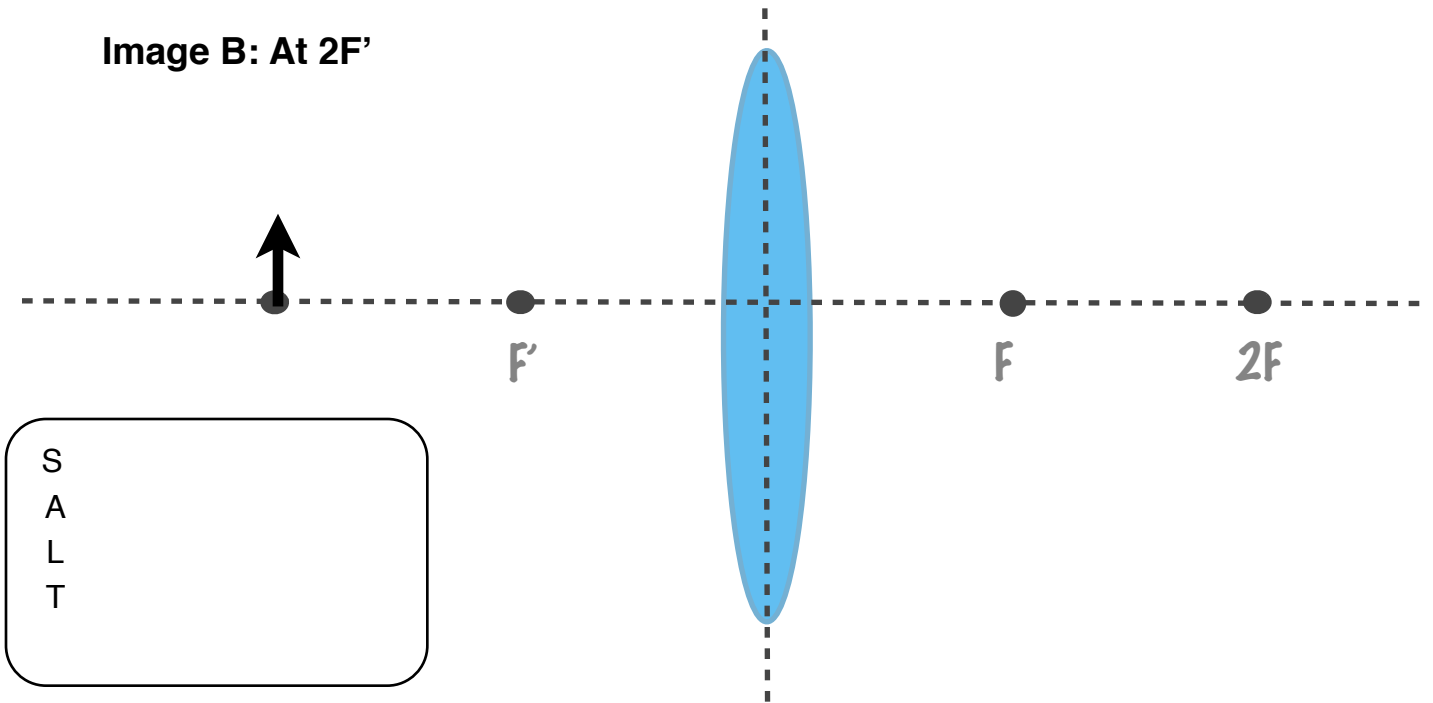
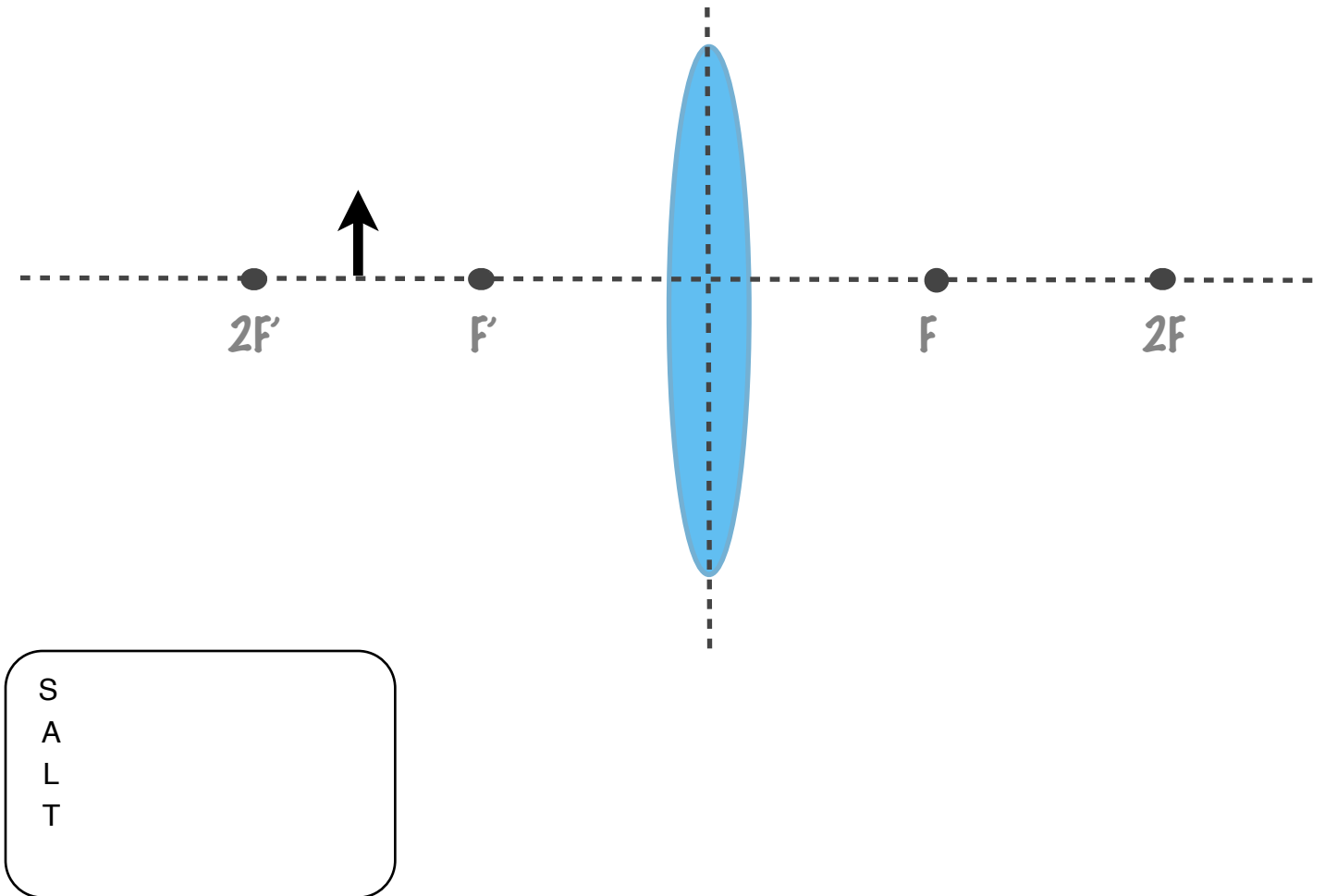


Image C: Between $2F'$ and F'



SNC 2D **Image D: At F'**

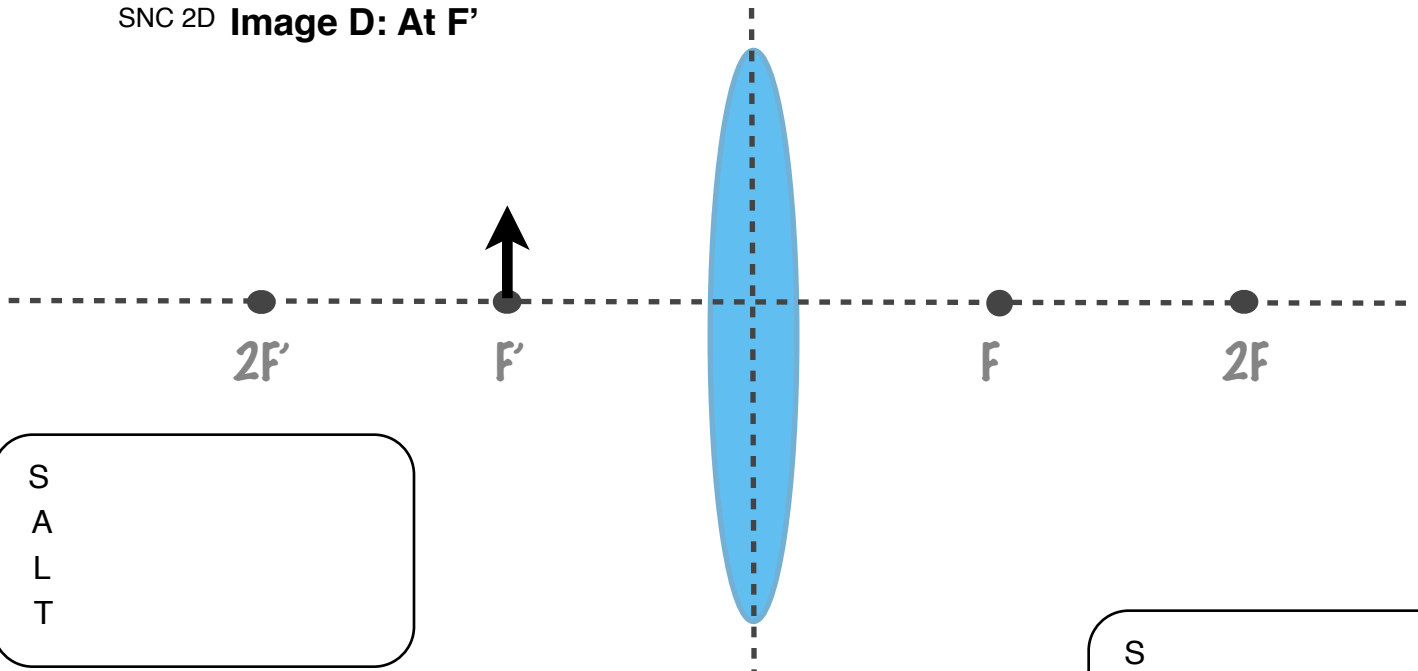


Image E: Before F'

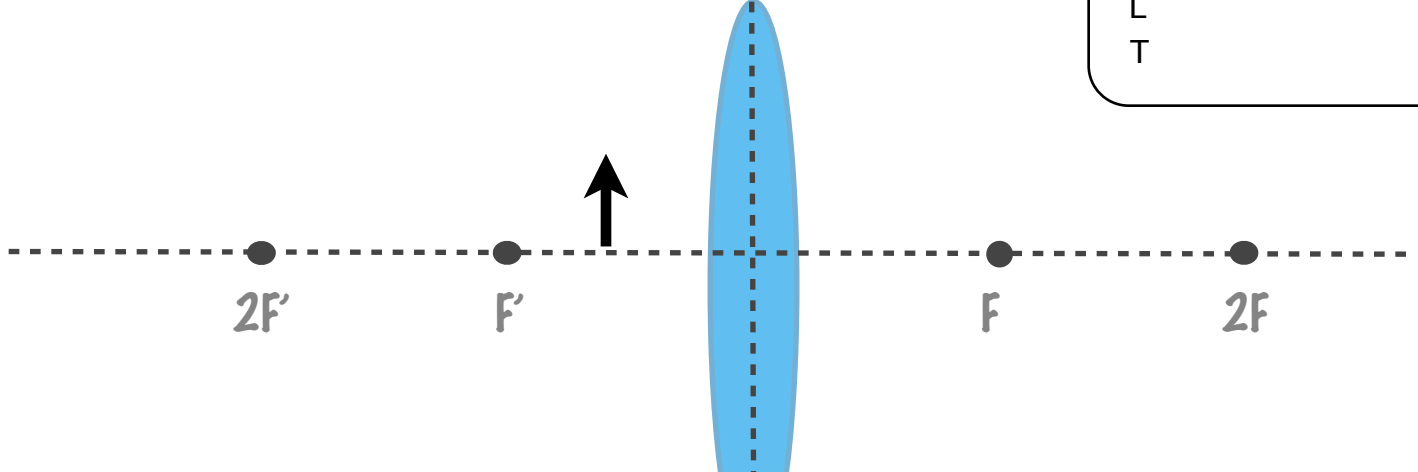


Image F: Diverging

