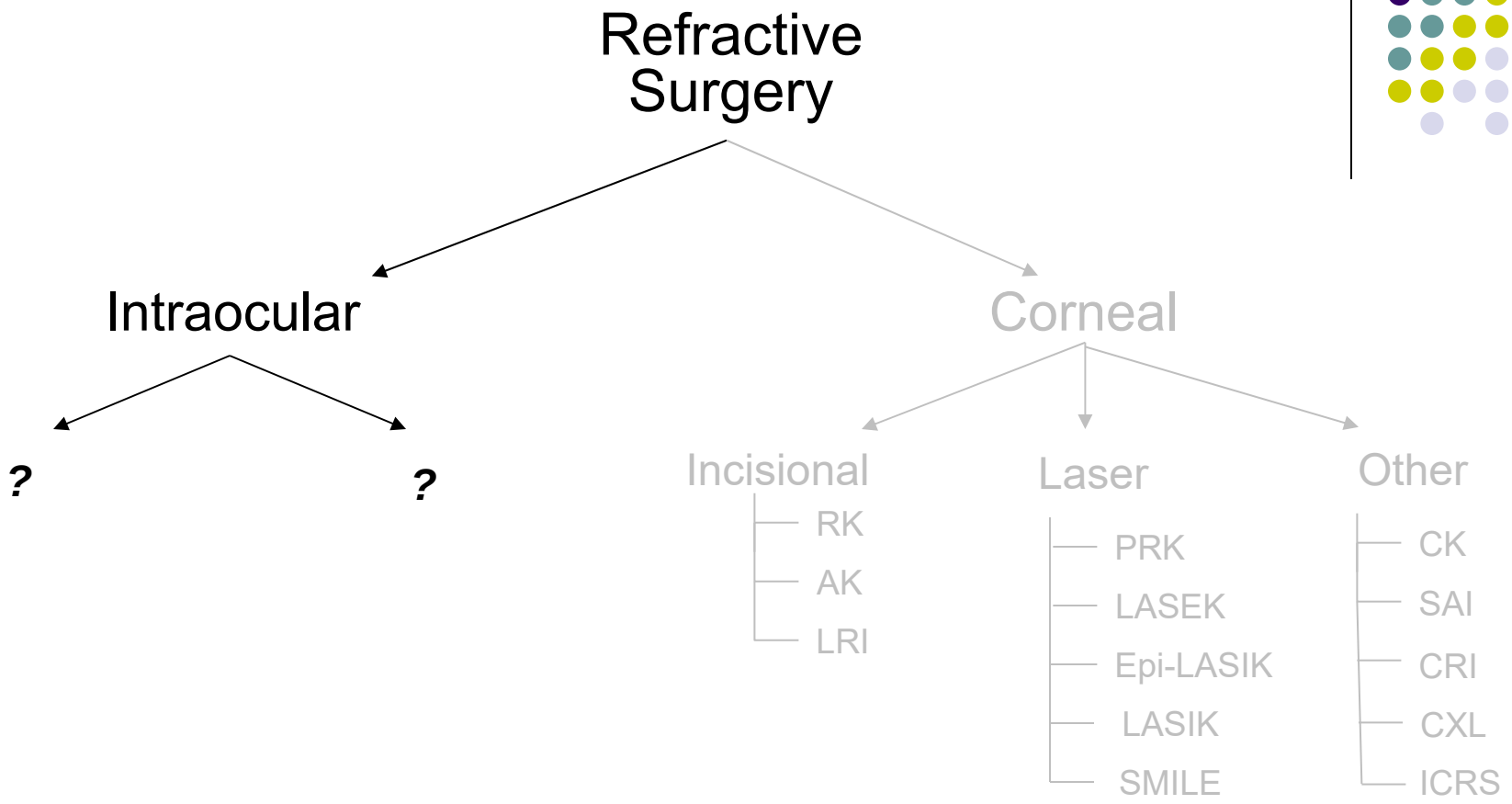
Intraocular Refractive Surgery



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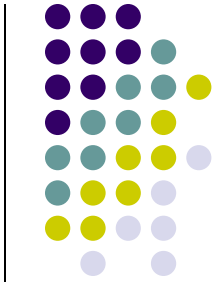

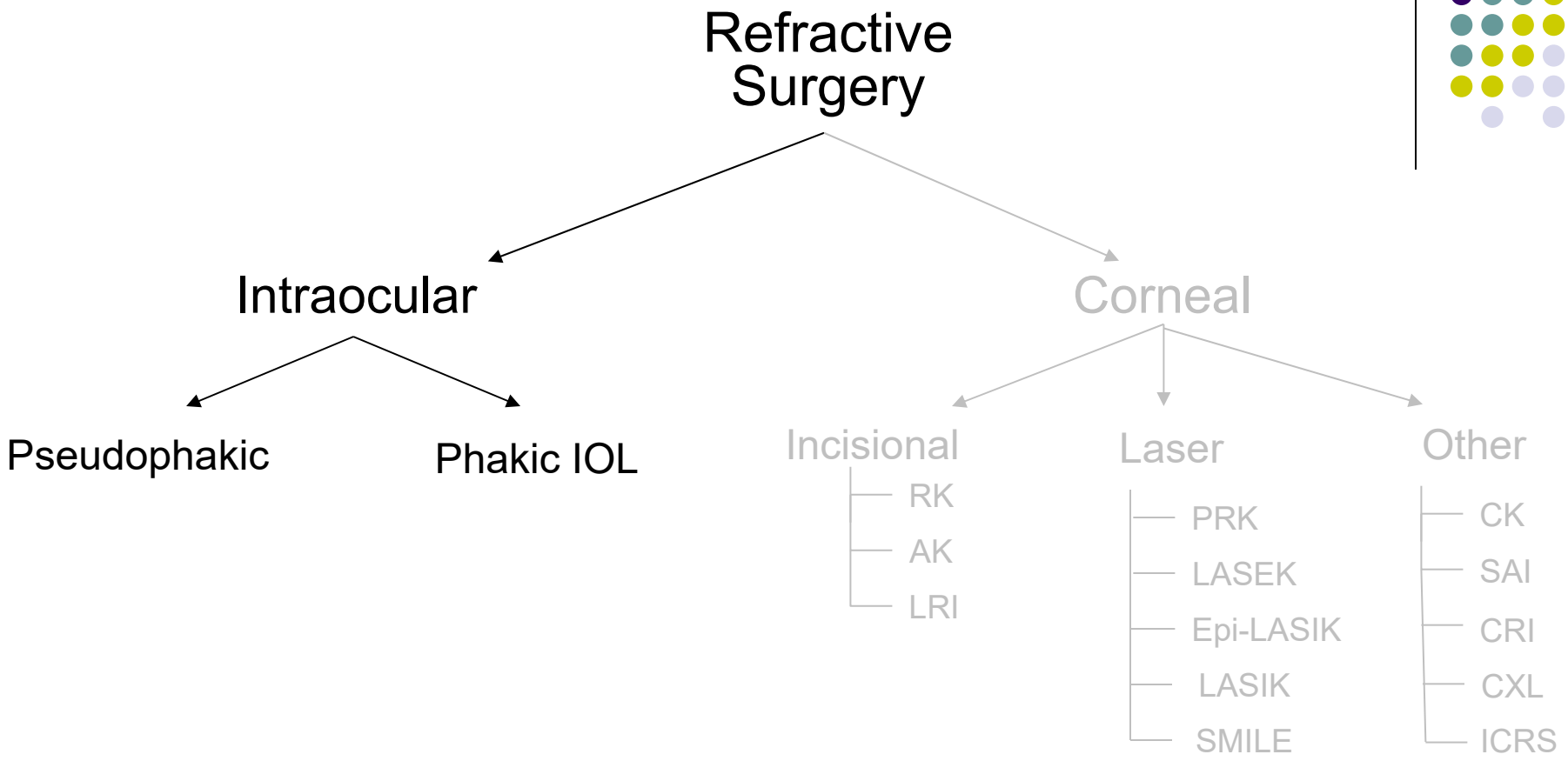

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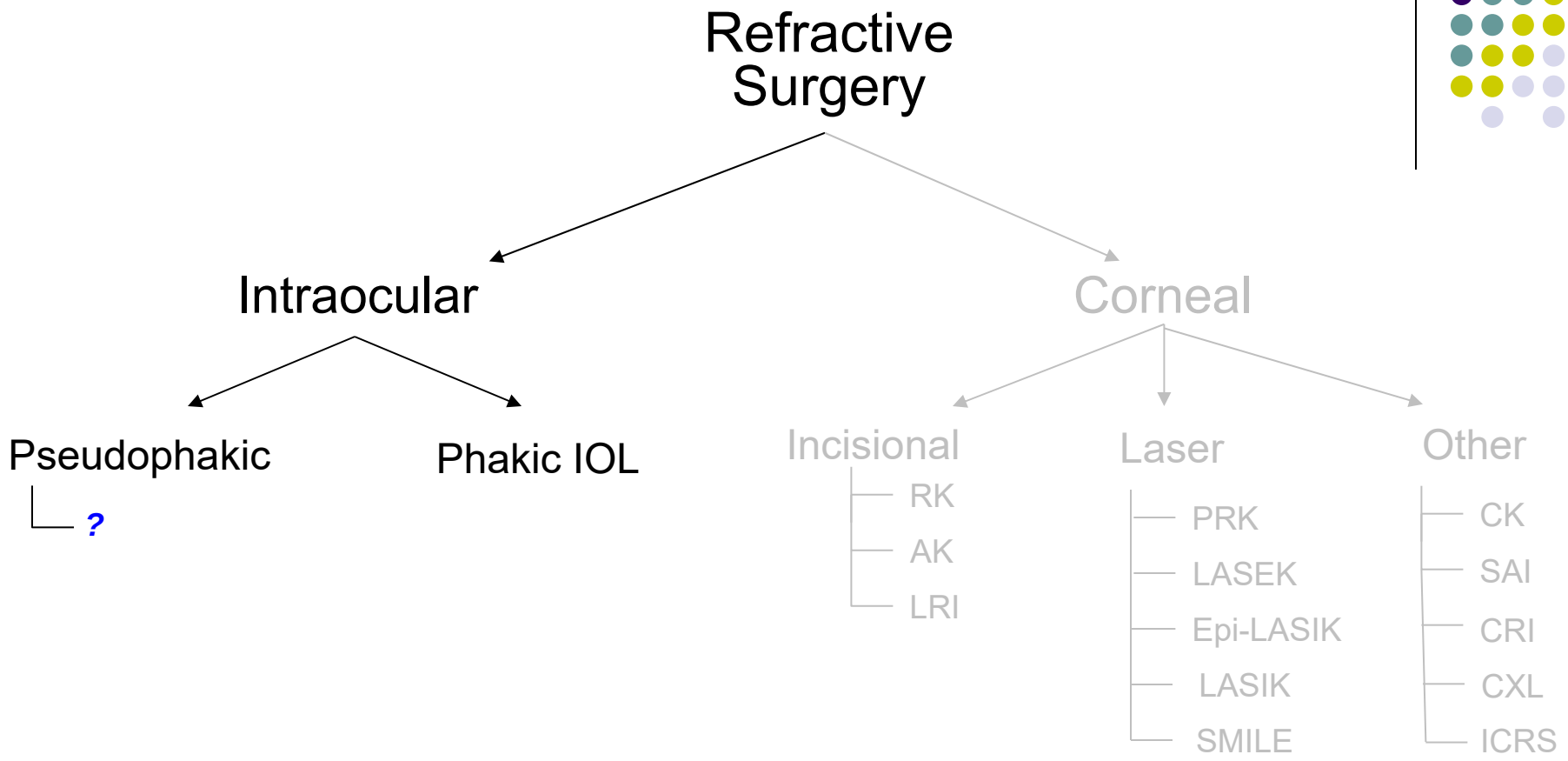
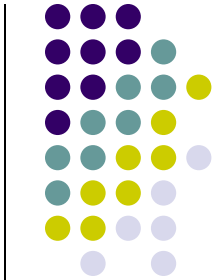
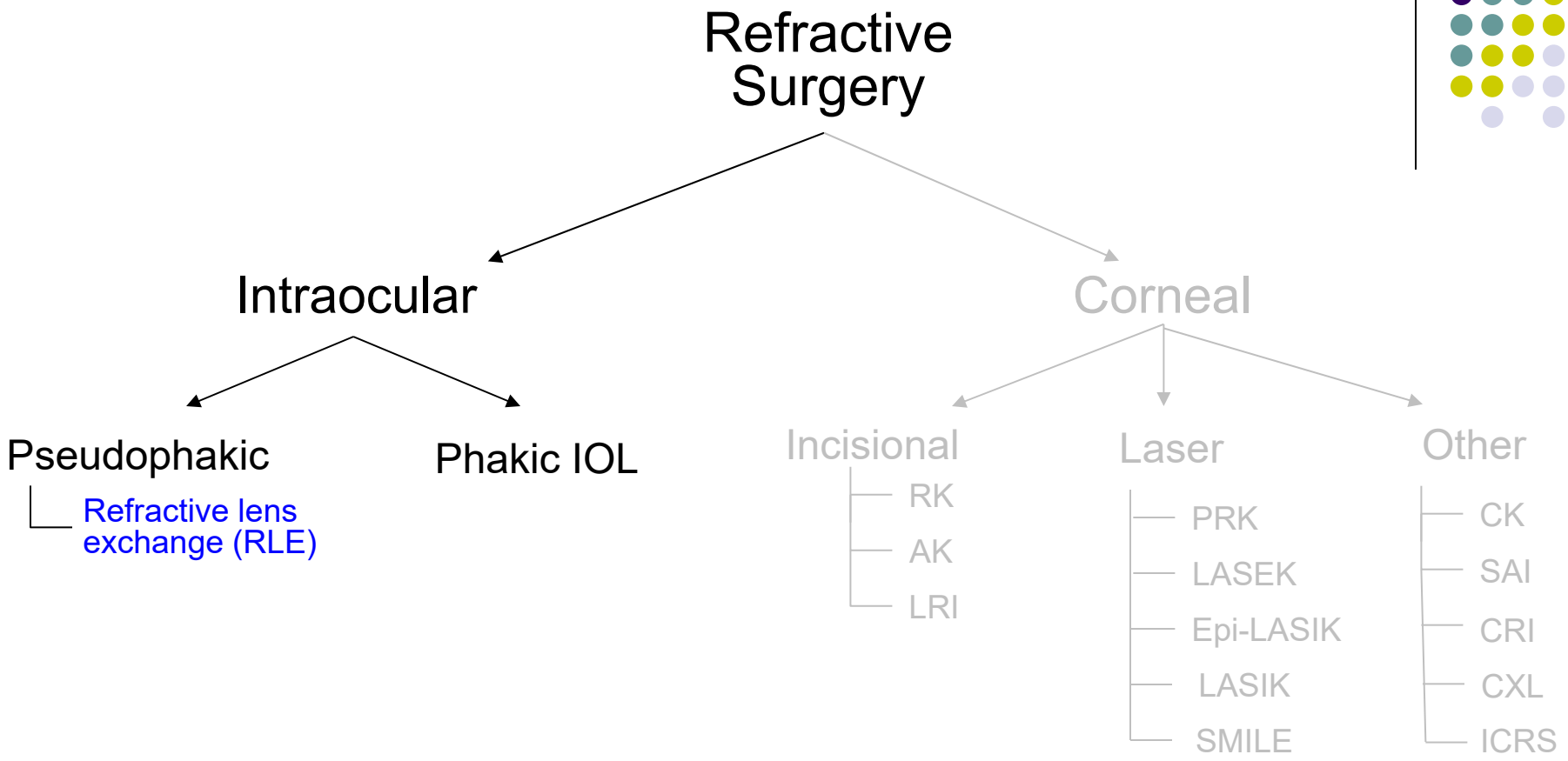


Intraocular Refractive Surgery





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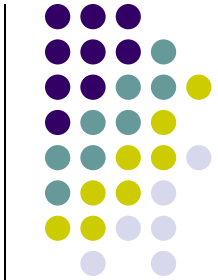
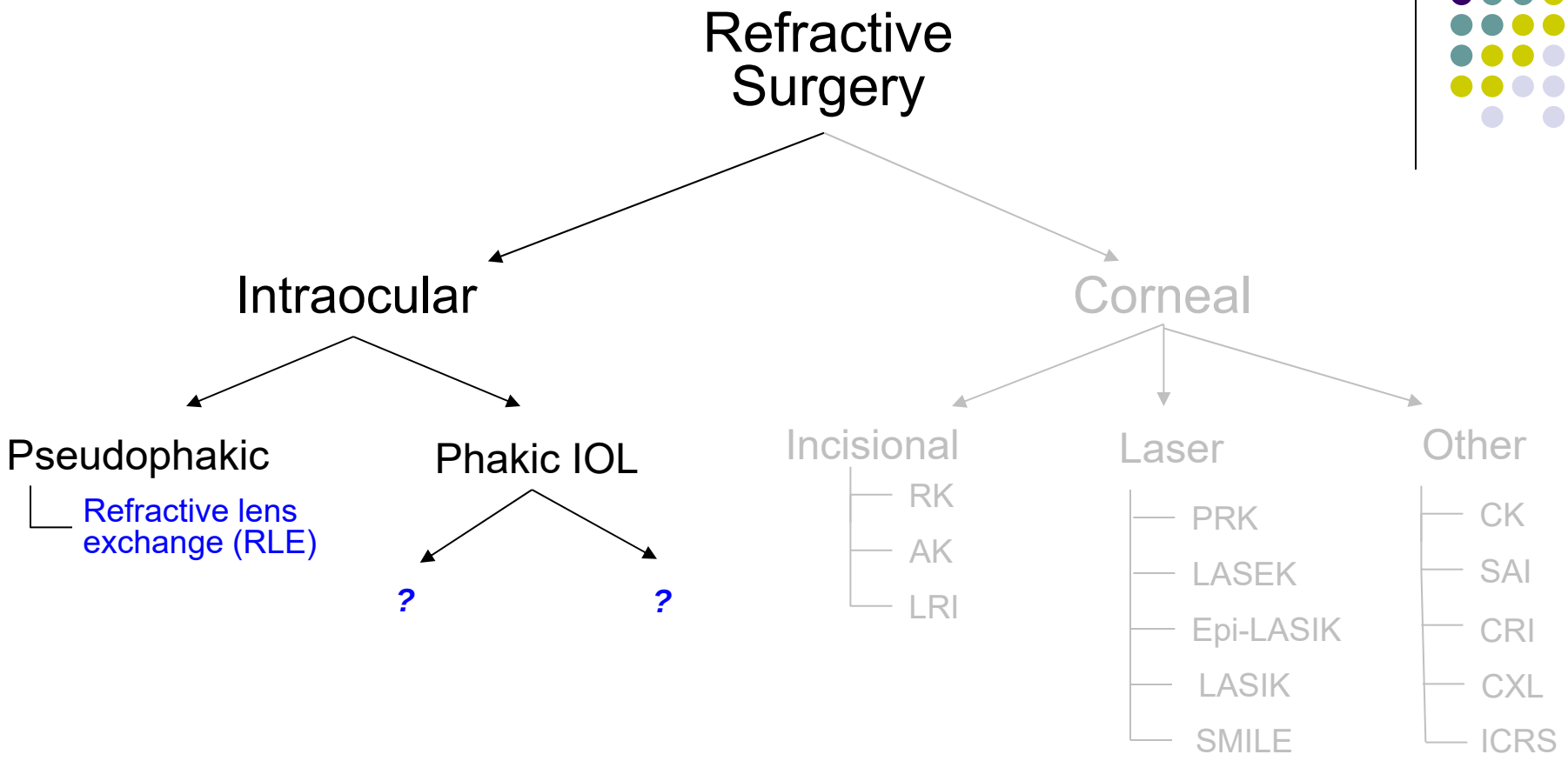
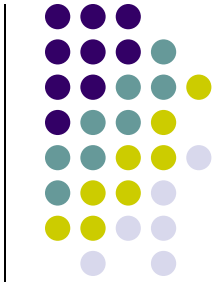
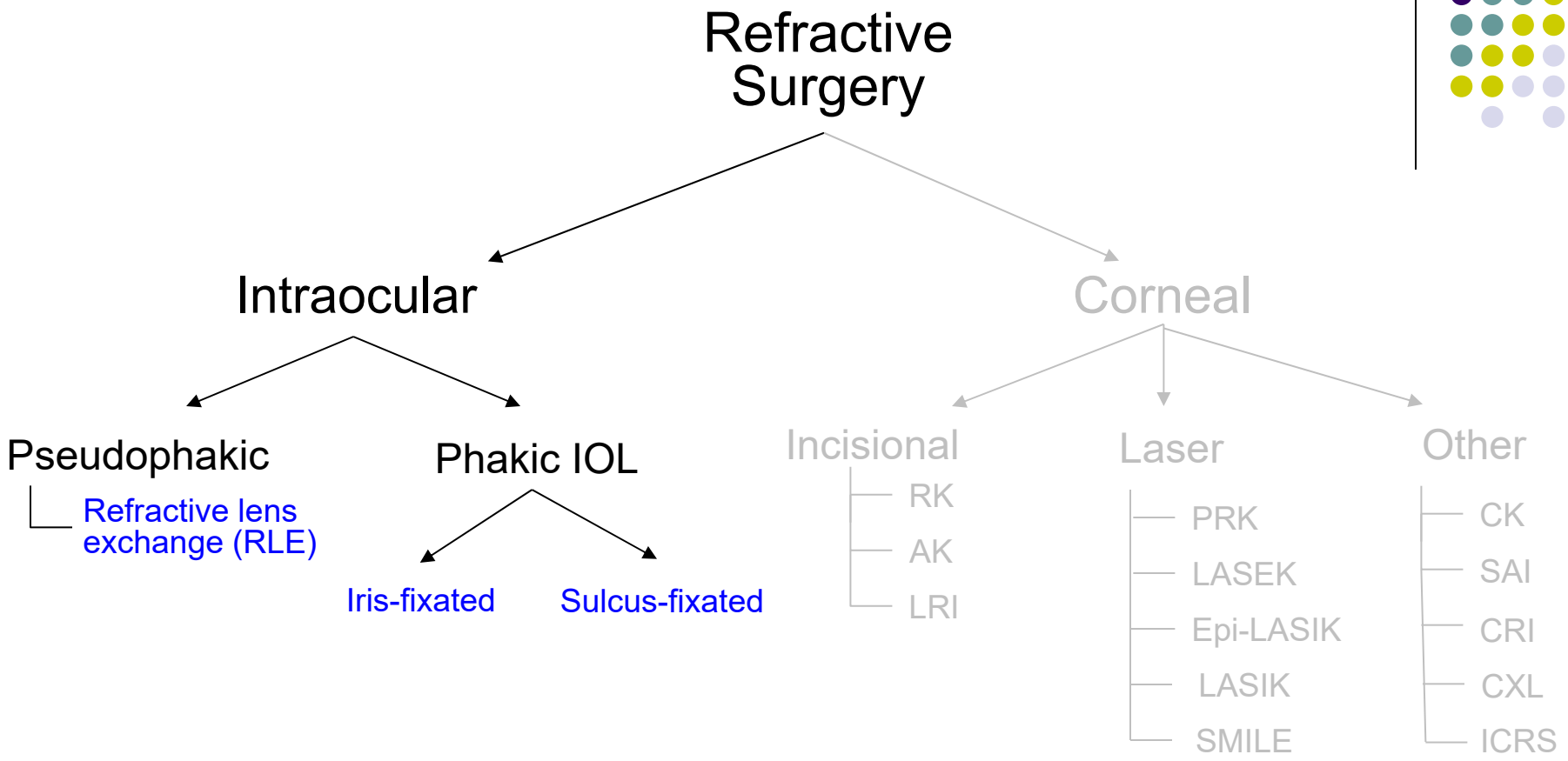


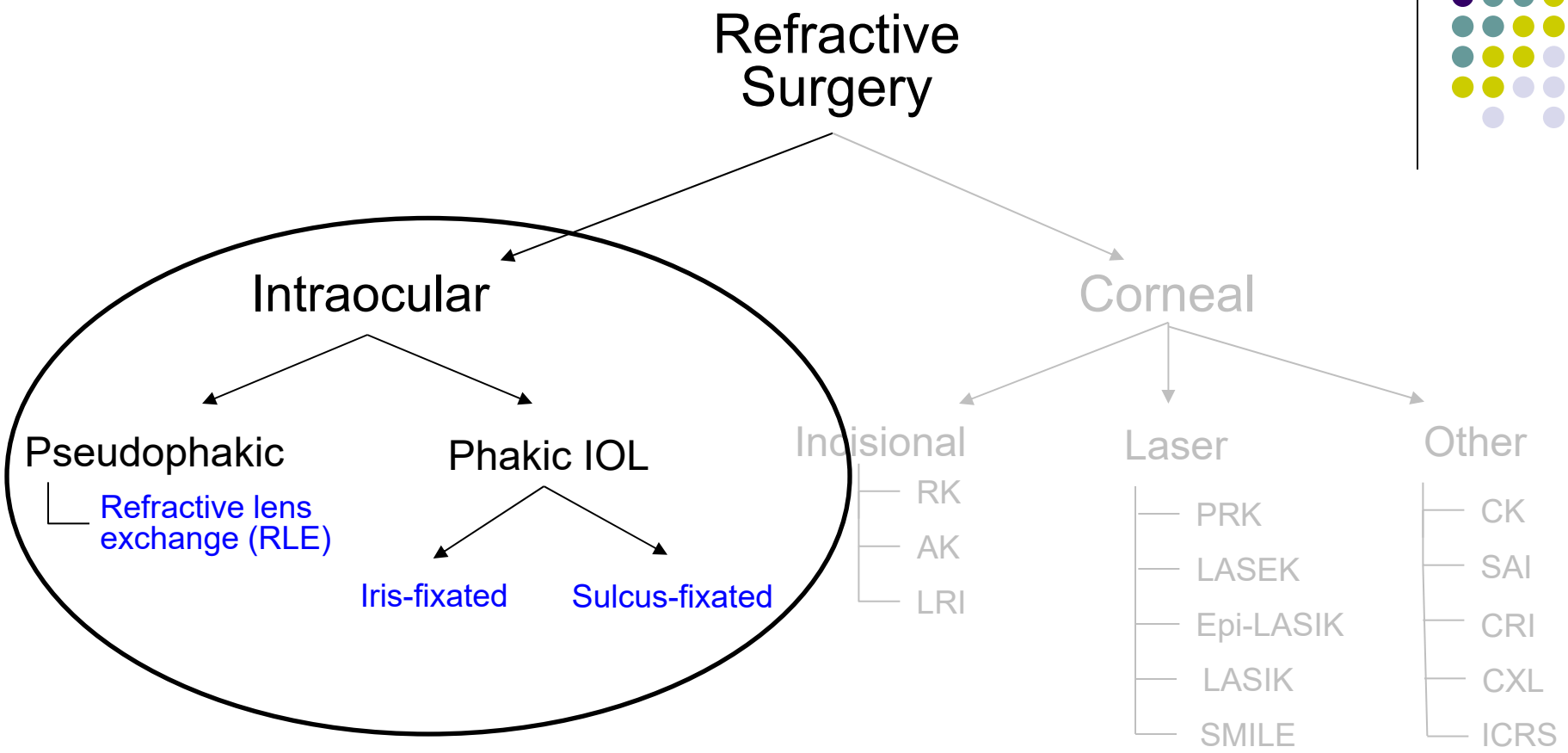


Intraocular Refractive Surgery



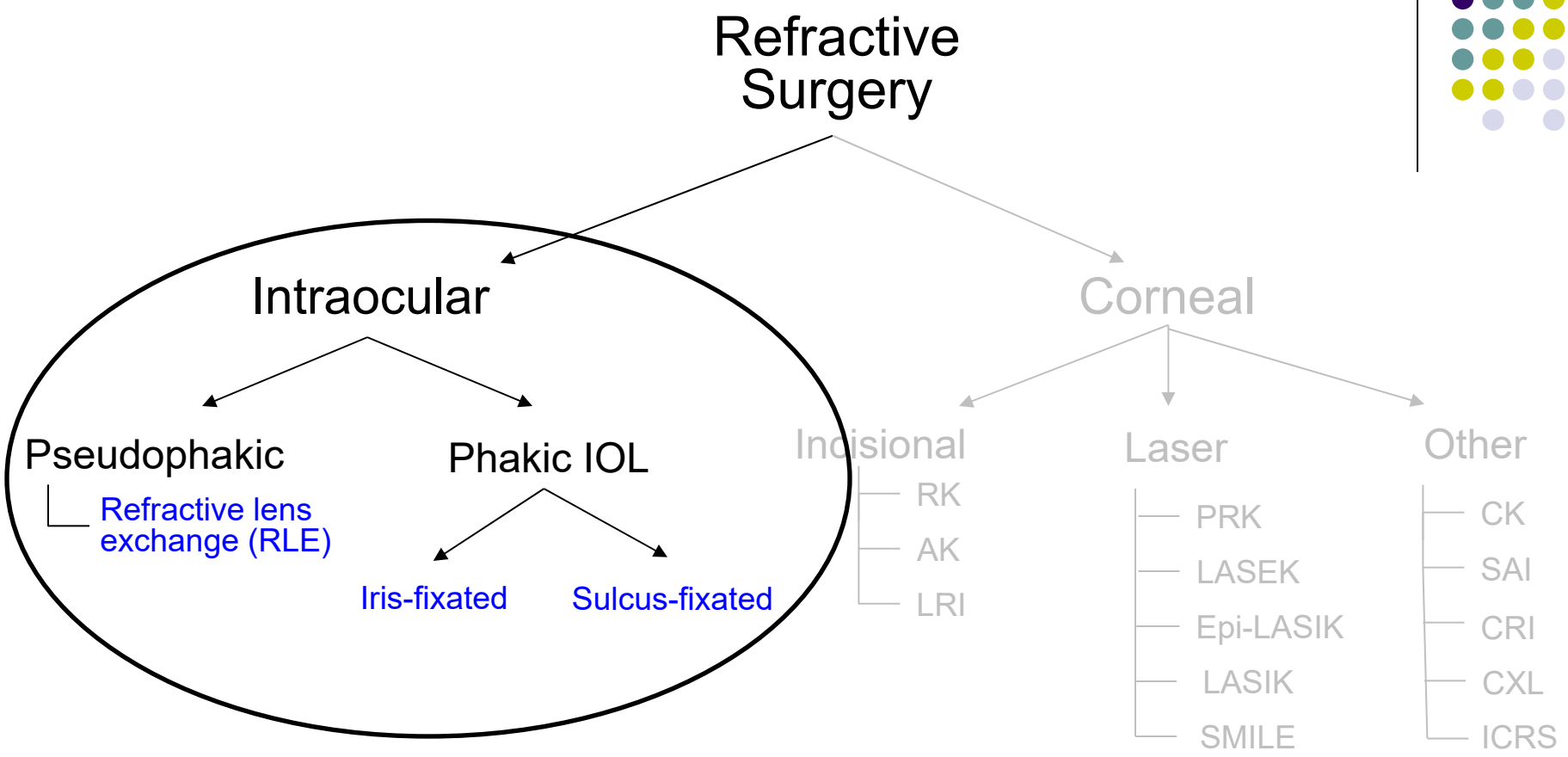


Intraocular Refractive Surgery



What is the chief indication for intraocular refractive surgery?

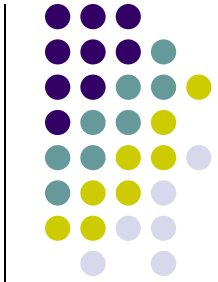
Intraocular Refractive Surgery

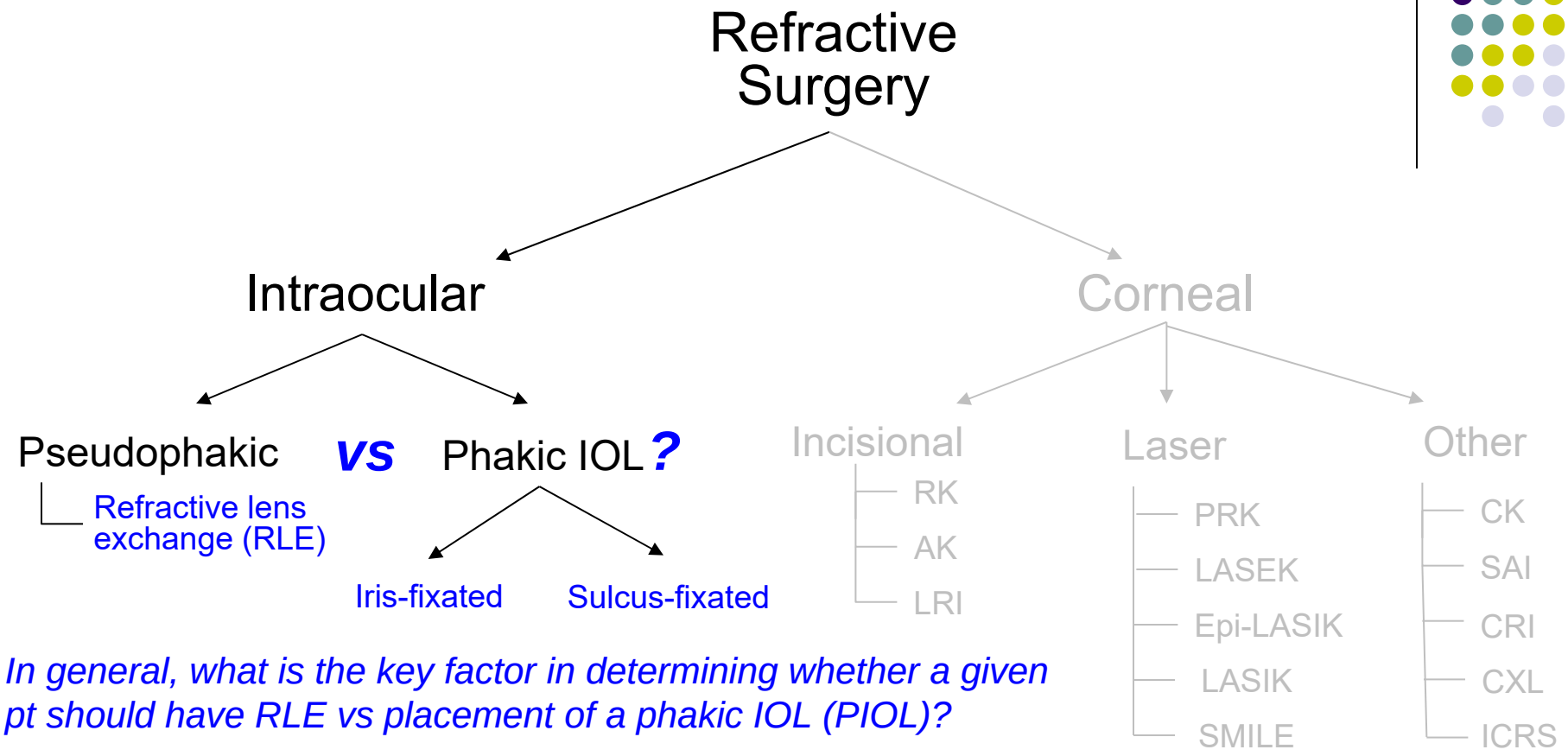


What is the chief indication for intraocular refractive surgery?

Correction of refractive errors too extreme to be reliably and safely corrected by other means. Many surgeons have 'dialed back' on the corrections they're willing to perform via corneal-based procedures, opting instead to perform intraocular surgery even on pts who technically qualify for corneal-based correction.

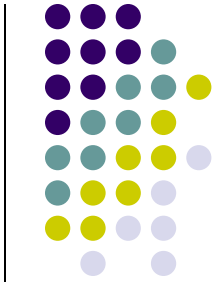
Intraocular Refractive Surgery

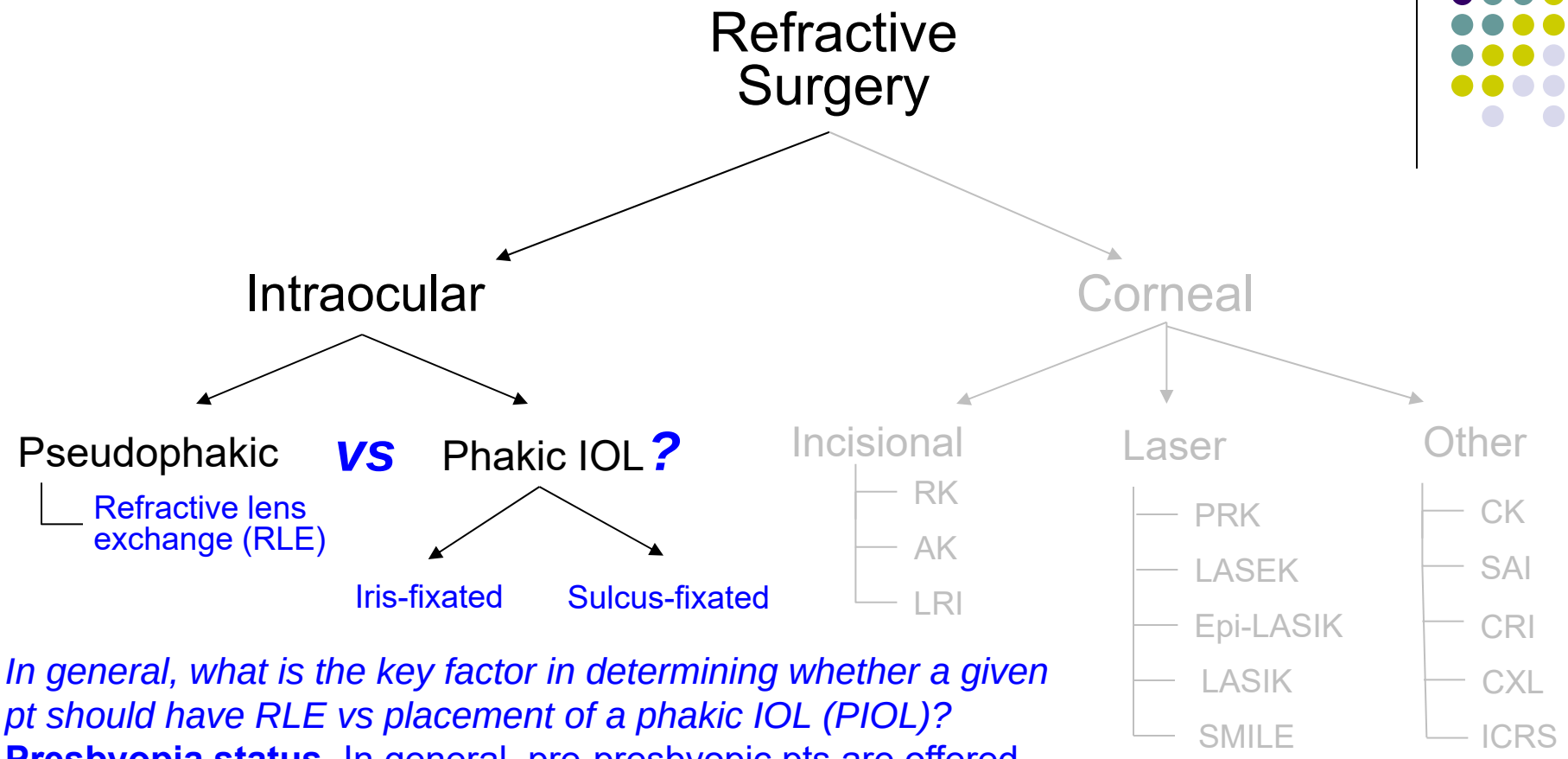




In general, what is the key factor in determining whether a given pt should have RLE vs placement of a phakic IOL (PIOL)?

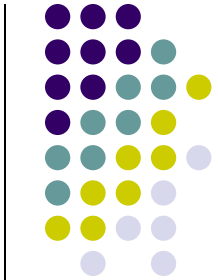
Intraocular Refractive Surgery

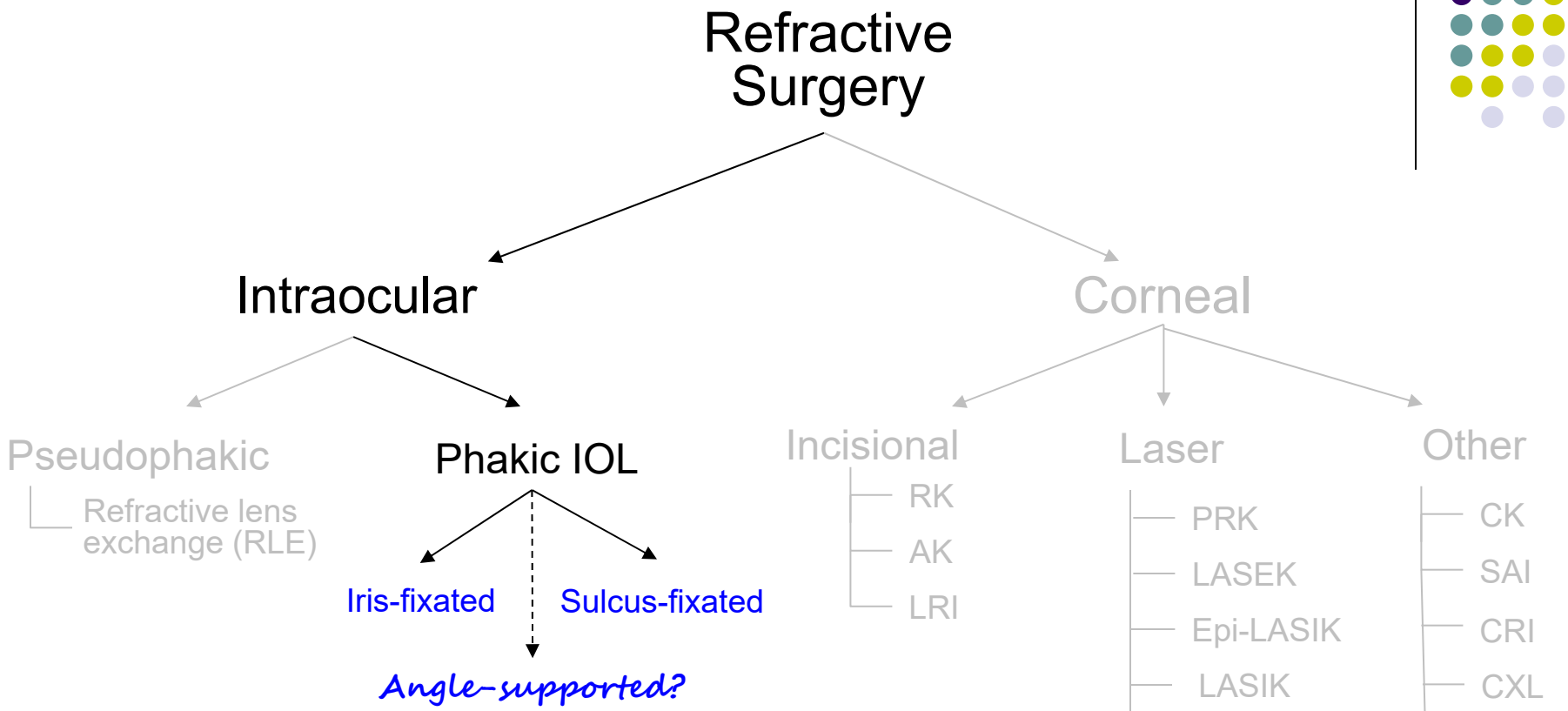




In general, what is the key factor in determining whether a given pt should have RLE vs placement of a phakic IOL (PIOL)?
Presbyopia status. In general, pre-presbyopic pts are offered PIOLs, whereas presbyopic pts are offered RLE.

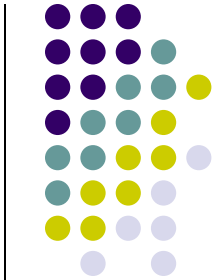
Intraocular Refractive Surgery

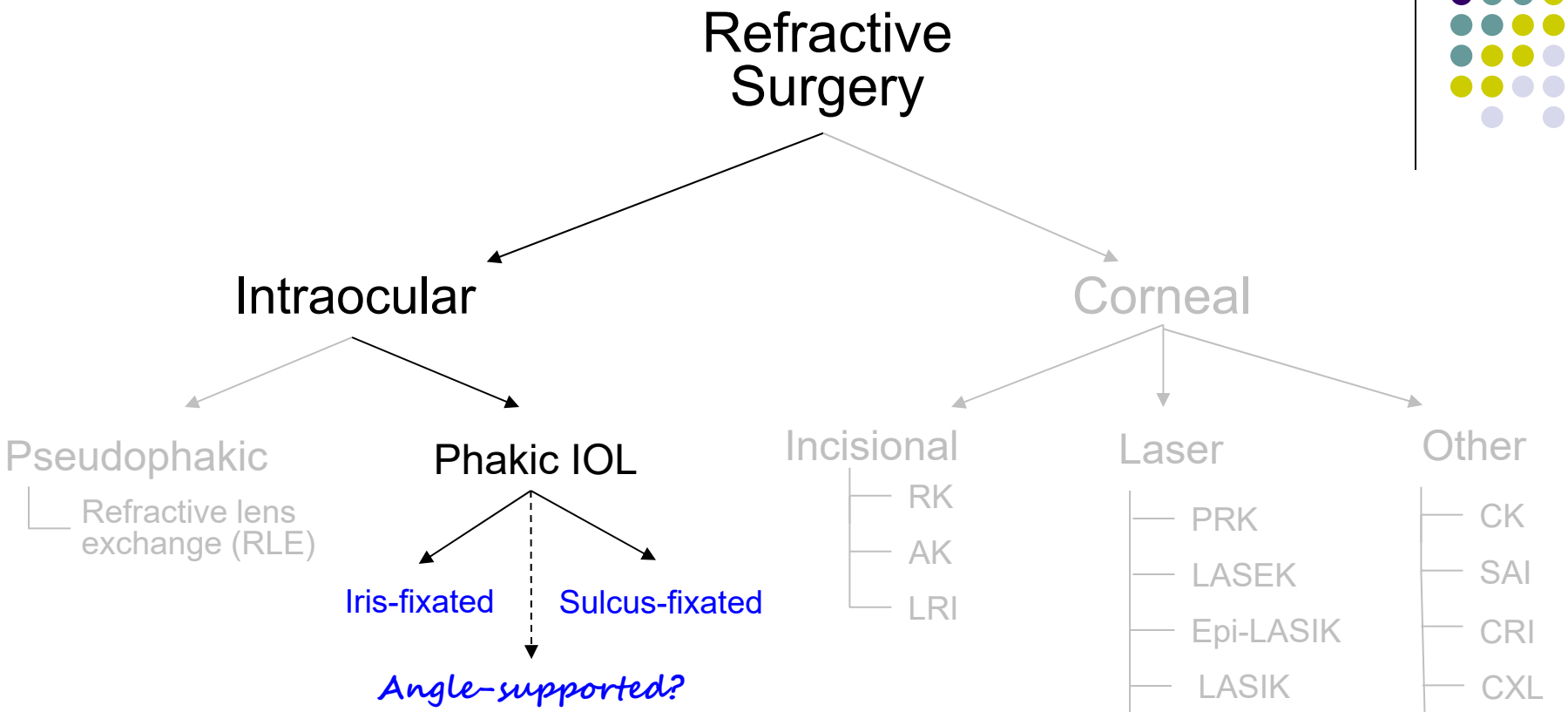




Why are there no angle-*supported PIOLs?*

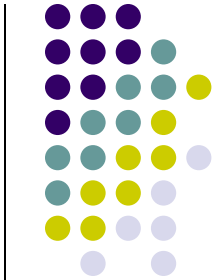
Intraocular Refractive Surgery

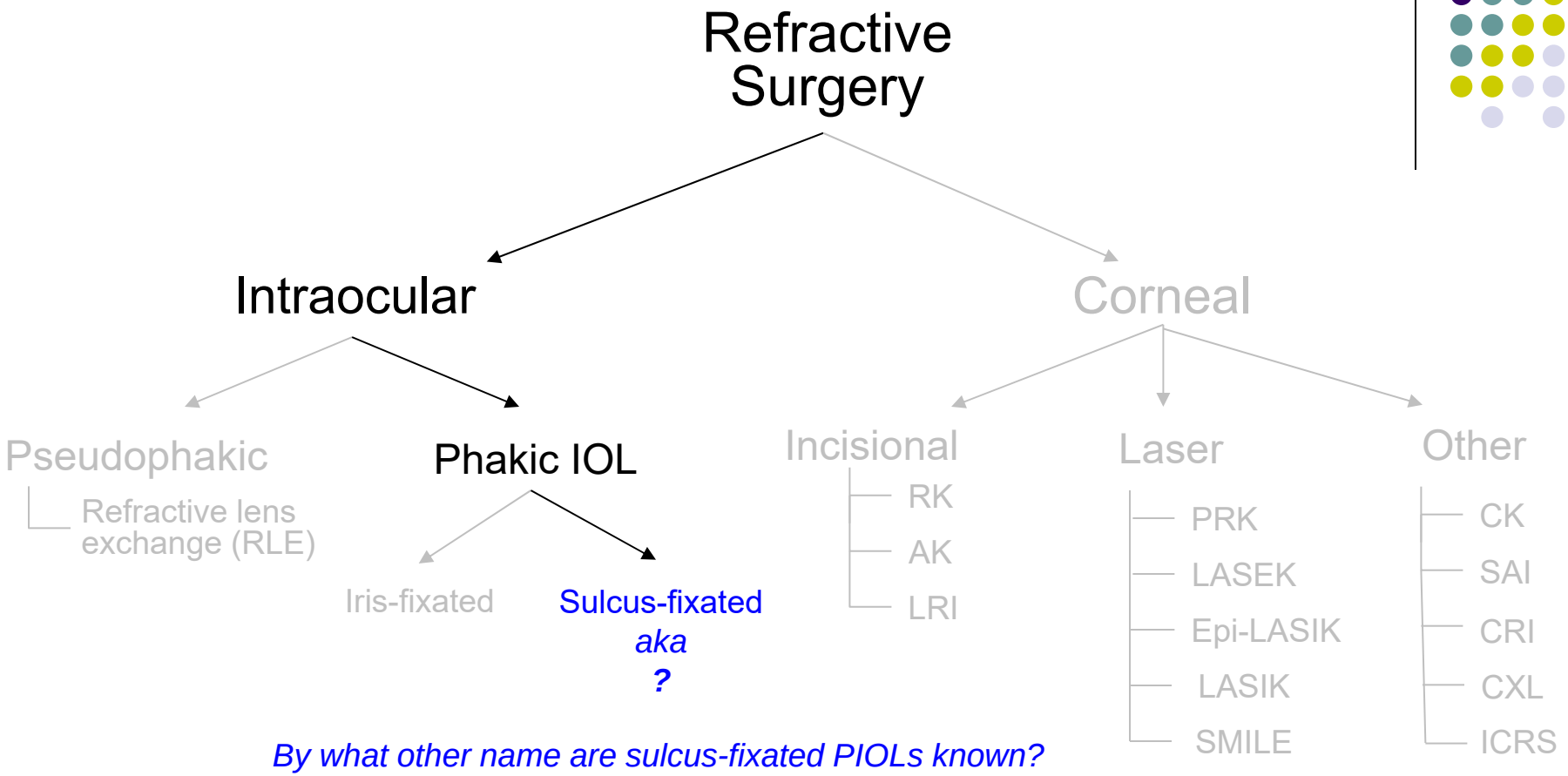




Why are there no angle-*supported PIOLs?*
There are; it's just that none are FDA-approved as of this writing, so they are not available in the US

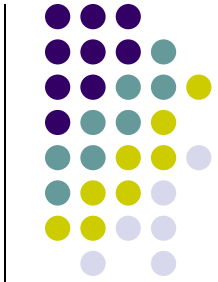
Intraocular Refractive Surgery

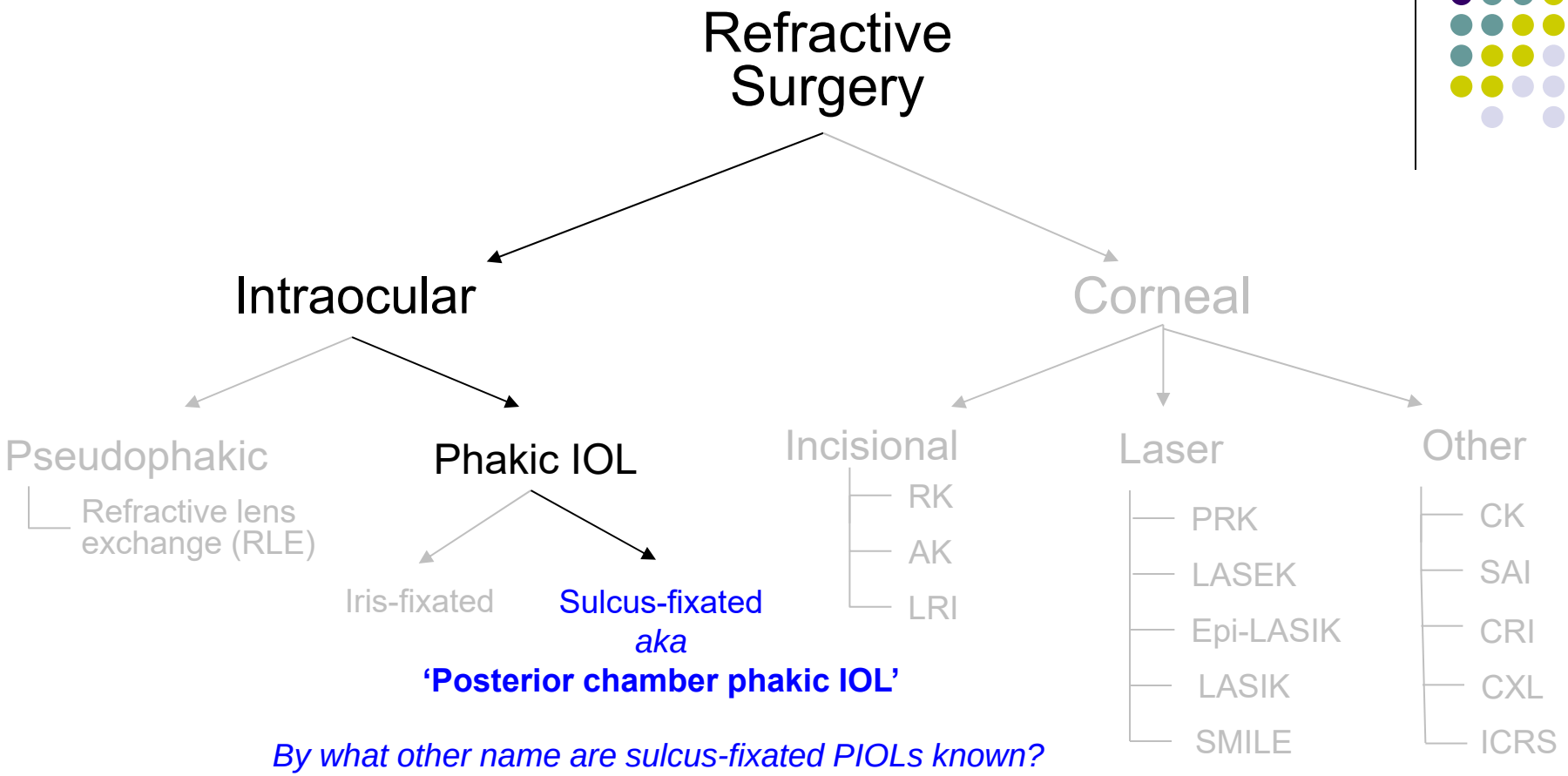




By what other name are sulcus-fixated PIOLs known?

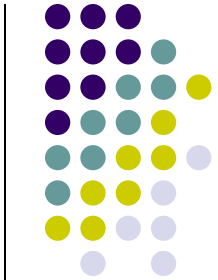
Intraocular Refractive Surgery

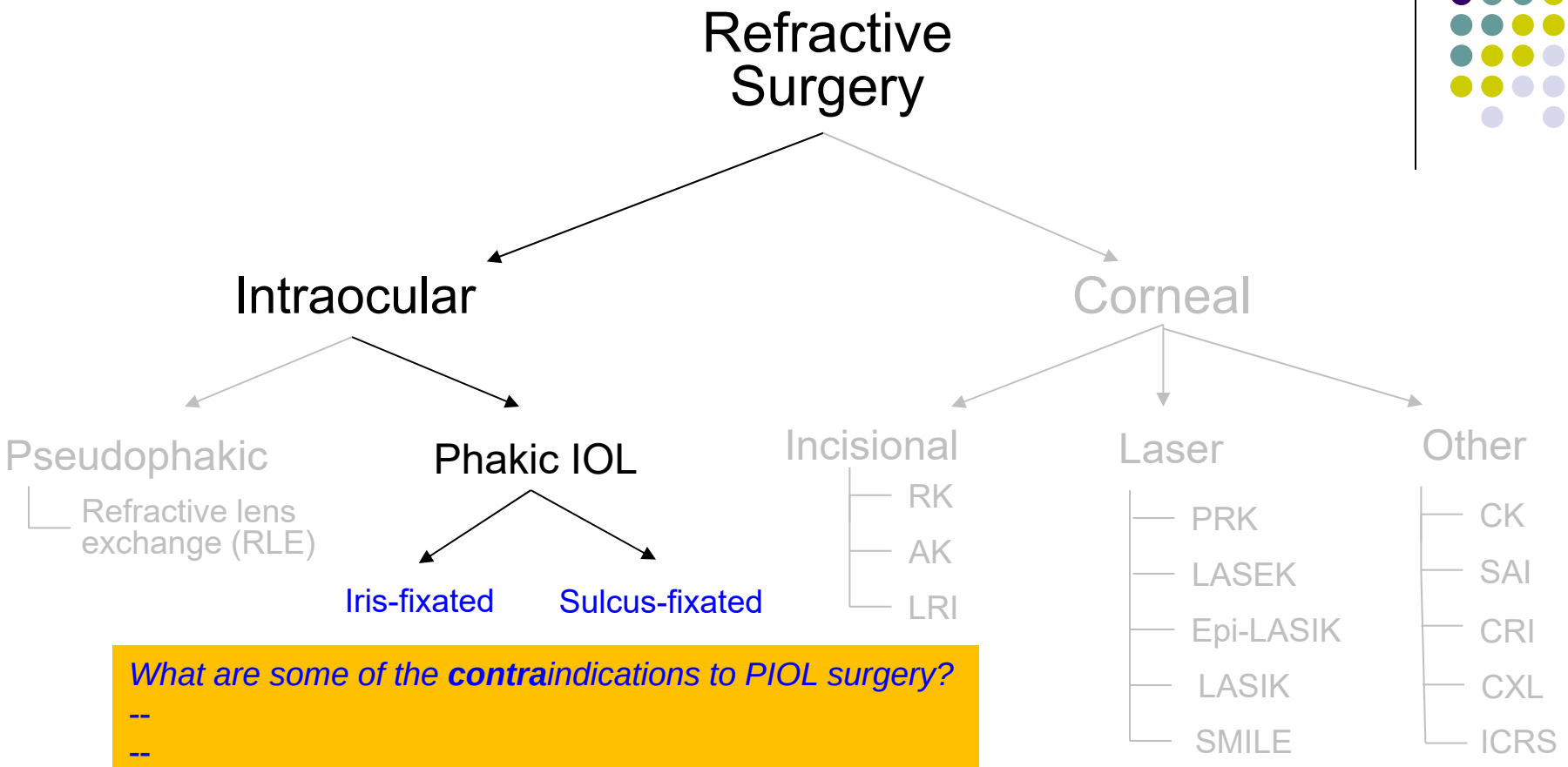




By what other name are sulcus-fixated PIOLs known?

Intraocular Refractive Surgery





*What are some of the **contra**indications to PIOL surgery?*

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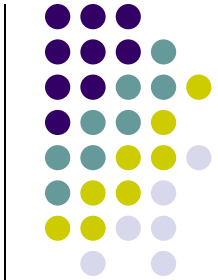
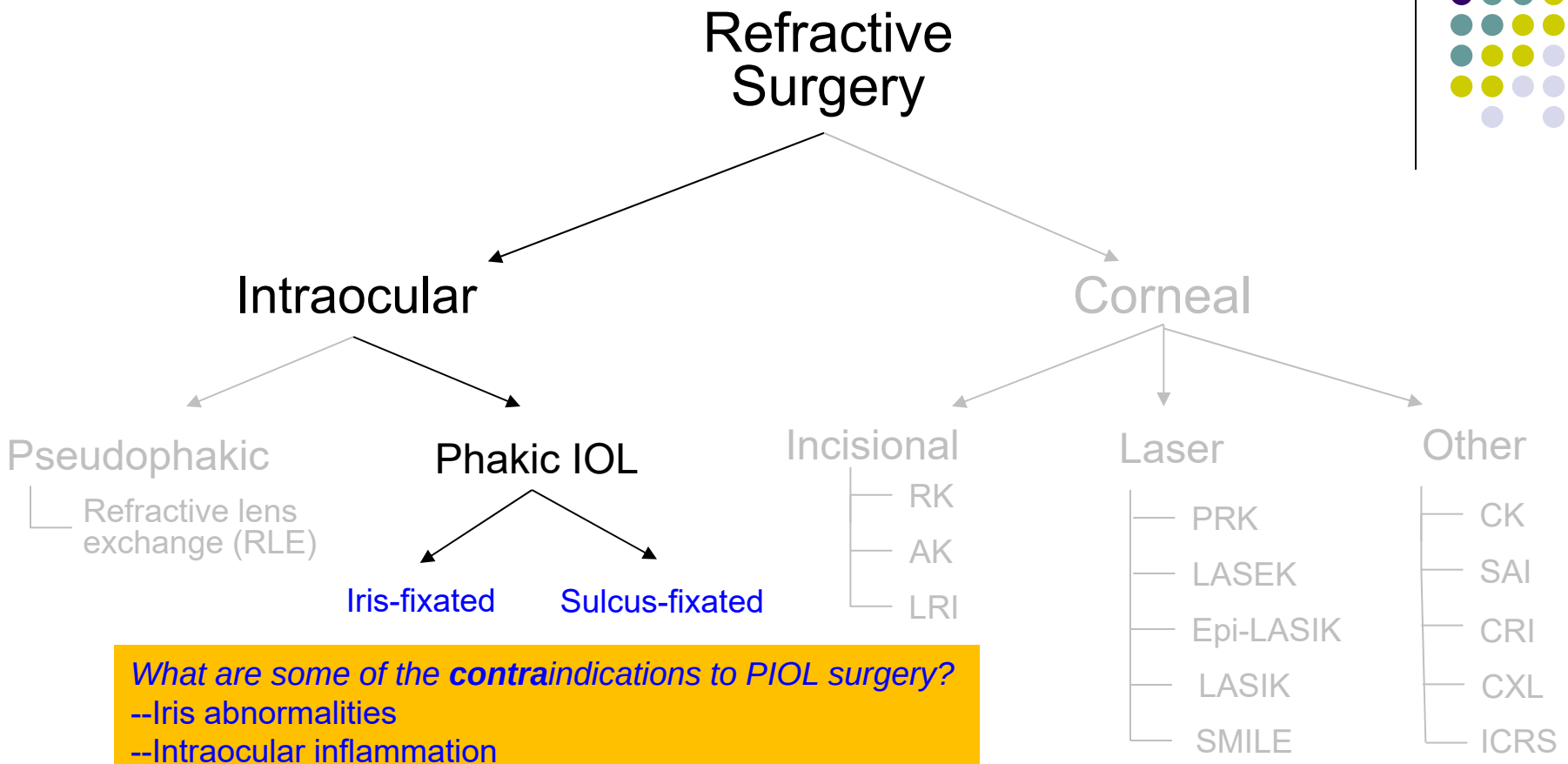
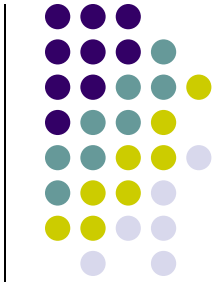
Intraocular Refractive Surgery

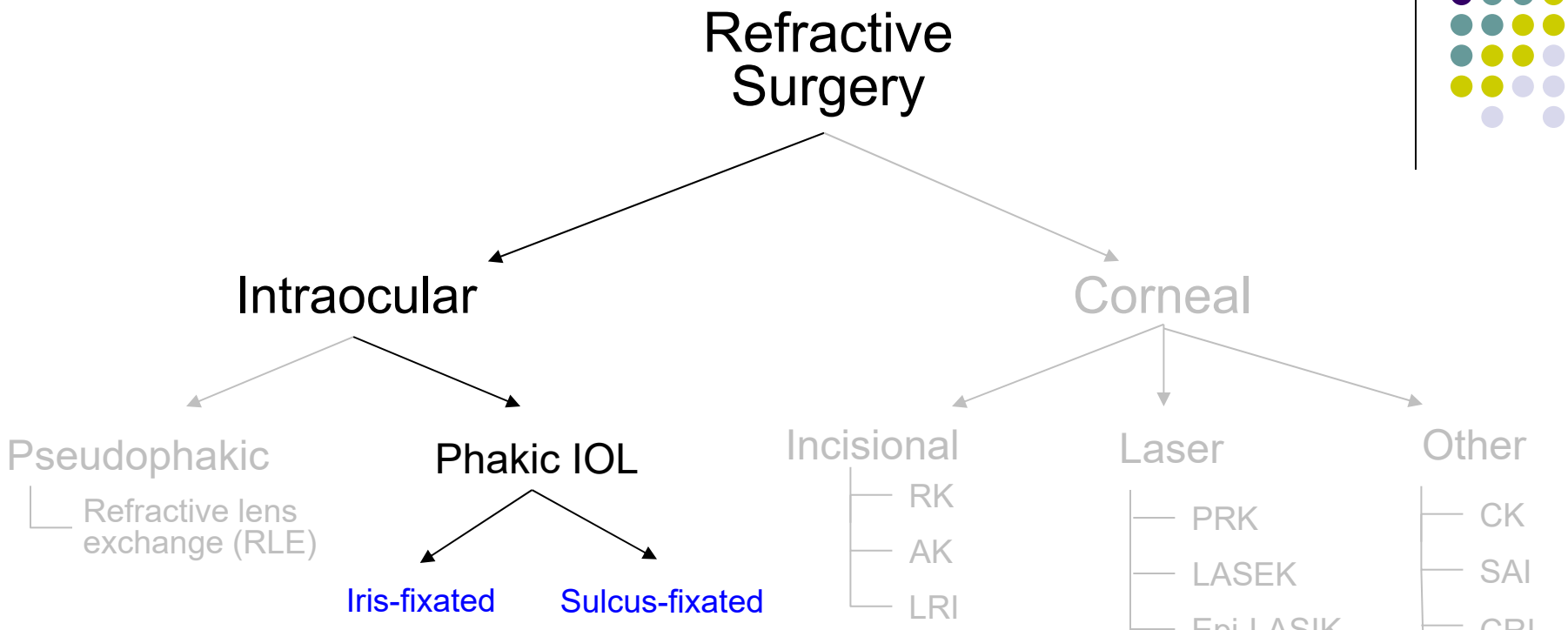




*What are some of the **contra**indications to PIOL surgery?*
--Iris abnormalities
--Intraocular inflammation
--Compromised corneal endothelium
--Cataract
--Glaucoma
--Shallow AC

Intraocular Refractive Surgery





*What are some of the **contra**indications to PIOL surgery?*

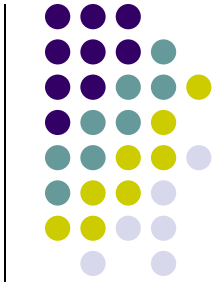
--Iris abnormalities

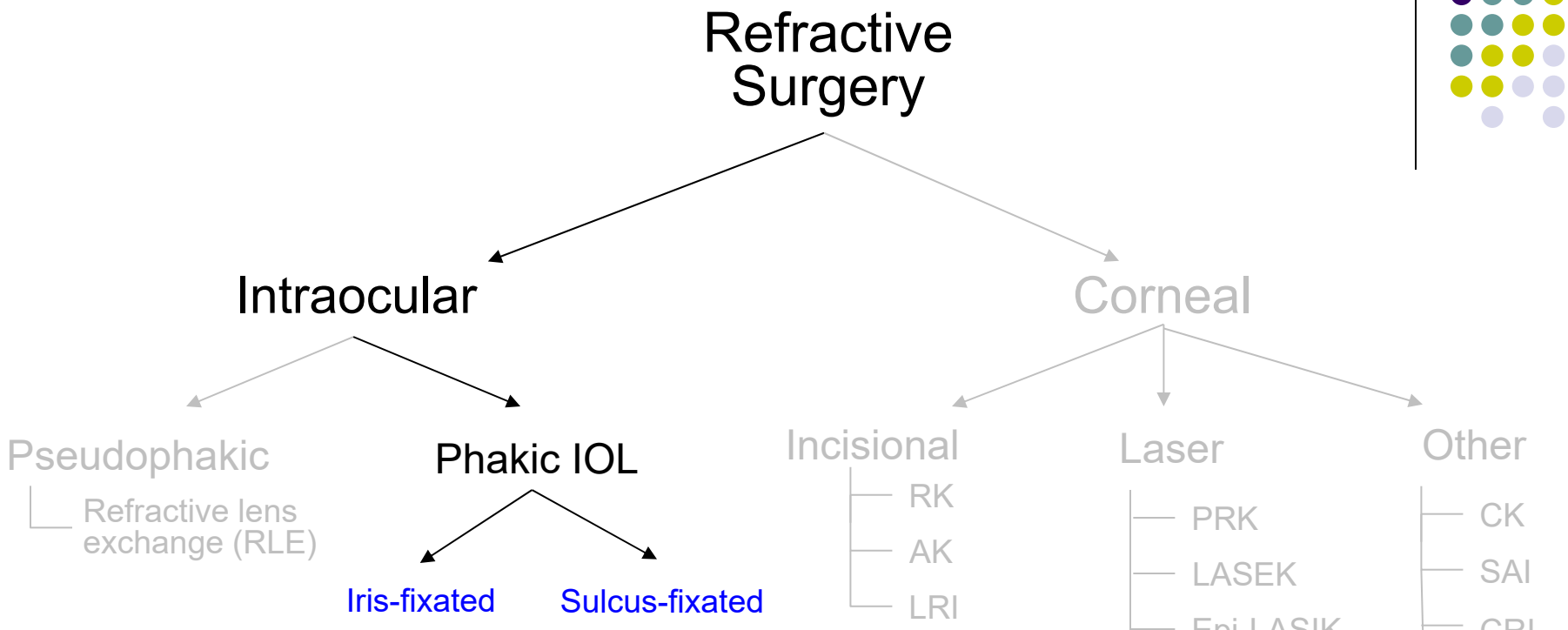
--Intraocular inflammation

--Compromised corneal endothelium

How should the corneal endothelium be evaluated?

Intraocular Refractive Surgery





*What are some of the **contra**indications to PIOL surgery?*

--Iris abnormalities

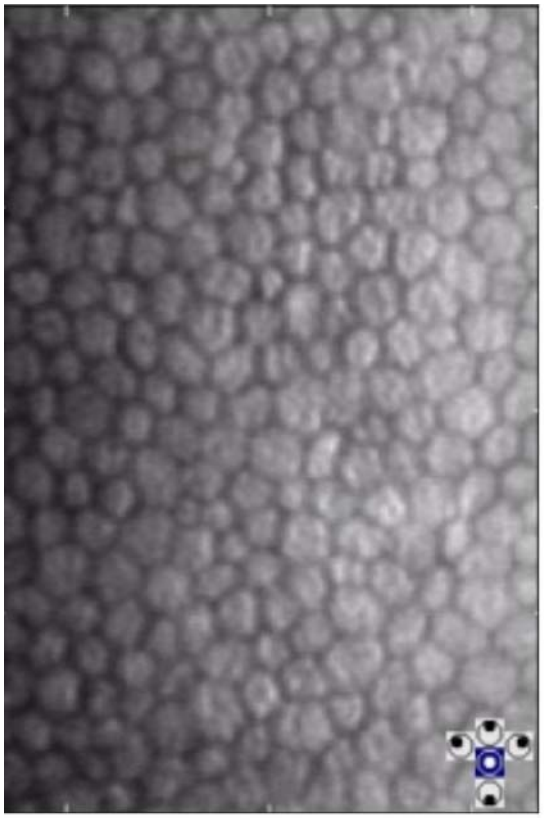
--Intraocular inflammation

--Compromised corneal endothelium

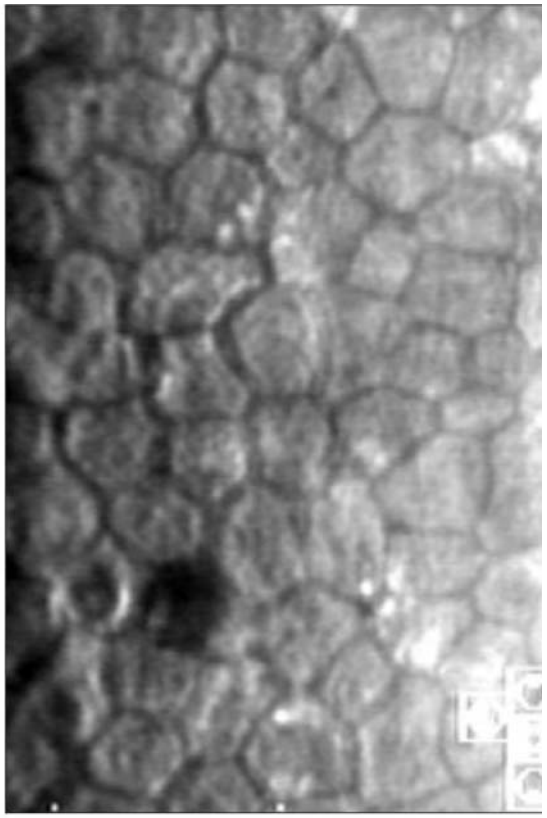
How should the corneal endothelium be evaluated?

Via specular or confocal microscopy

Intraocular Refractive Surgery



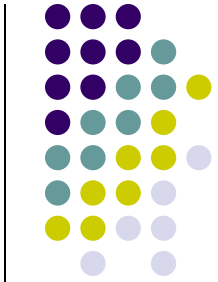
Normal Endothelium
High Cell Density

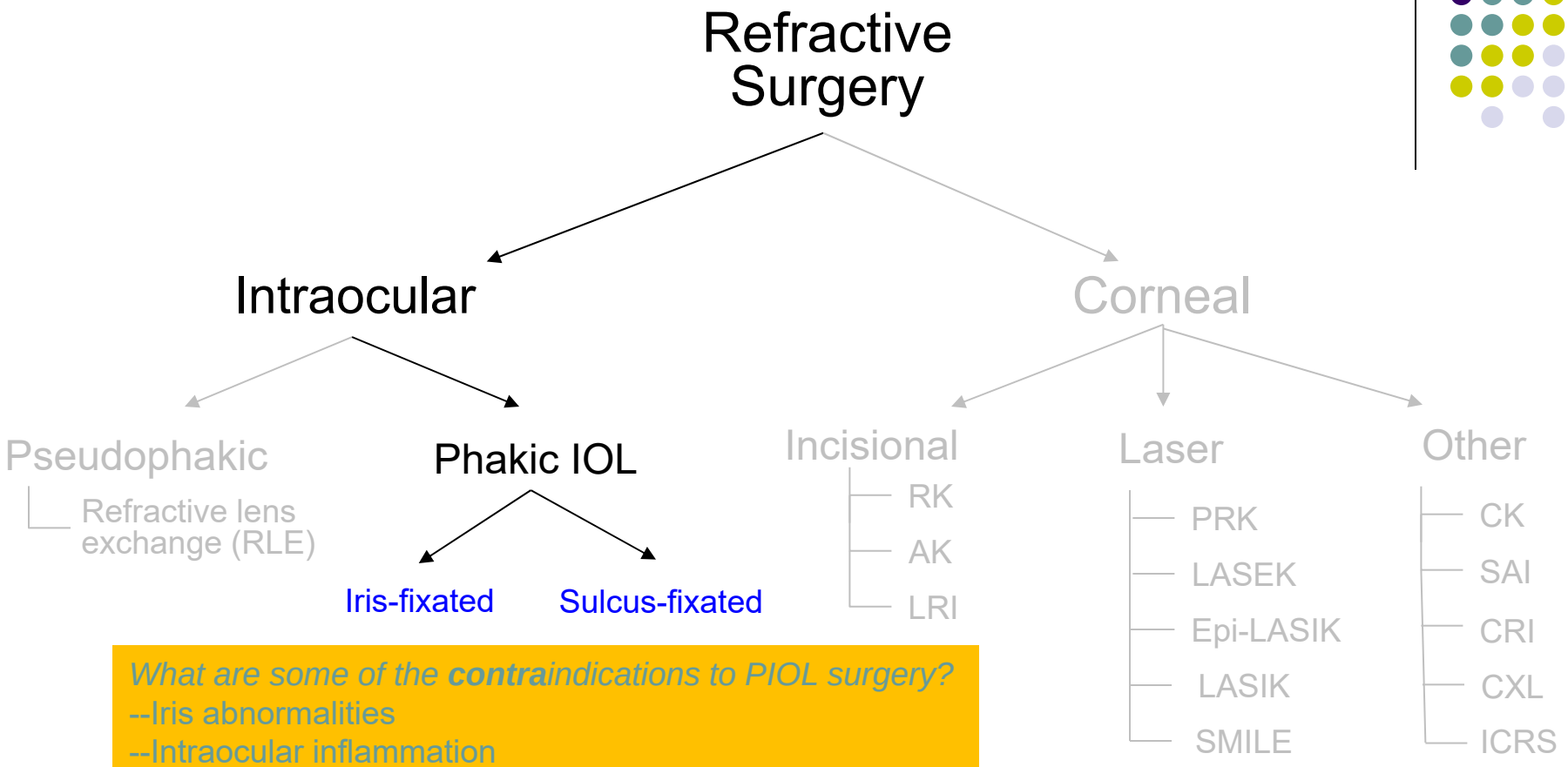


Very Low Density
High Surgical Risk

Corneal endothelium: Specular microscopy

Intraocular Refractive Surgery





*What are some of the **contra**indications to PIOL surgery?*

--Iris abnormalities

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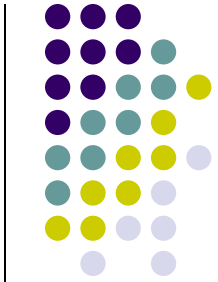
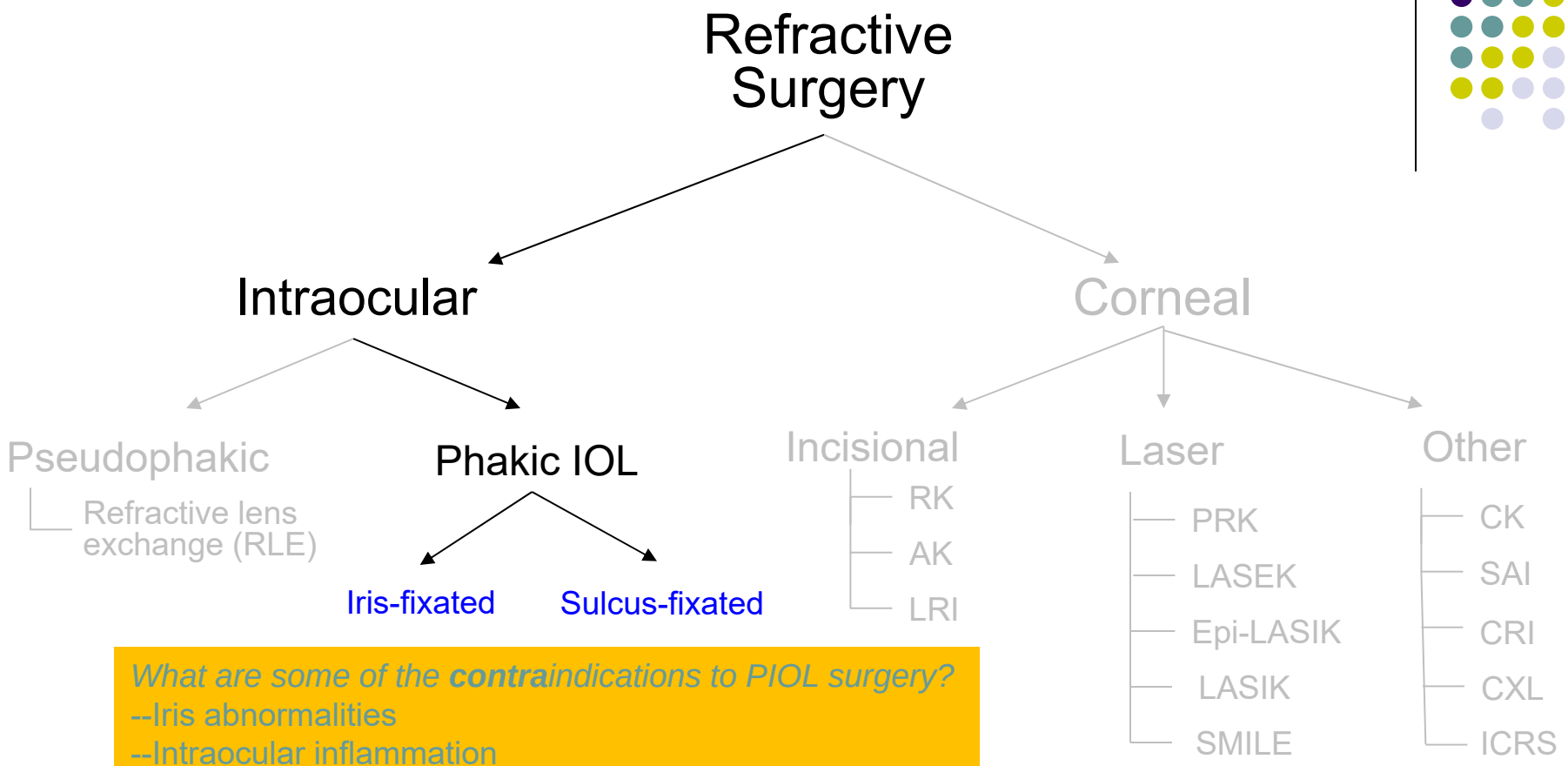
Why is a shallow AC a contraindication for PIOL placement?

Intraocular Refractive Surgery





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--Iris abnormalities

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--Compromised

--Cataract

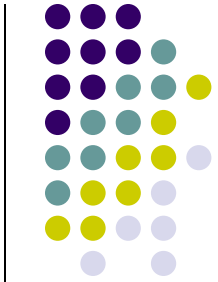
--Glaucoma

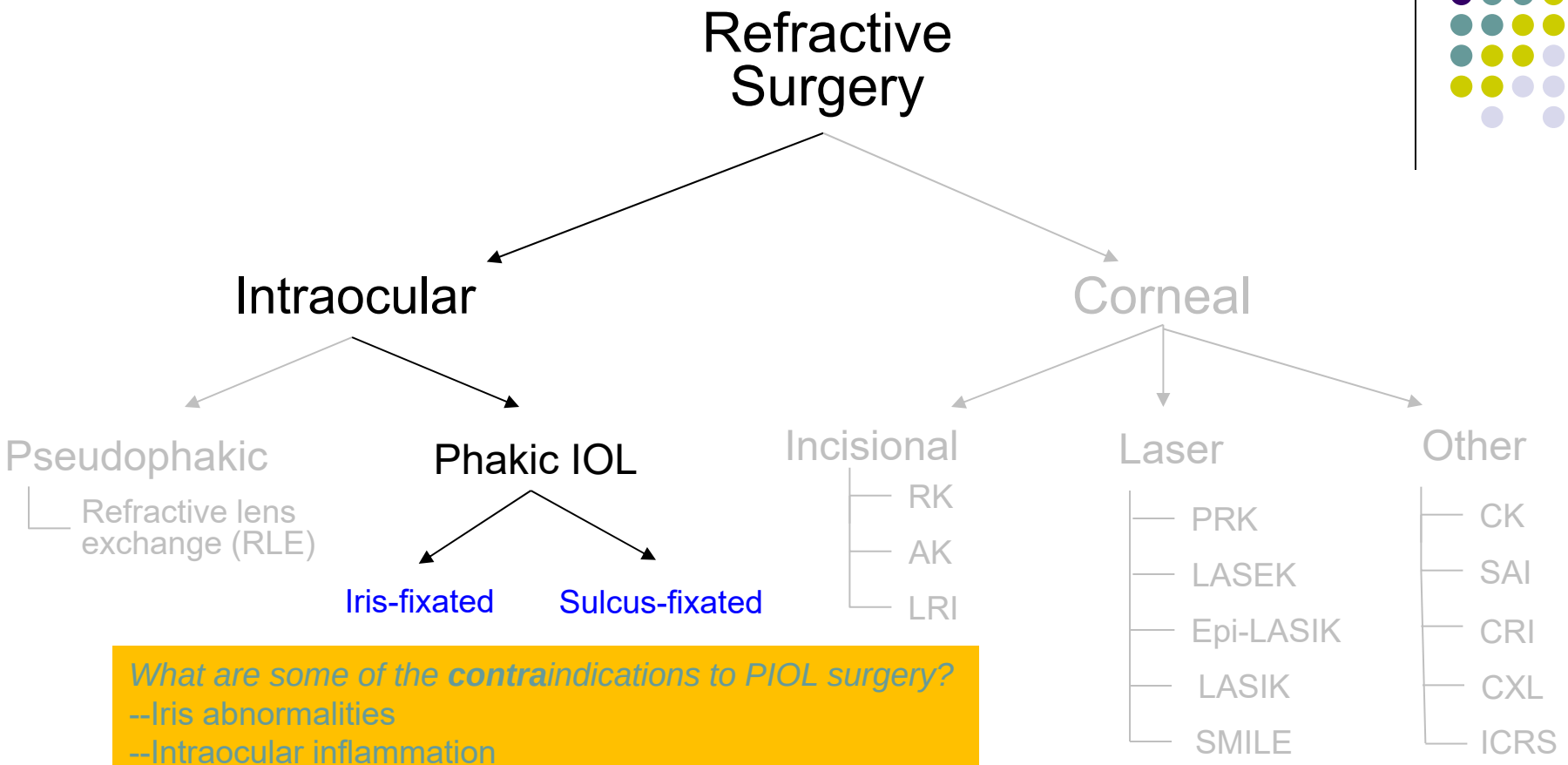
--Shallow AC

Why is a shallow AC a contraindication for PIOL placement?

Because it puts the eye at risk for damage to the corneal endothelium, the iris, and/or the angle

Intraocular Refractive Surgery





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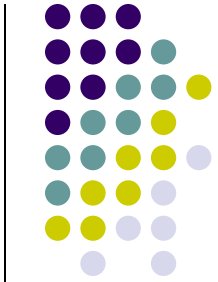
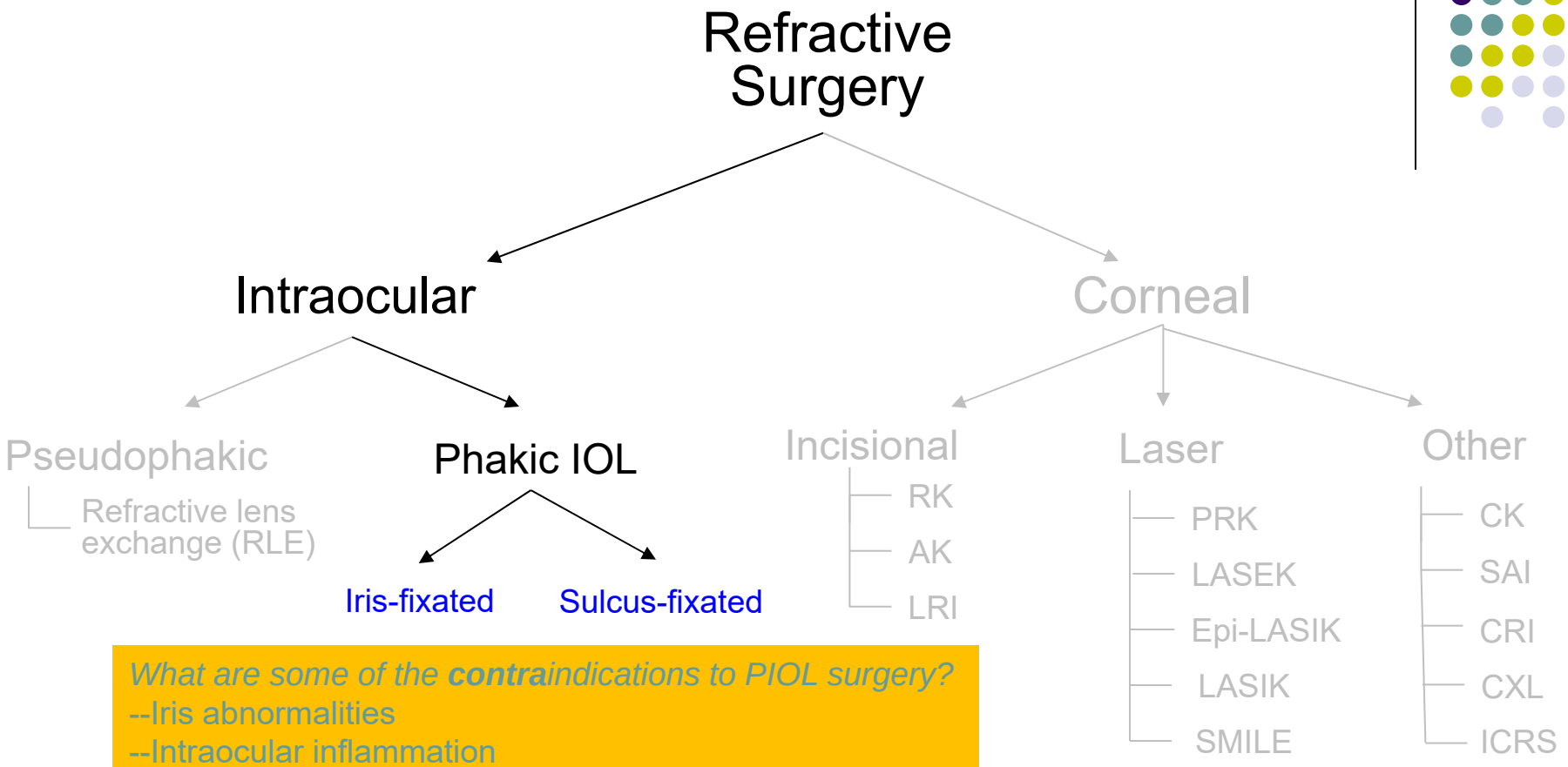
Why is a shallow AC a contraindication for PIOL placement?
Because it puts the eye at risk for damage to the corneal endothelium, the iris, and/or the angle

What is the generally accepted minimum AC depth needed to qualify for PIOL placement?

Intraocular Refractive Surgery





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--Iris abnormalities
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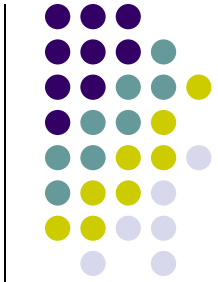
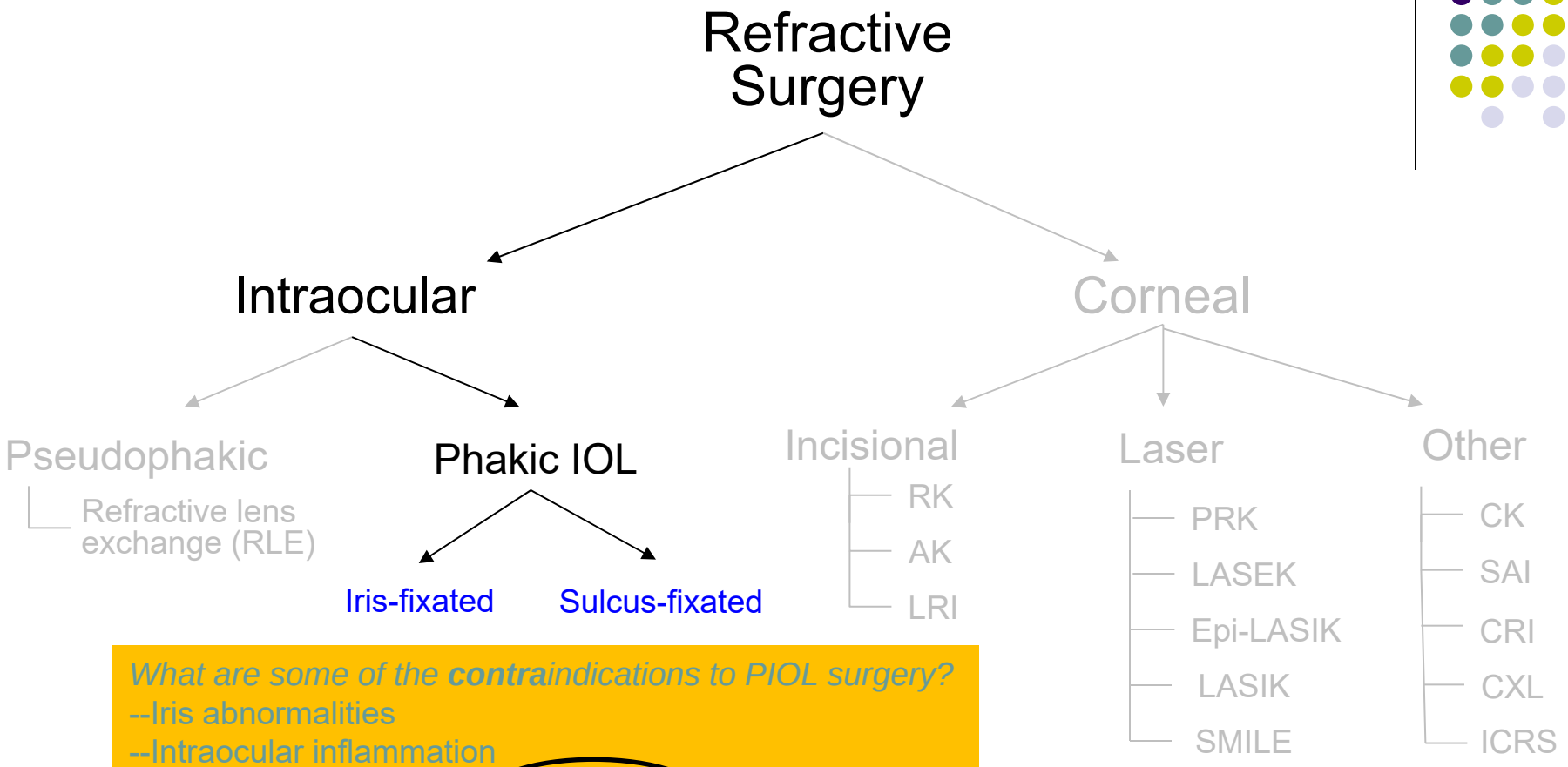
Why is a shallow AC a contraindication for PIOL placement?
Because it puts the eye at risk for damage to the corneal endothelium, the iris, and/or the angle

What is the generally accepted minimum AC depth needed to qualify for PIOL placement?
3.2 mm

Intraocular Refractive Surgery





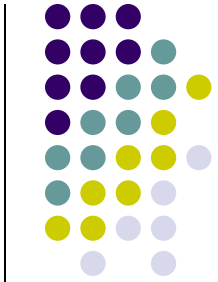
*What are some of the **contra**indications to PIOL surgery?*
--Iris abnormalities
--Intraocular inflammation
--Compromised
--Cataract
--Glaucoma
--Shallow AC

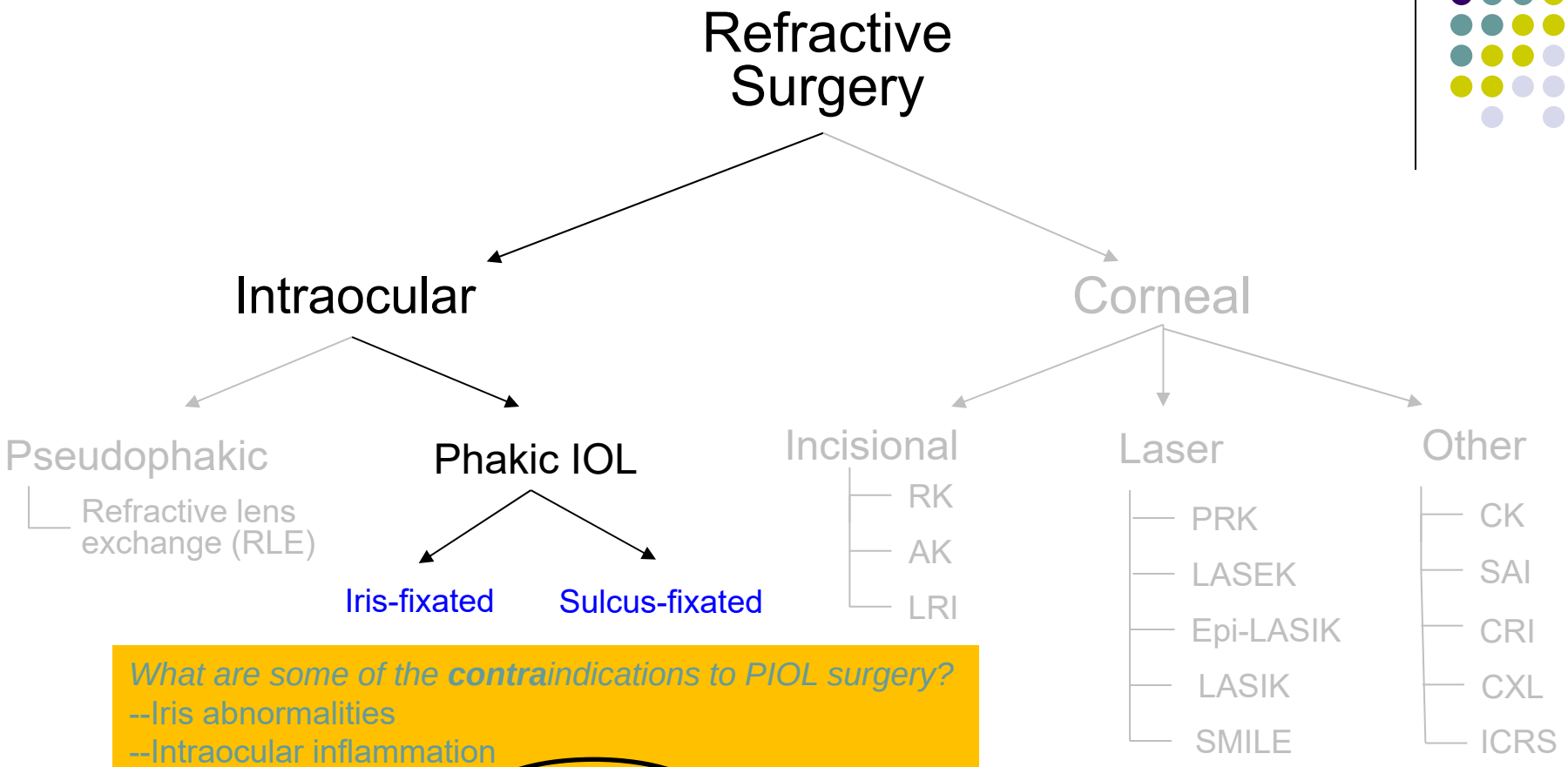
*Why is a **shallow AC** a contraindication for PIOL placement?*
Because it puts the eye at risk for damage to the corneal
e

Refractively speaking, what sort of eye is going to have a very shallow AC?

W *to qualify for PIOL placement?*
3.2 mm

Intraocular Refractive Surgery





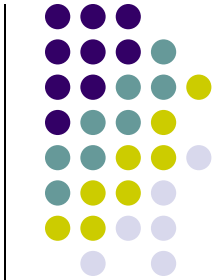
*What are some of the **contra**indications to PIOL surgery?*
--Iris abnormalities
--Intraocular inflammation
--Compromised
--Cataract
--Glaucoma
--Shallow AC

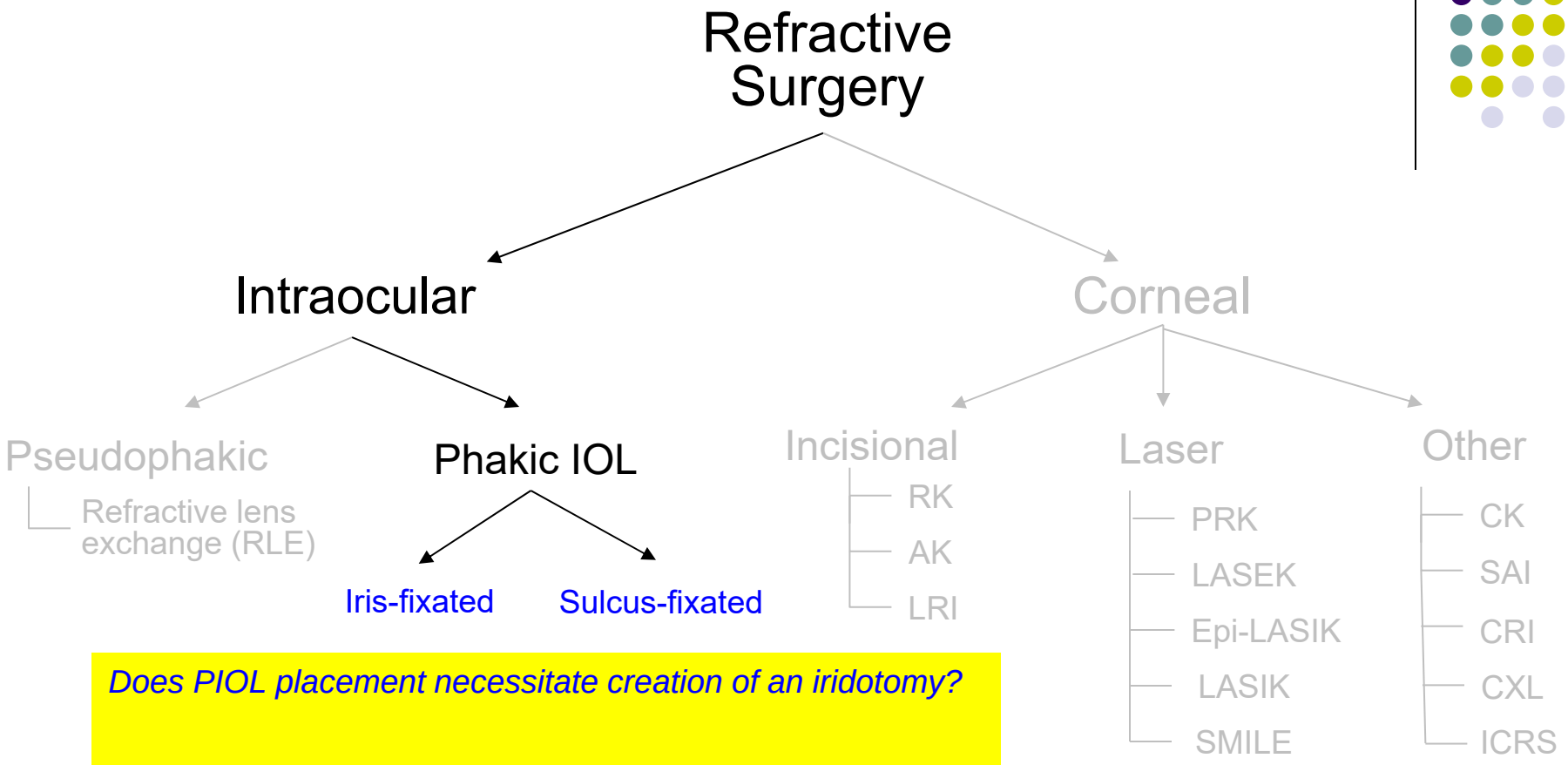
*Why is a **shallow AC** a contraindication for PIOL placement?*
Because it puts the eye at risk for damage to the corneal
e

Refractively speaking, what sort of eye is going to have a very shallow AC?
A highly hyperopic one

W *to qualify for PIOL placement?*
3.2 mm

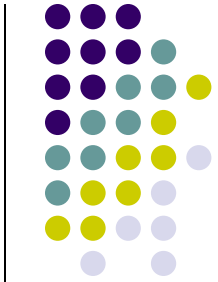
Intraocular Refractive Surgery

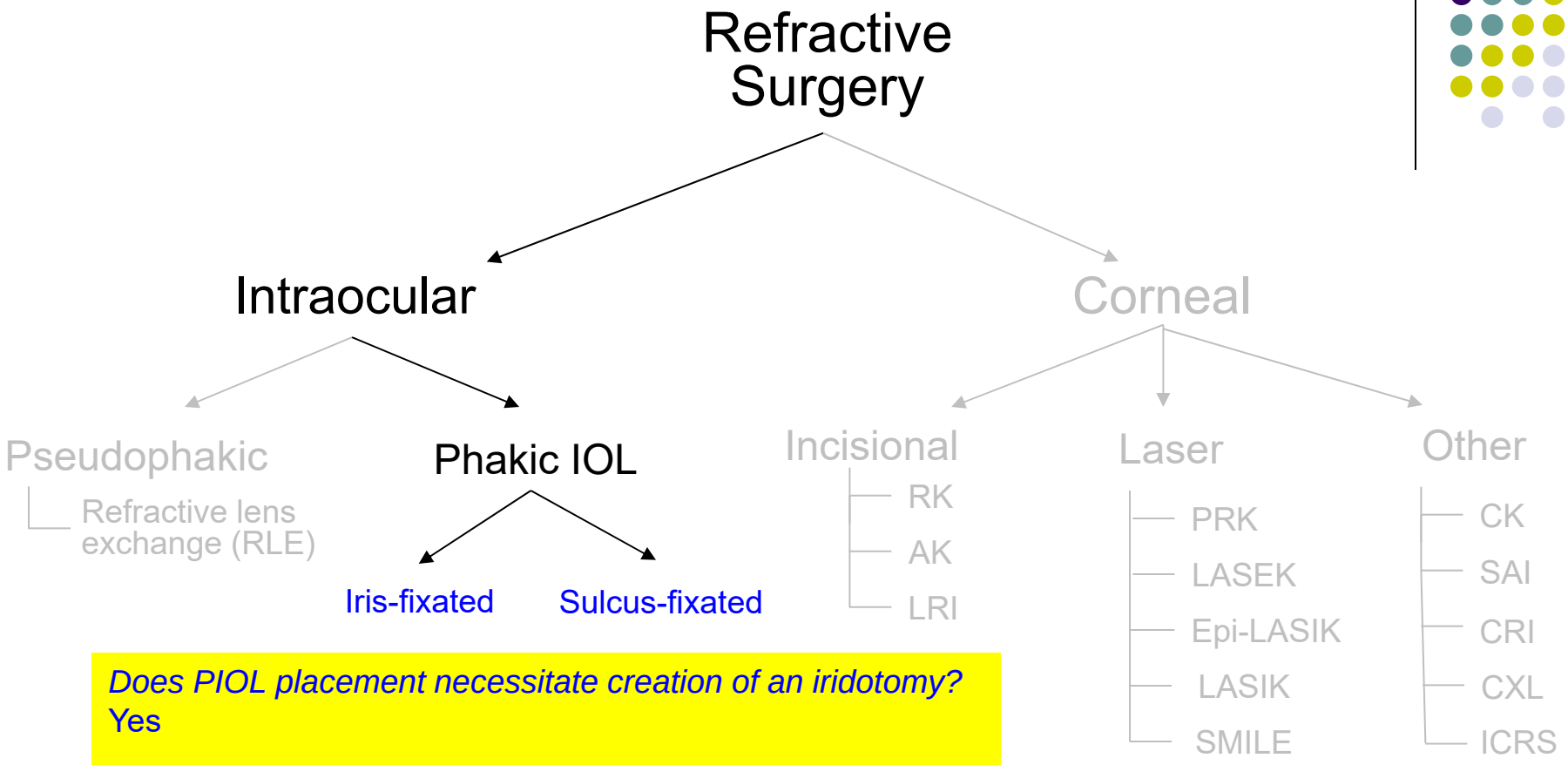




Does PIOL placement necessitate creation of an iridotomy?

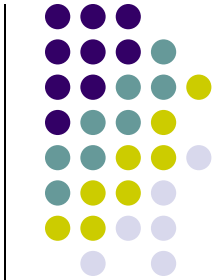
Intraocular Refractive Surgery

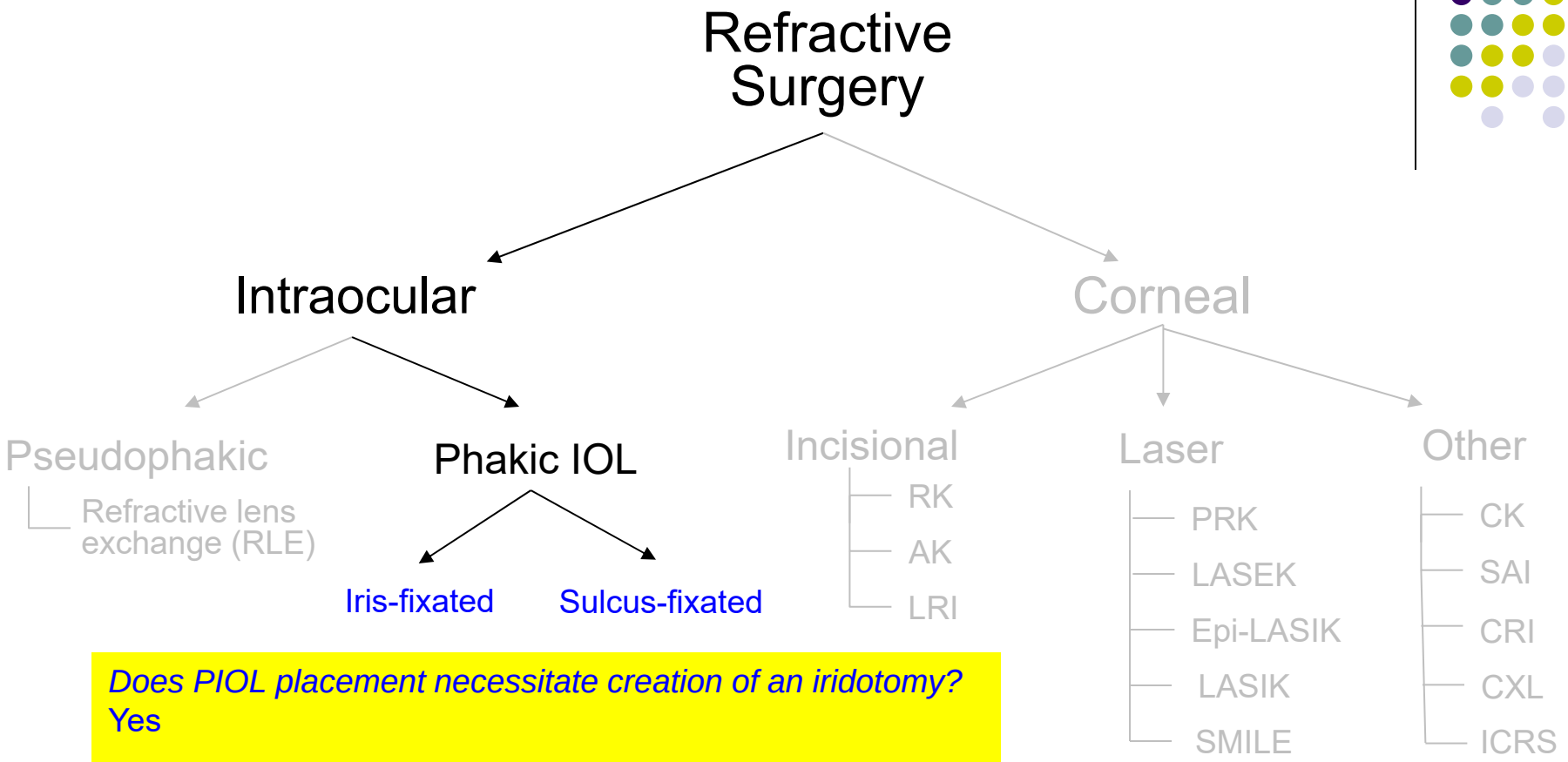




Does PIOL placement necessitate creation of an iridotomy?
Yes

Intraocular Refractive Surgery

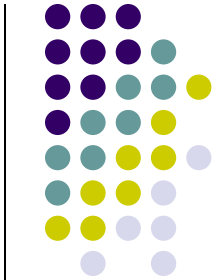


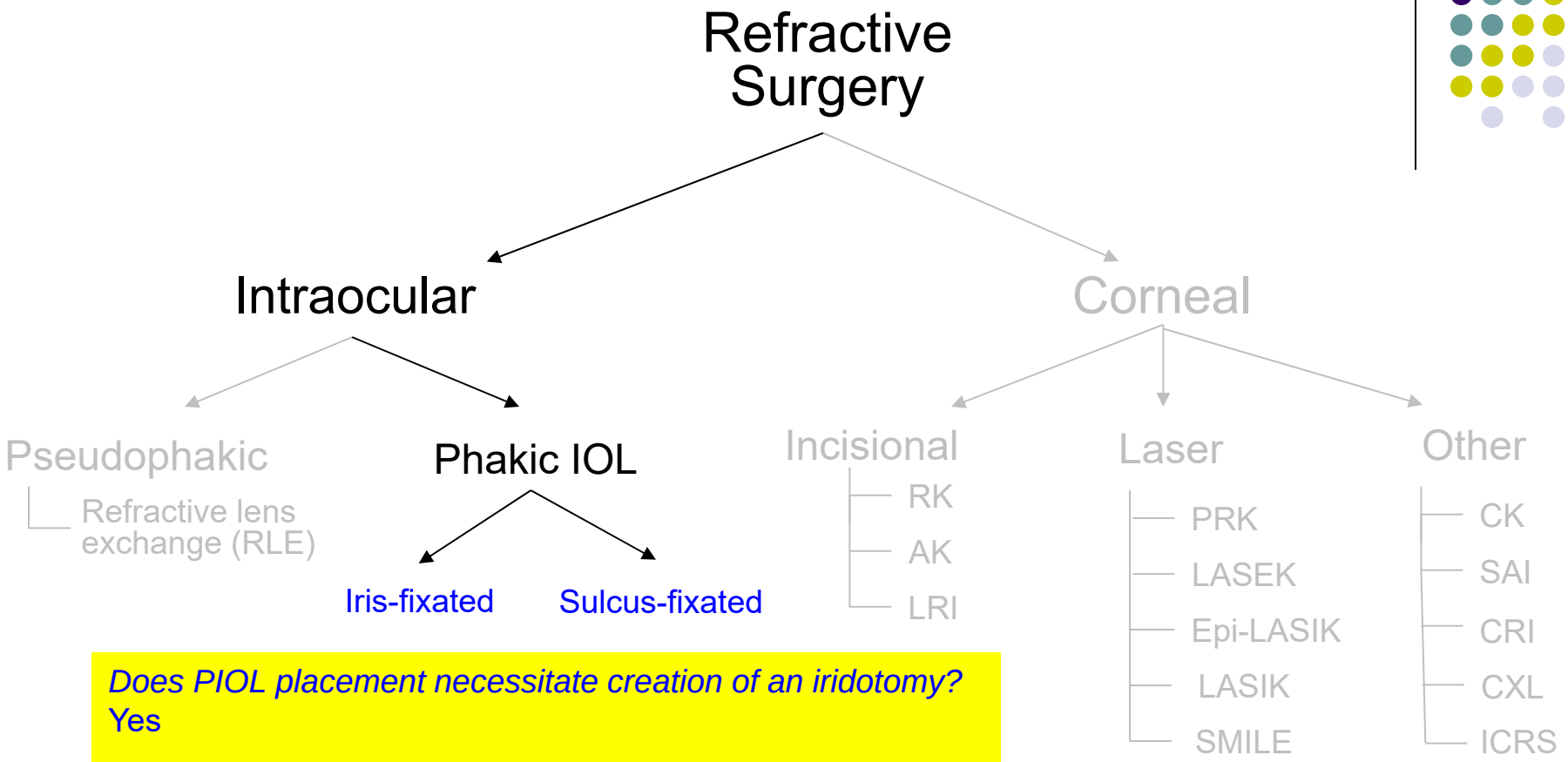


Does PIOL placement necessitate creation of an iridotomy?
Yes

Should the iridotomy be created at the time of PIOL surgery, or prior to it (ie, LPI as an office-based procedure)?

Intraocular Refractive Surgery

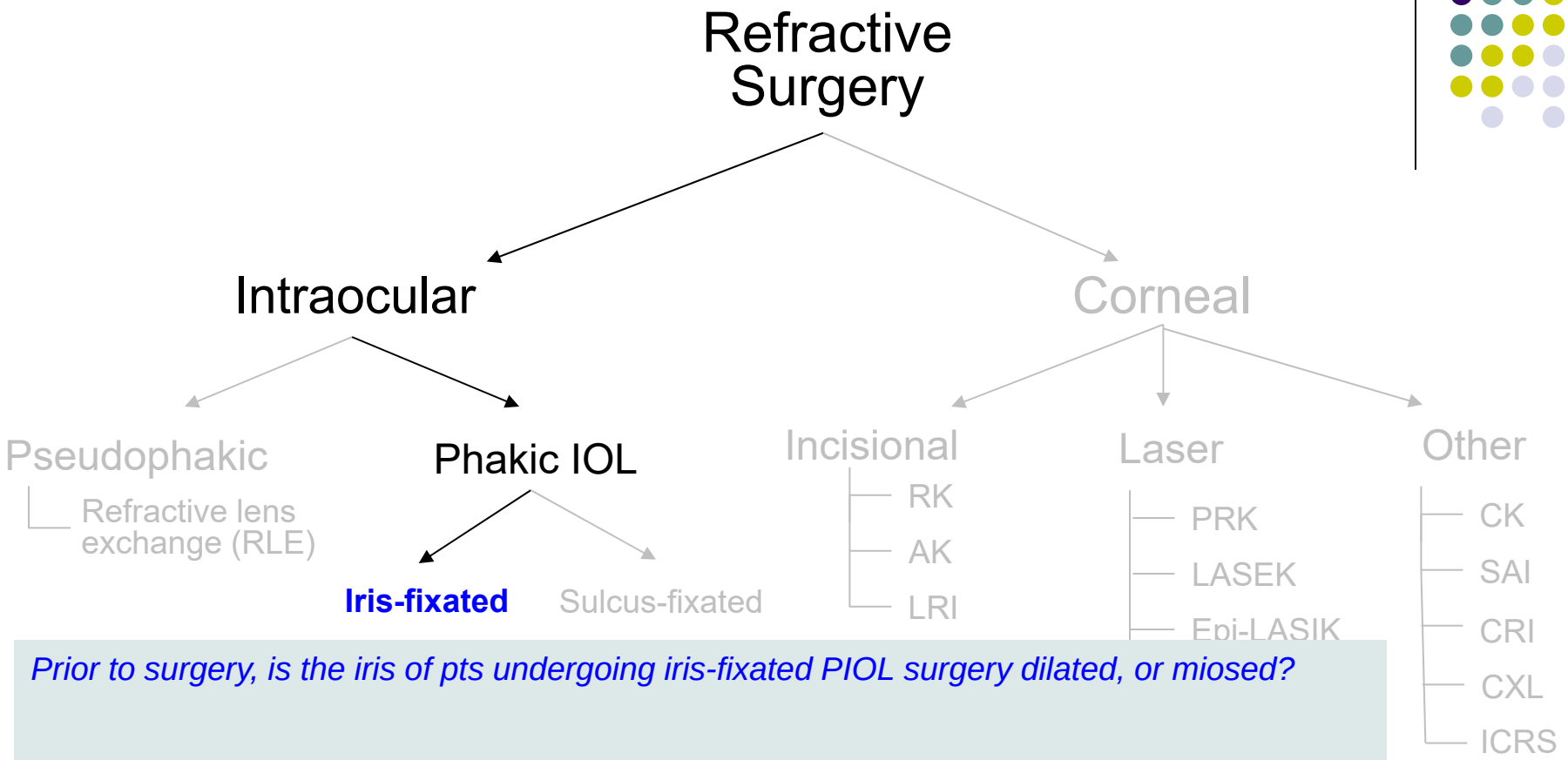




Does PIOL placement necessitate creation of an iridotomy?
Yes

Should the iridotomy be created at the time of PIOL surgery, or prior to it (ie, LPI as an office-based procedure)?
Either is fine

Intraocular Refractive Surgery



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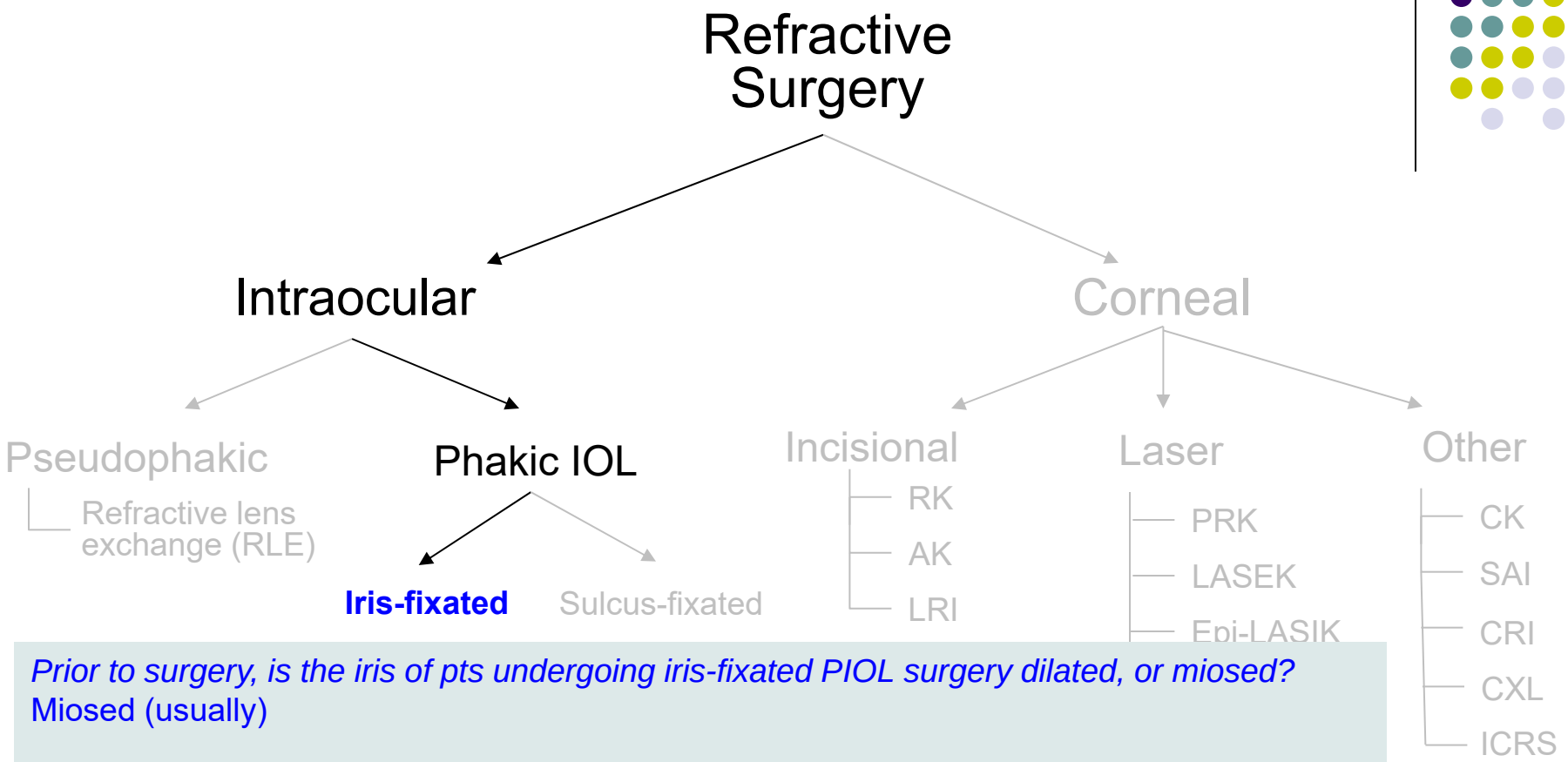

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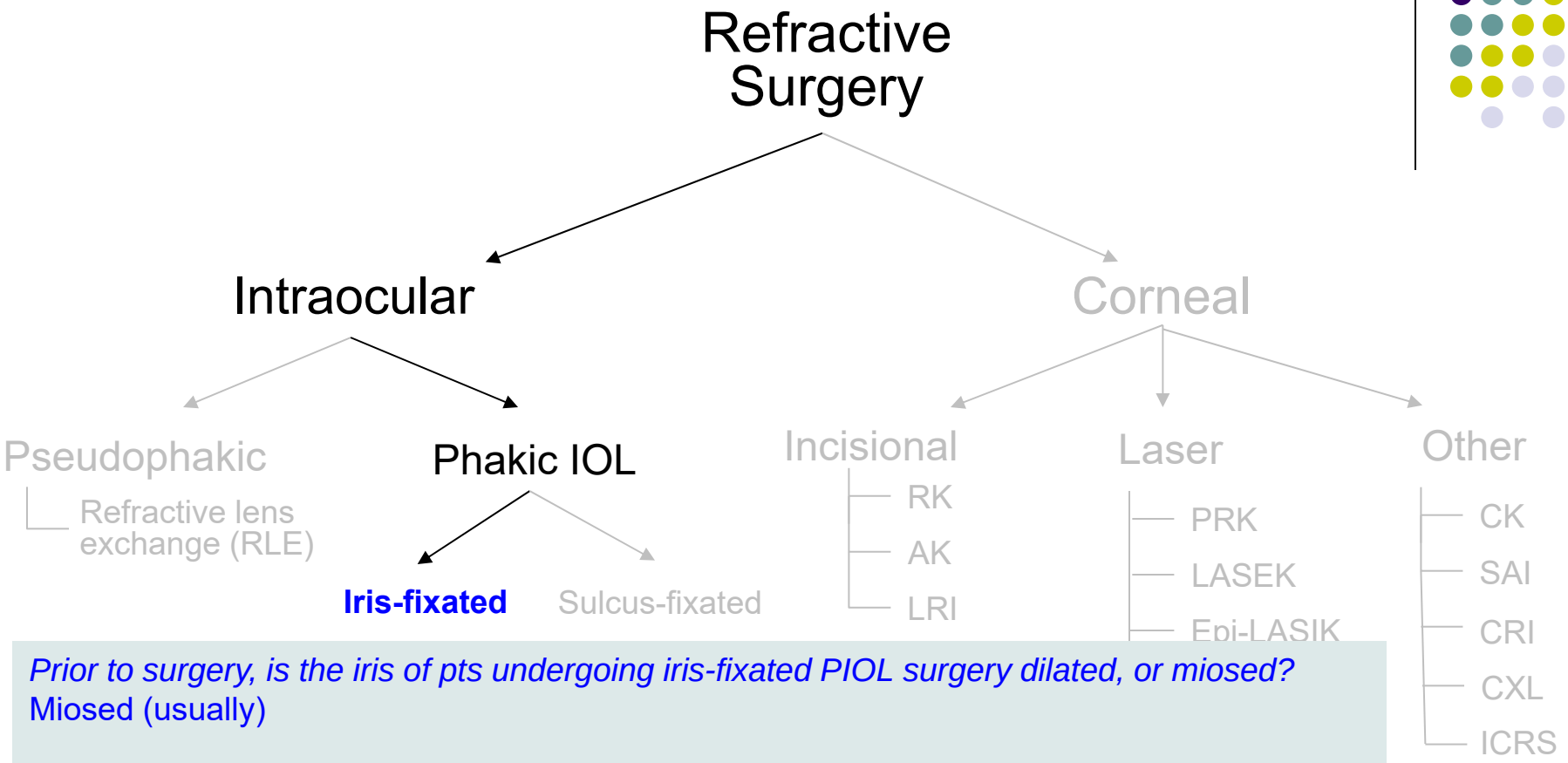
Intraocular Refractive Surgery



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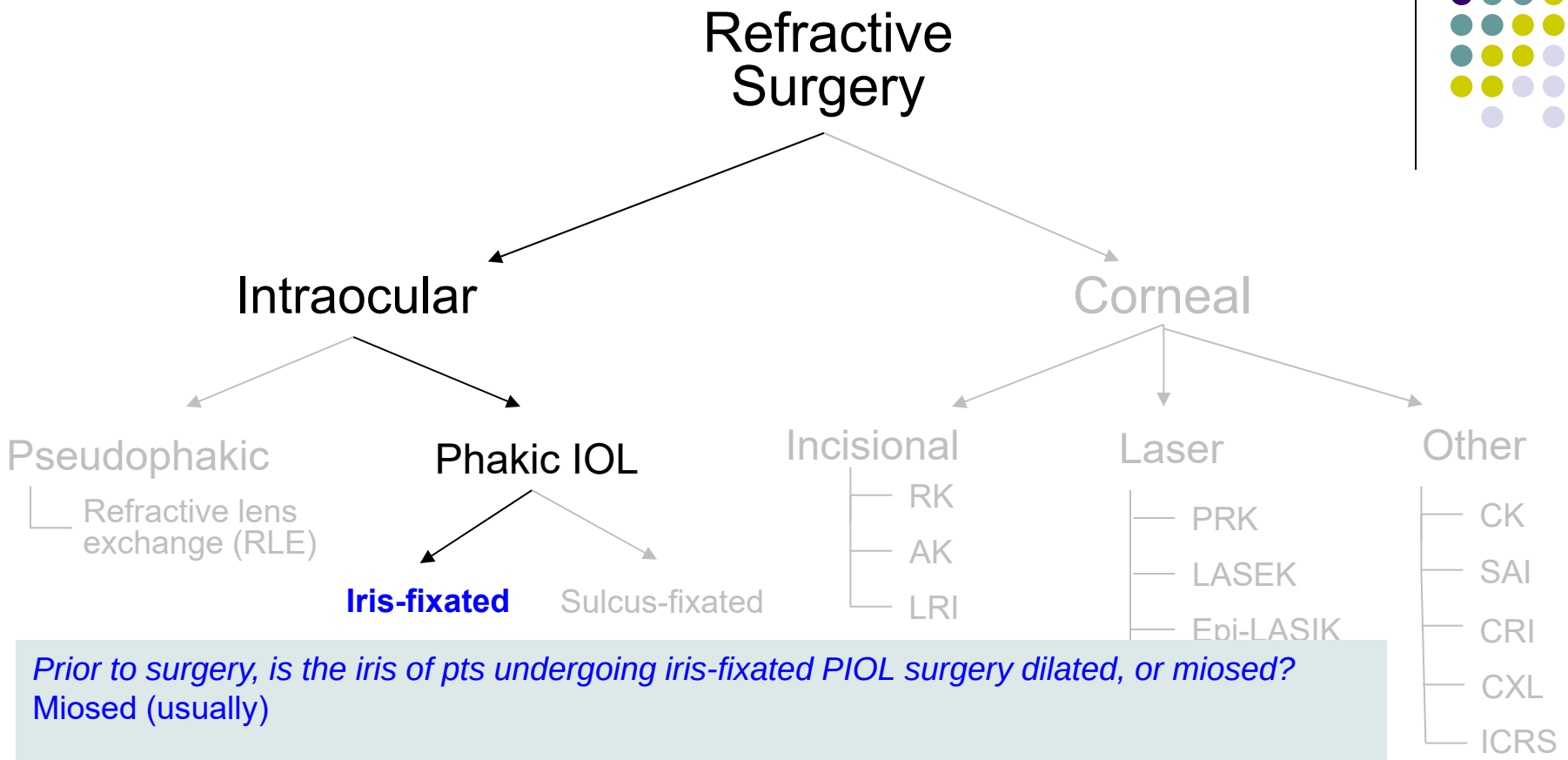

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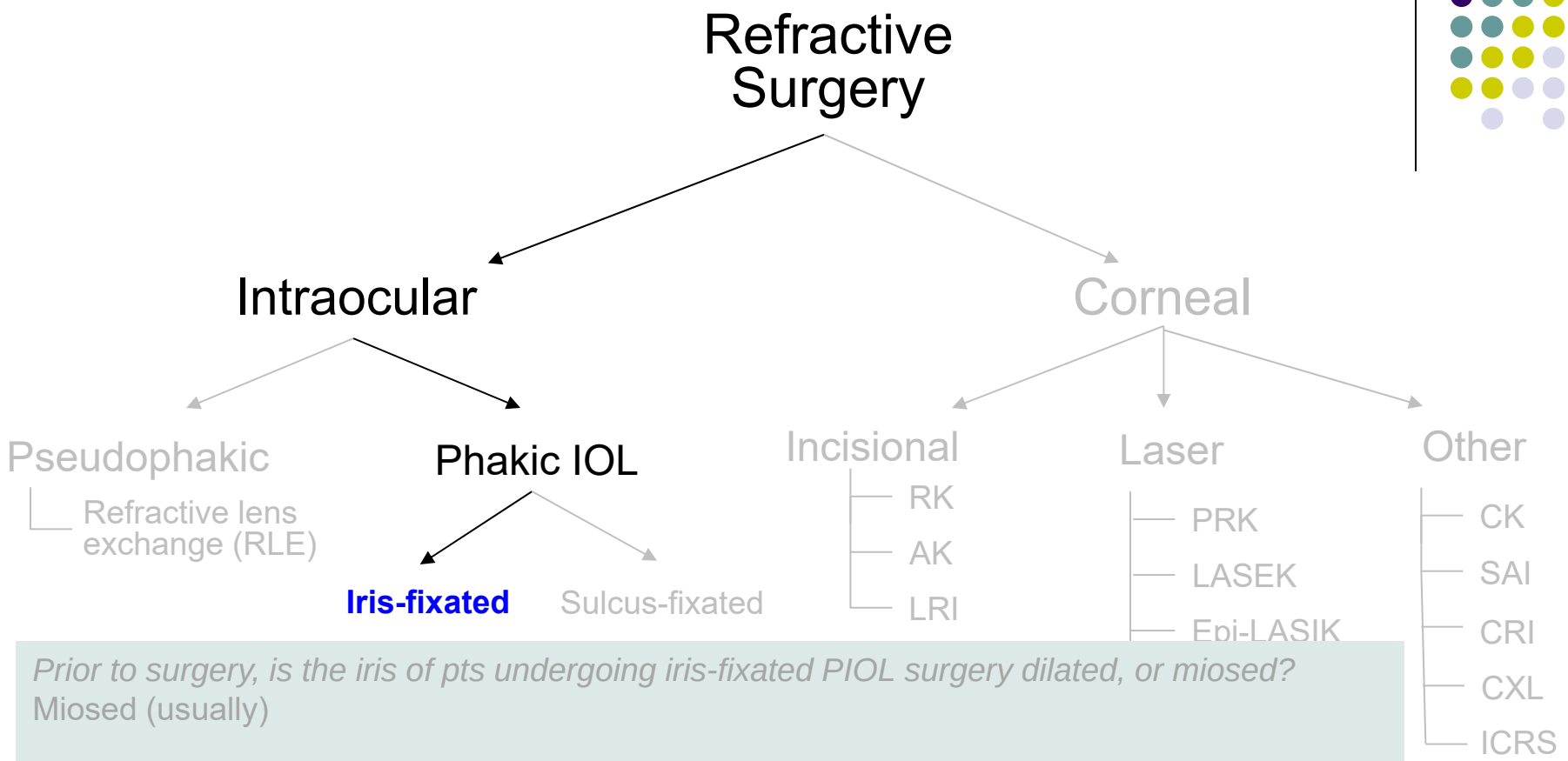
Intraocular Refractive Surgery



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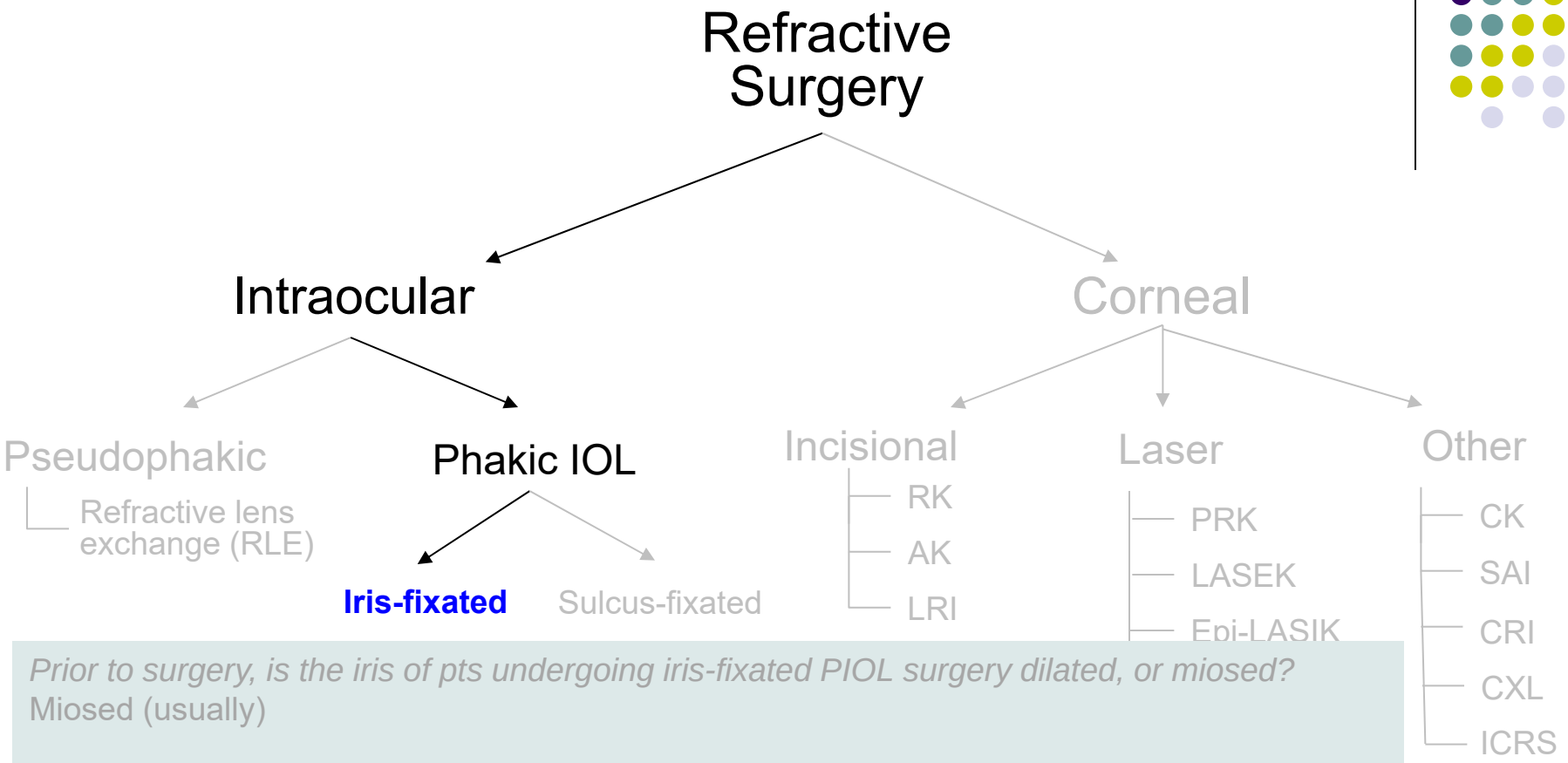
What does this imply about wound closure at the end of the case?

Intraocular Refractive Surgery



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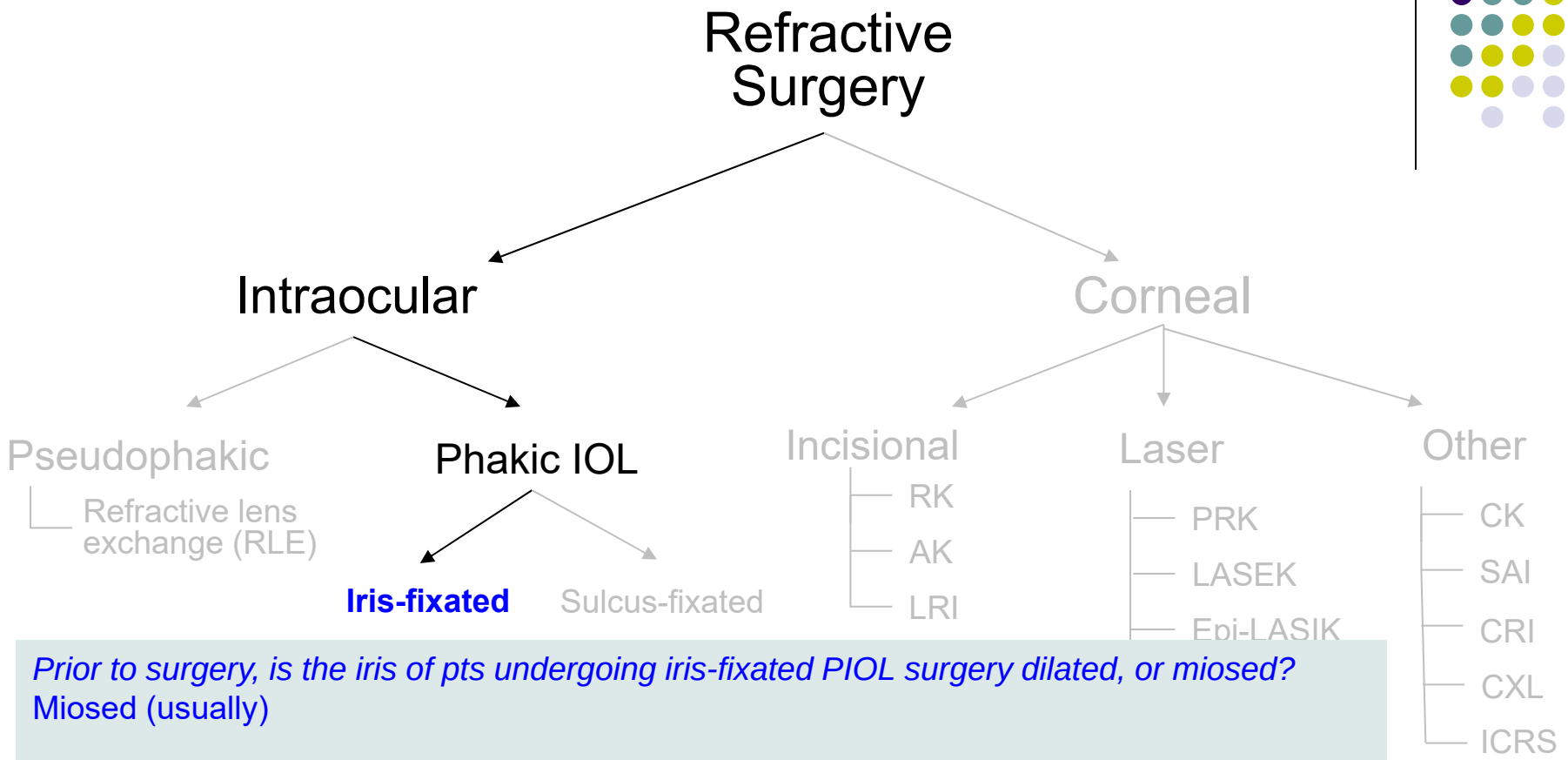
What does this imply about wound closure at the end of the case?
It implies that suturing is required

Intraocular Refractive Surgery



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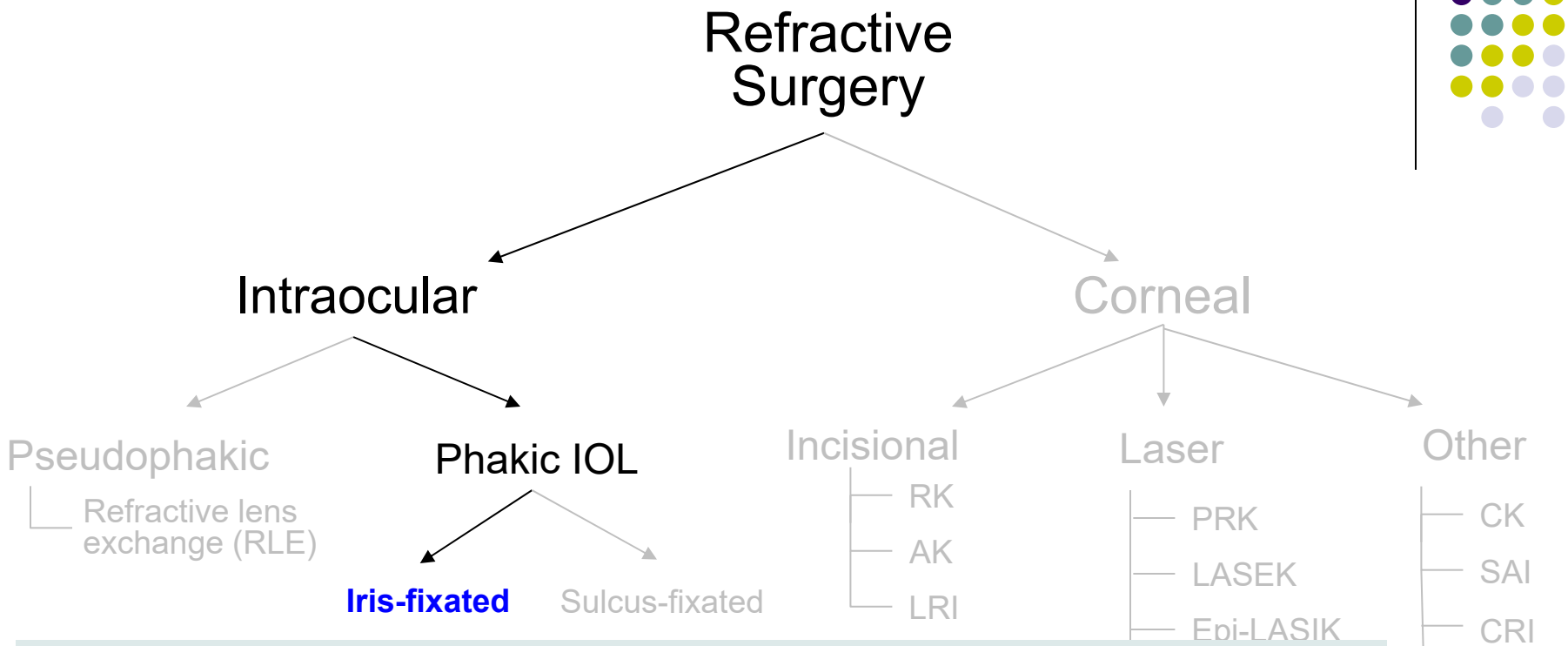
Intraocular Refractive Surgery



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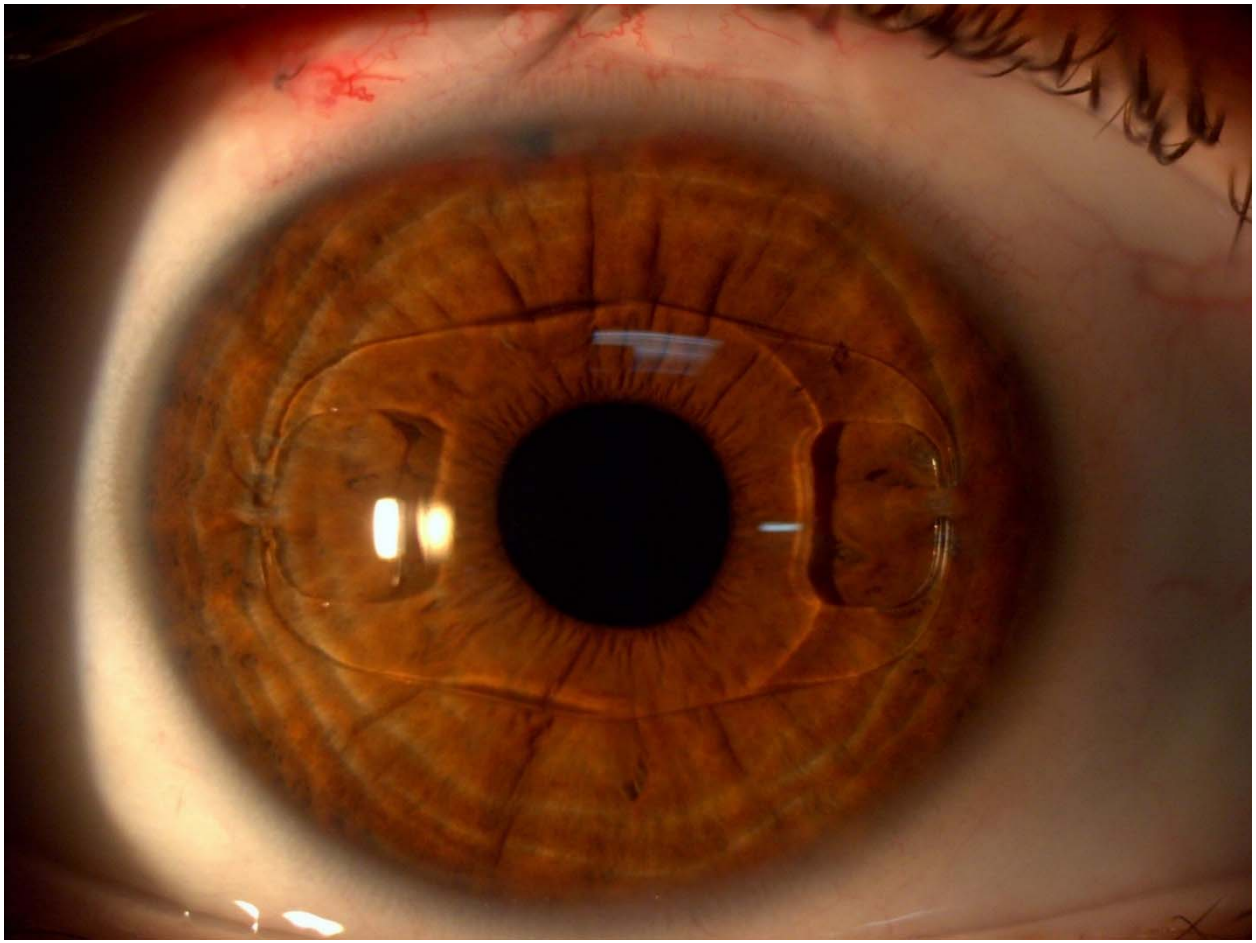
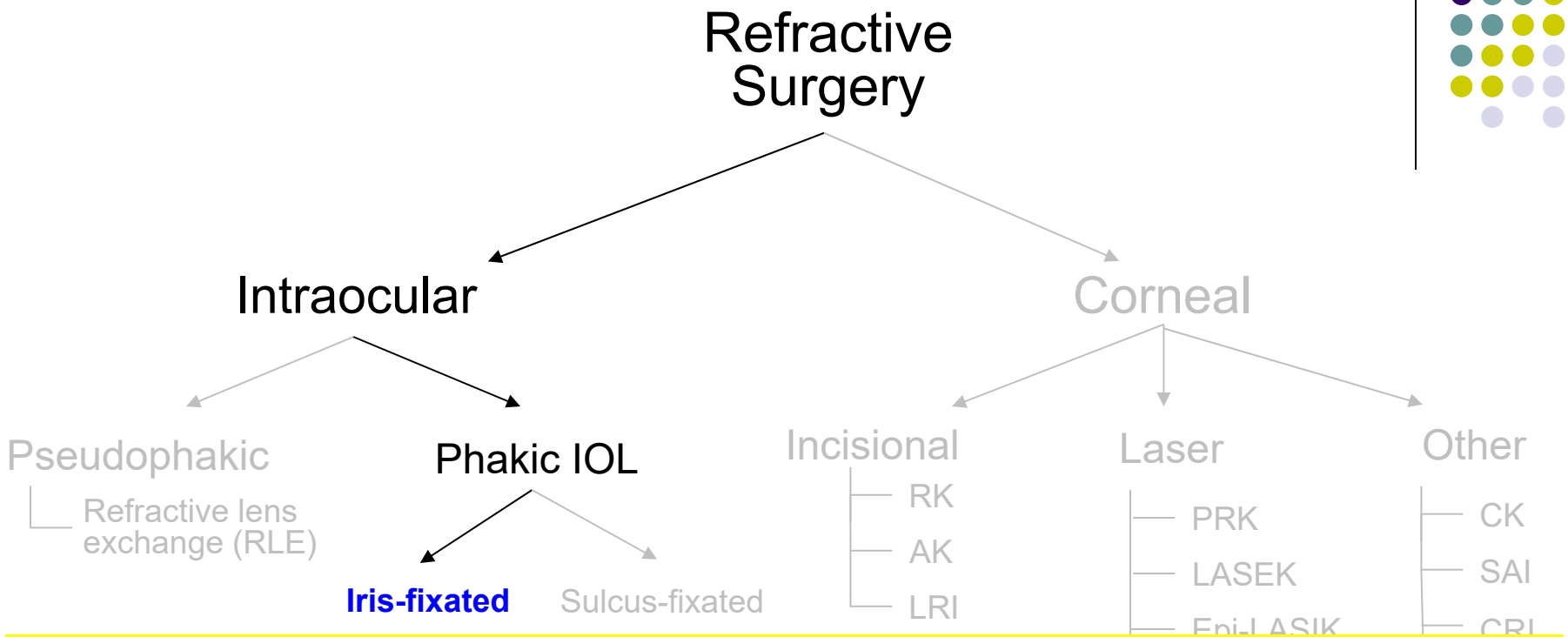
'Enclavation'

Intraocular Refractive Surgery



Iris-fixated PIOL

Intraocular Refractive Surgery



Is sizing an issue in selecting an iris-fixated PIOL?

for insertion

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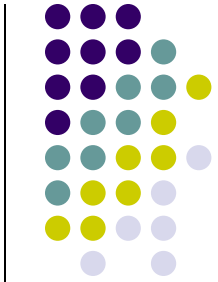

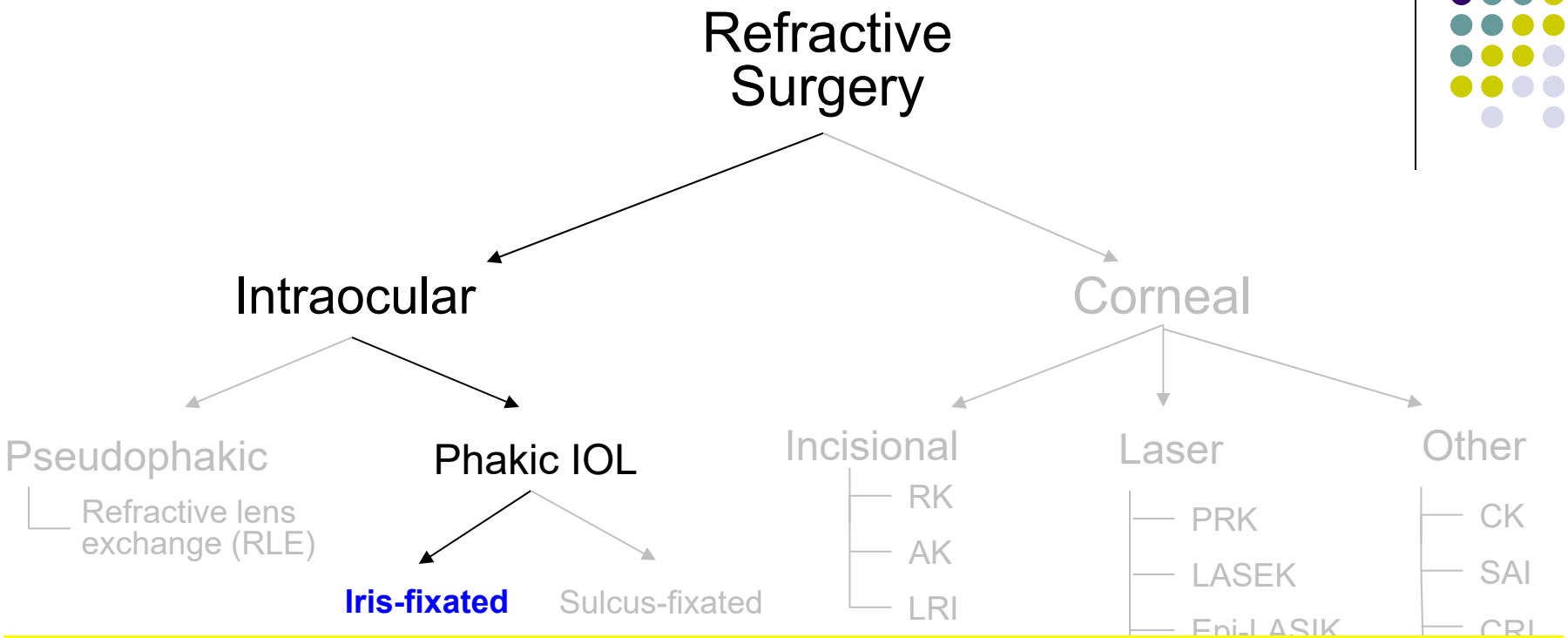

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No. Because the lens does not extend to the sulcus, angle etc, a 'one size fits all' approach is acceptable.

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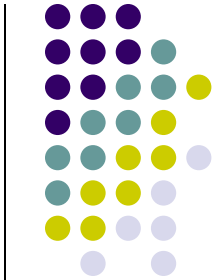

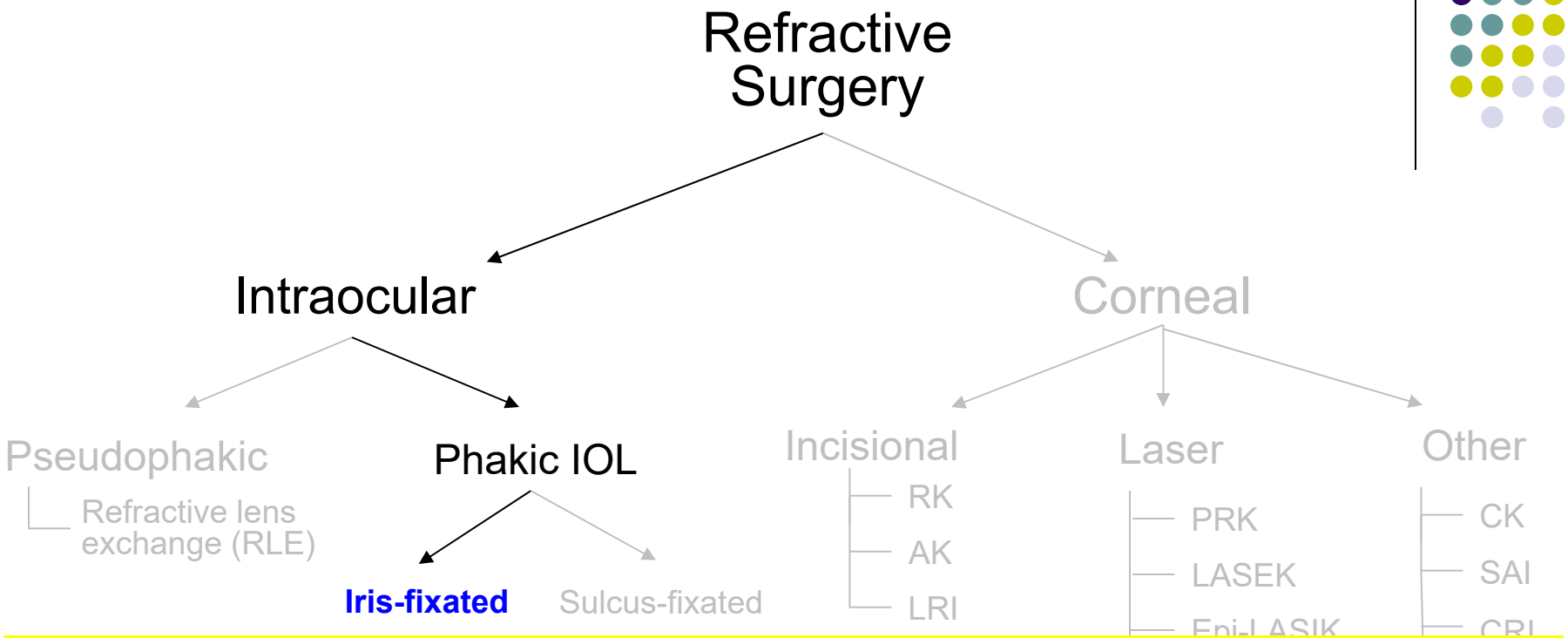

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Speaking of lens placement, what factor is key in ensuring an optimal outcome?

for insertion

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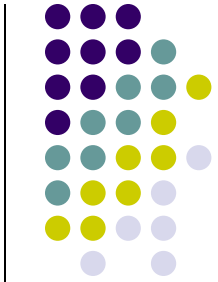
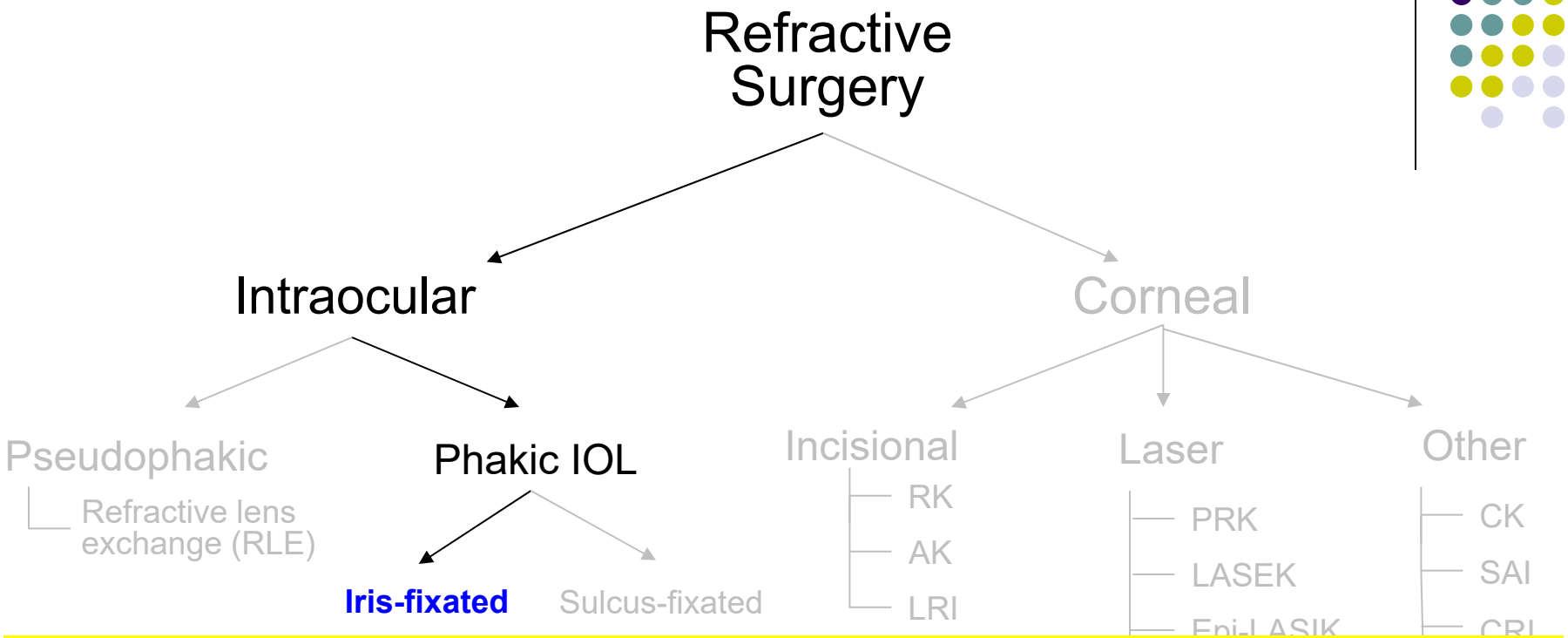
Intraocular Refractive Surgery





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Speaking of lens placement, what factor is key in ensuring an optimal outcome?
Centration of the optic over the pupil

for insertion

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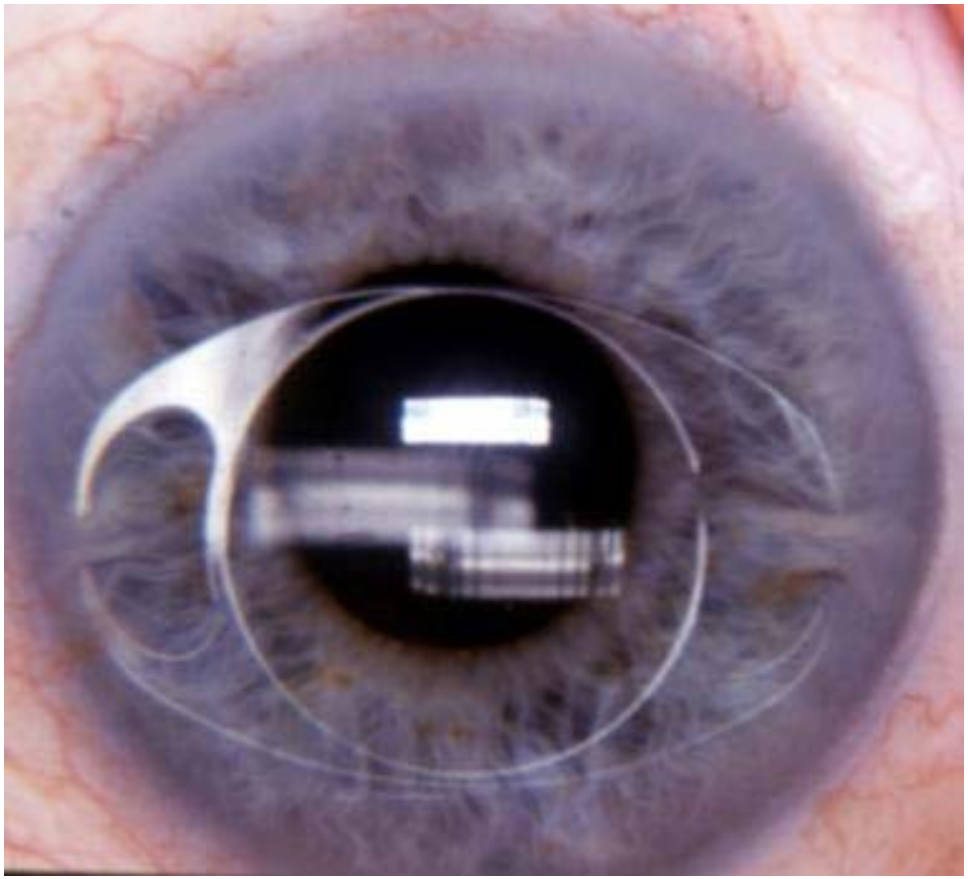
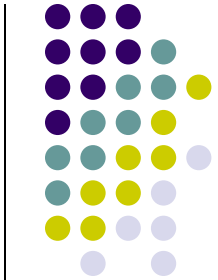
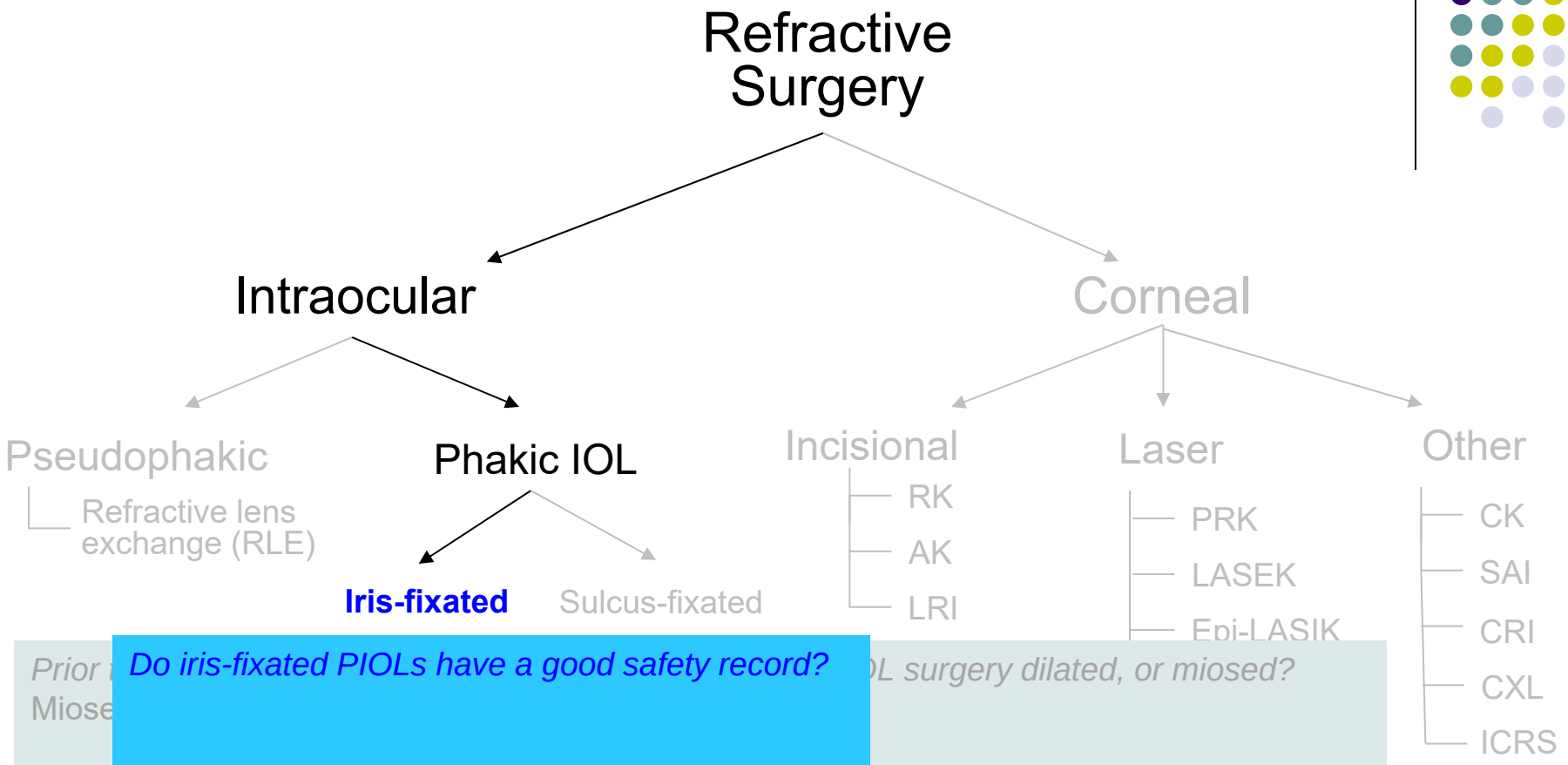


Iris-fixated PIOL: Decentered

Intraocular Refractive Surgery





Do iris-fixated PIOLs have a good safety record?

Prior *OL surgery dilated, or miosed?*
Miose

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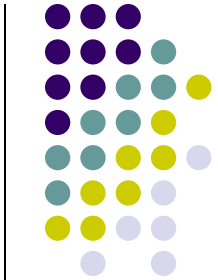

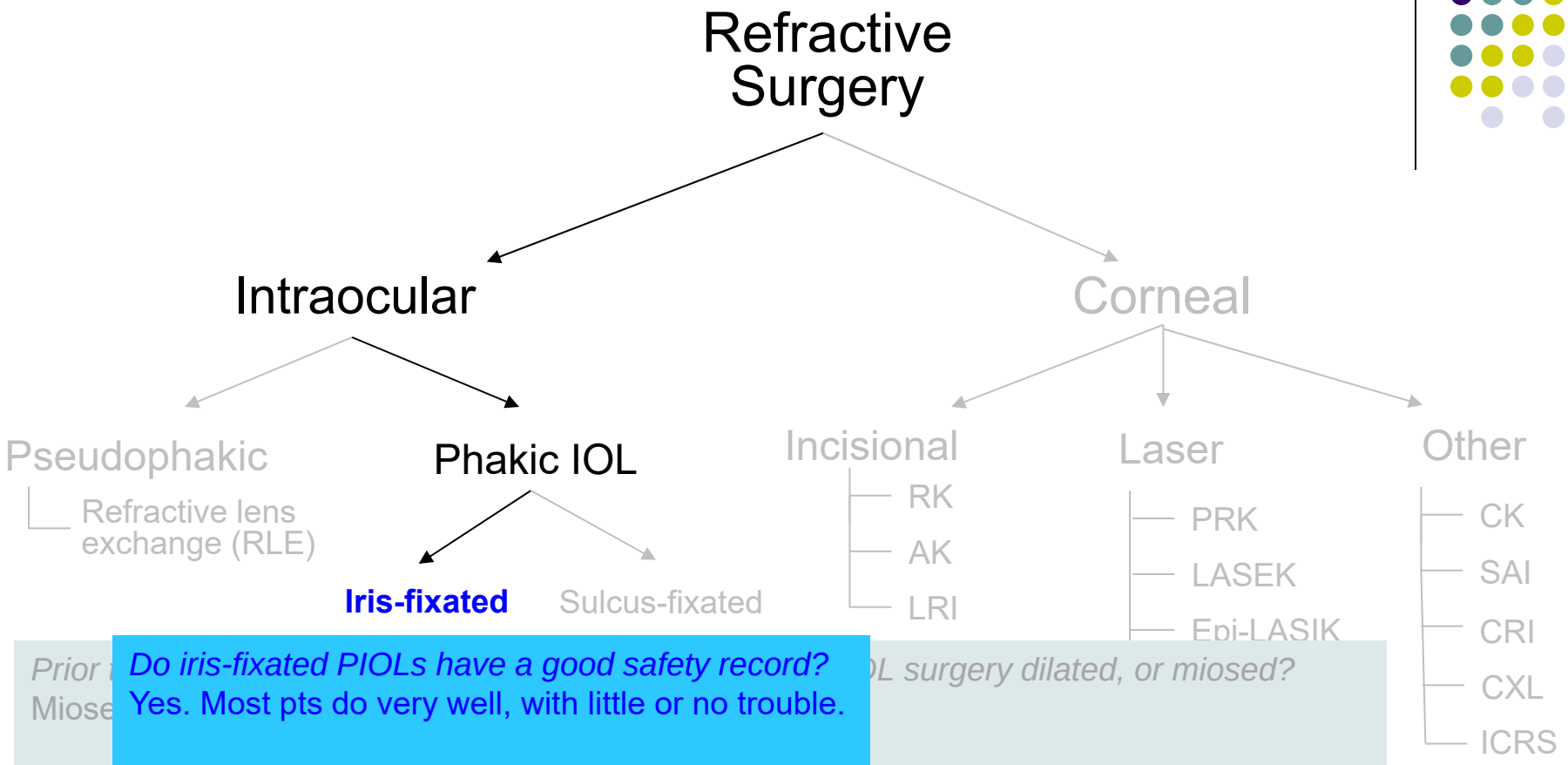

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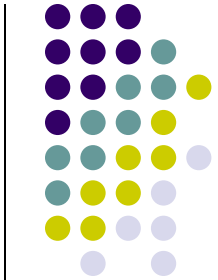

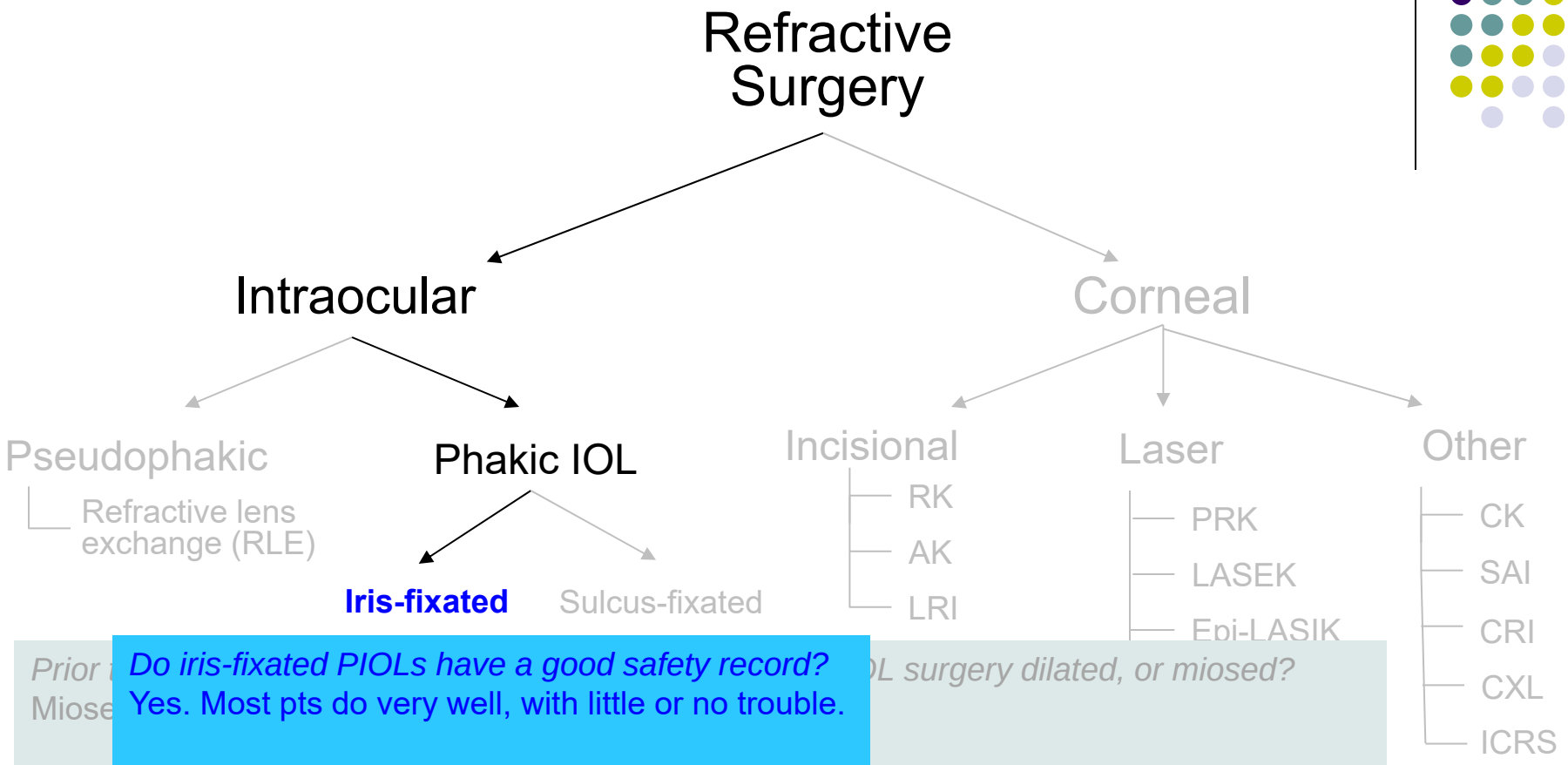

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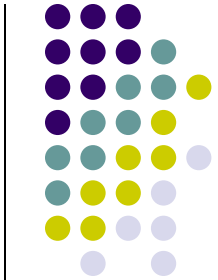
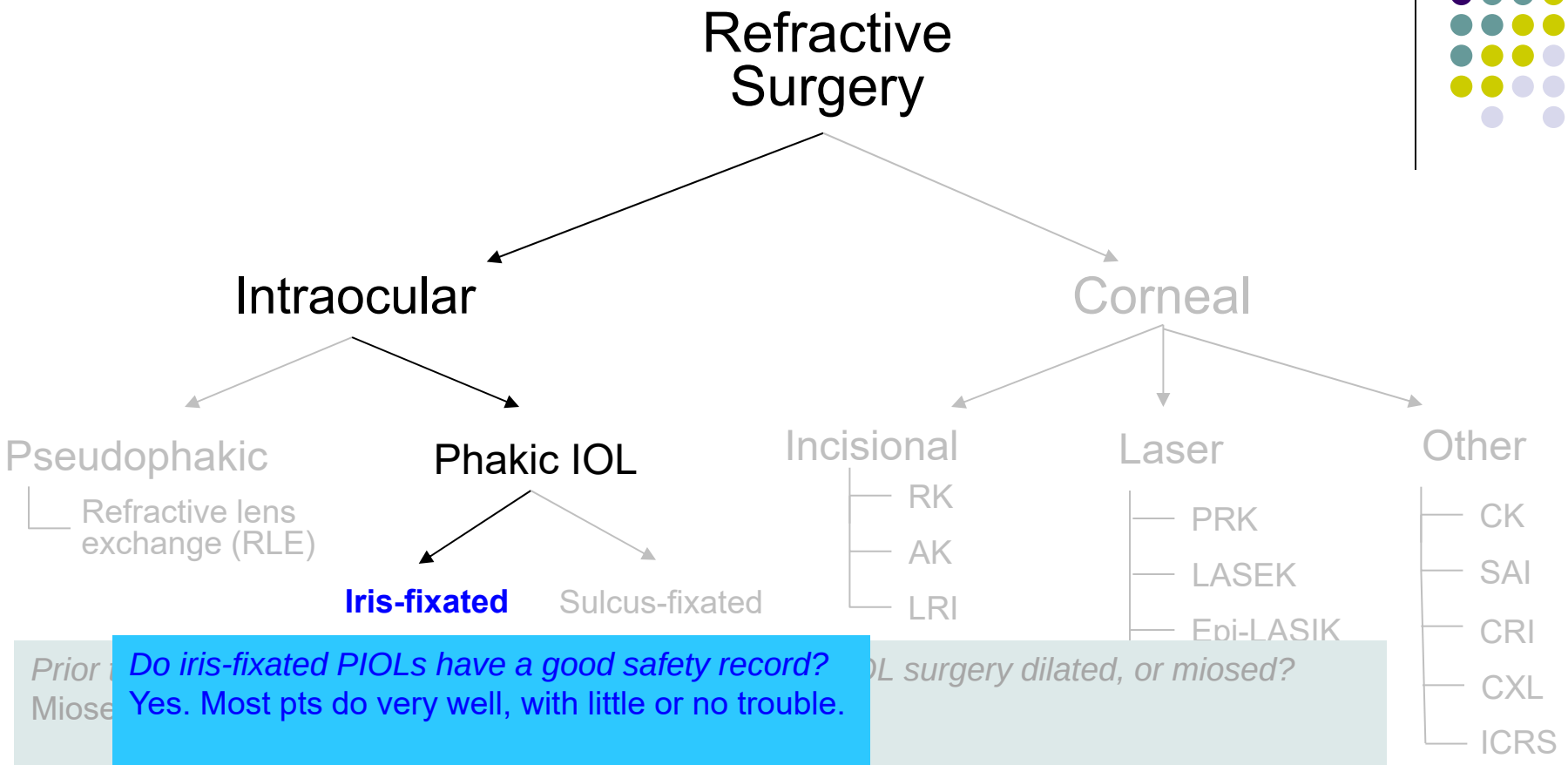
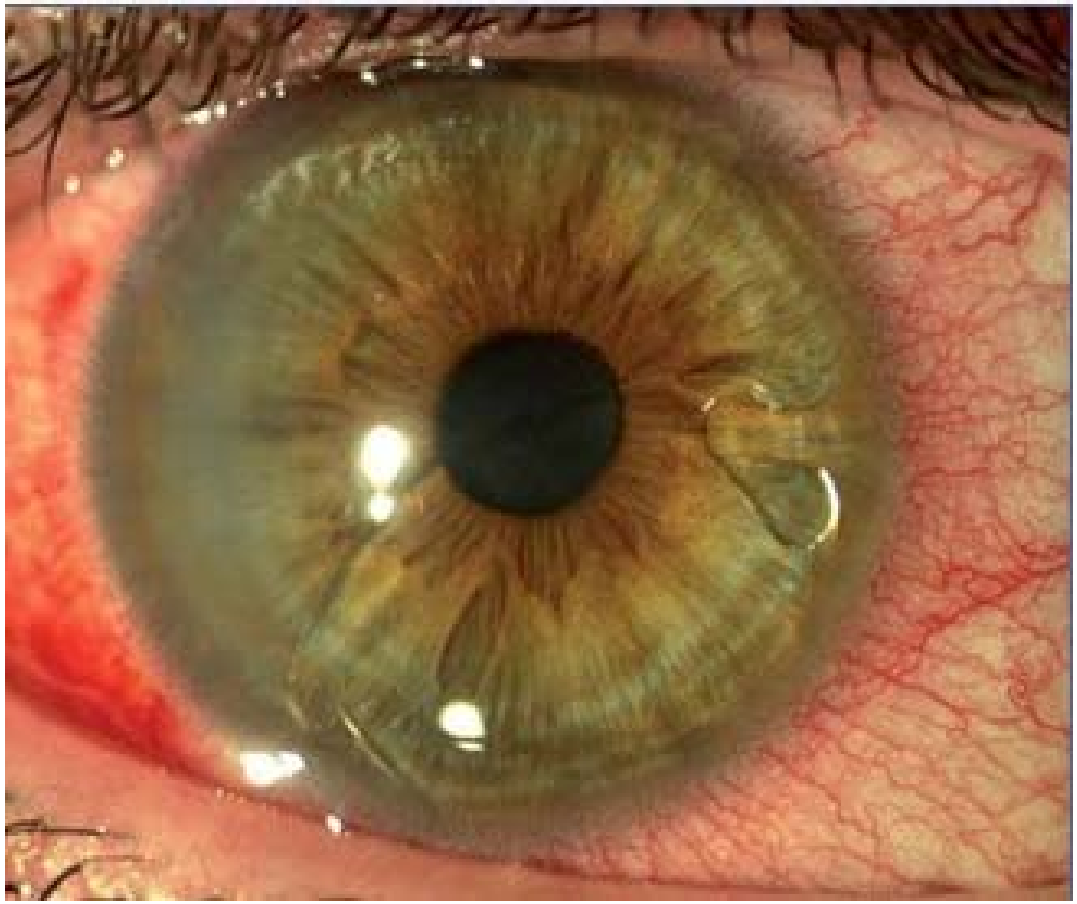




Do iris-fixated PIOLs have a good safety record?
Yes. Most pts do very well, with little or no trouble.

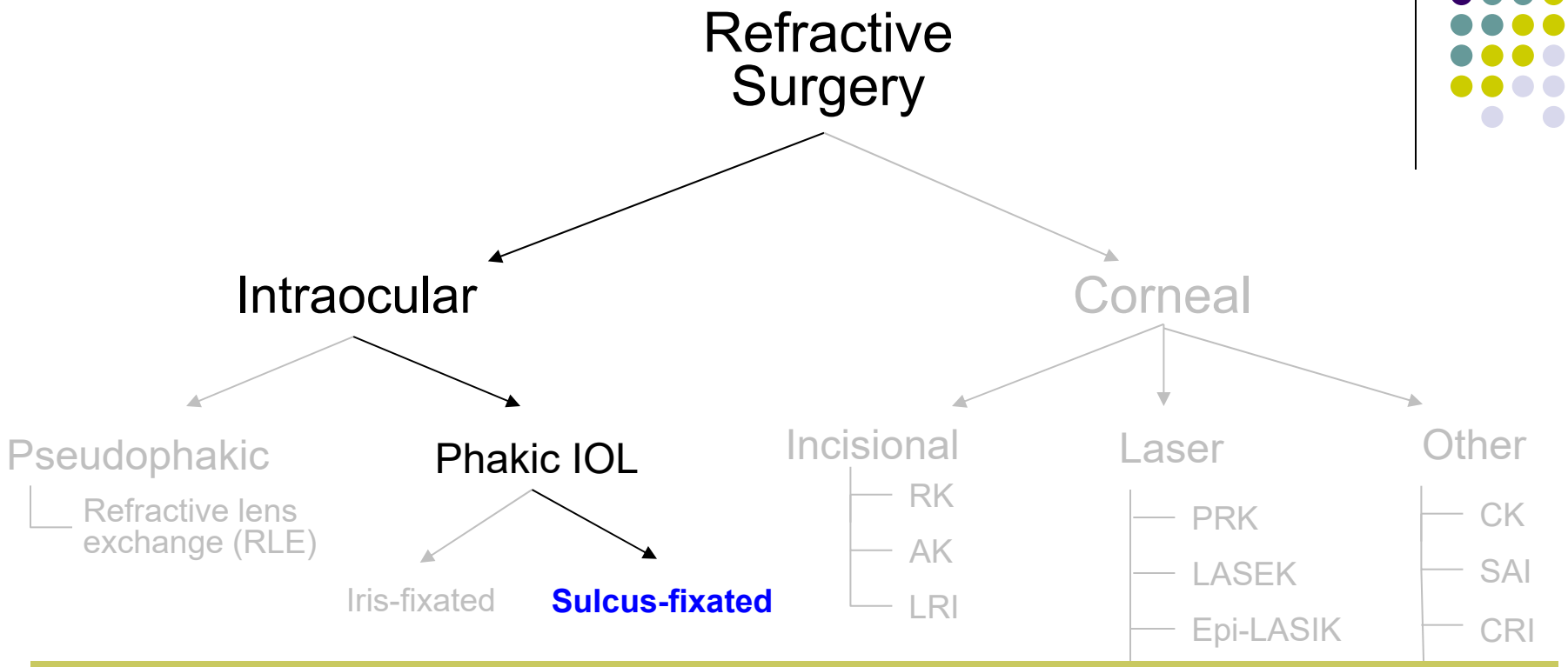
What sorts of complications have been reported?
--Hyphema
--Iritis
--IOL dislocation/decentration
--Night vision issues (halos, starbursts, etc)

Intraocular Refractive Surgery



Iris-fixated PIOL: Dislocated

Intraocular Refractive Surgery



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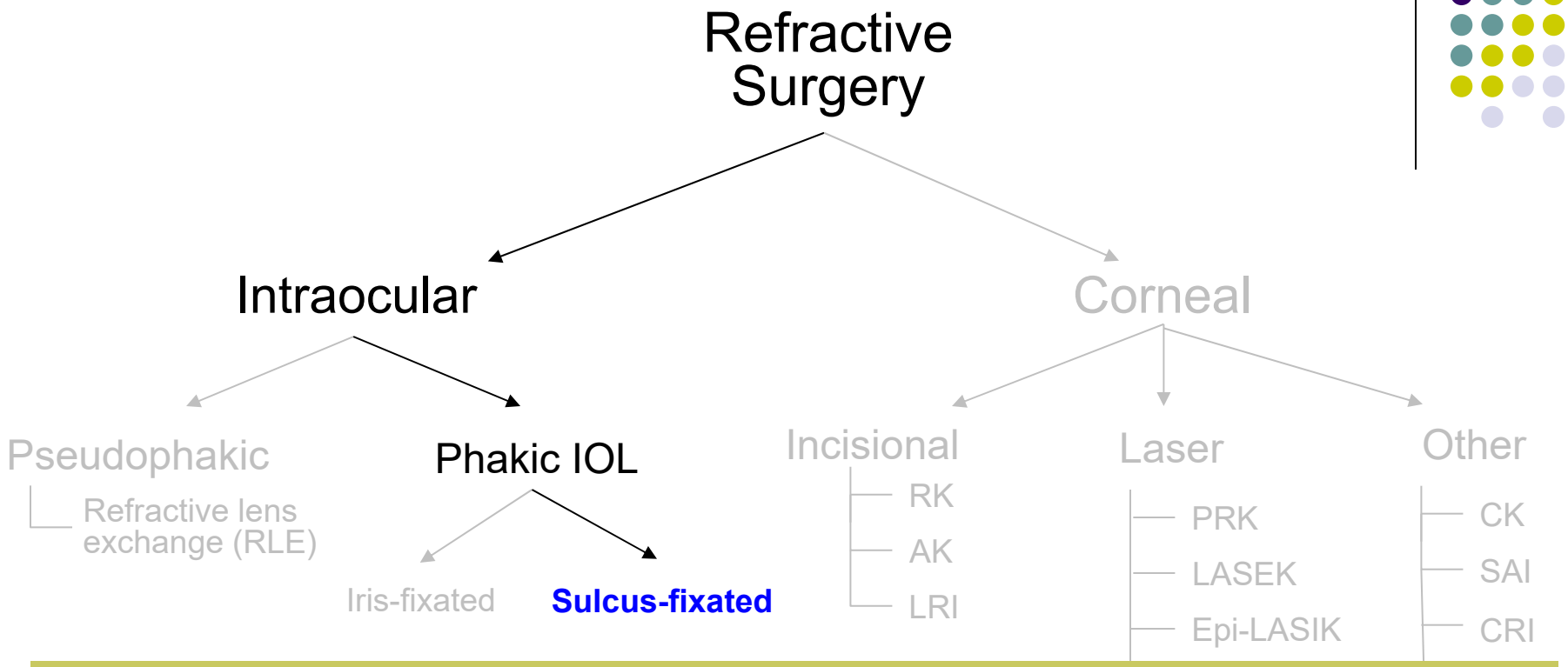

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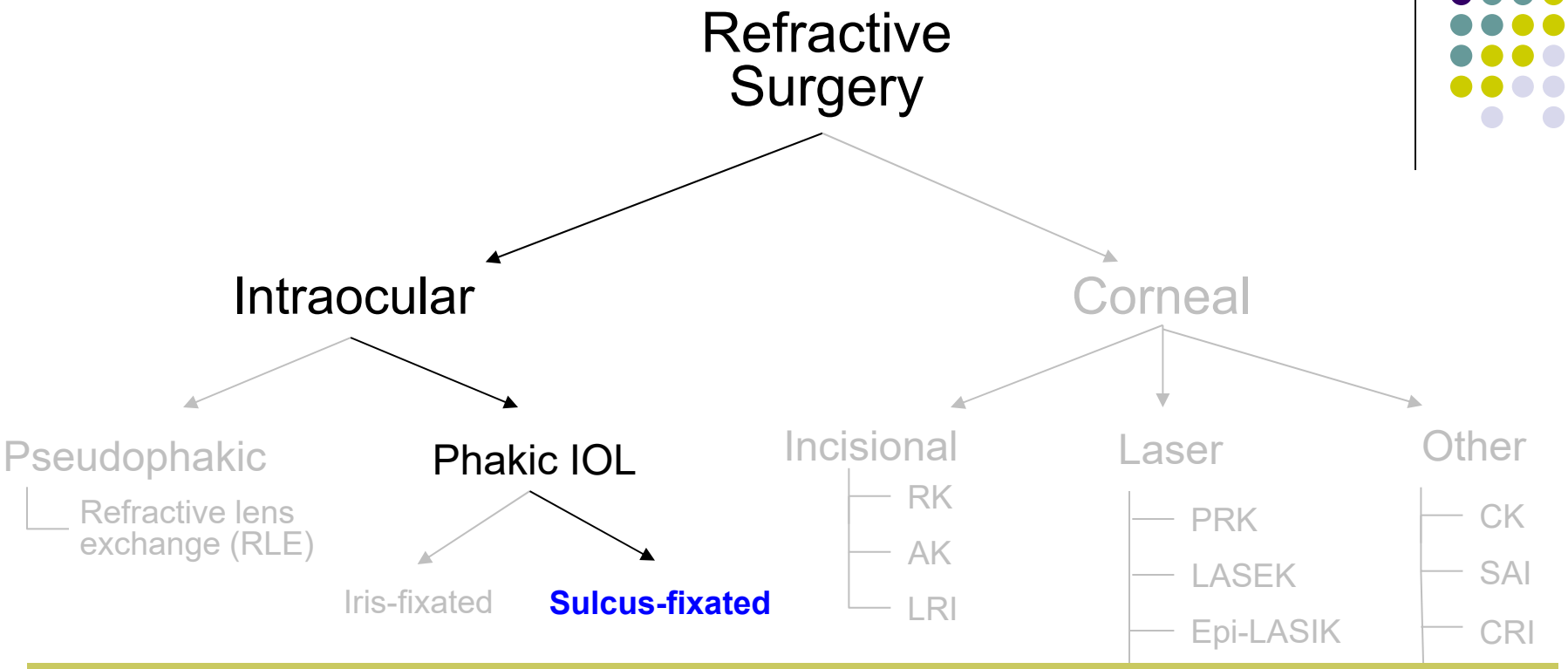

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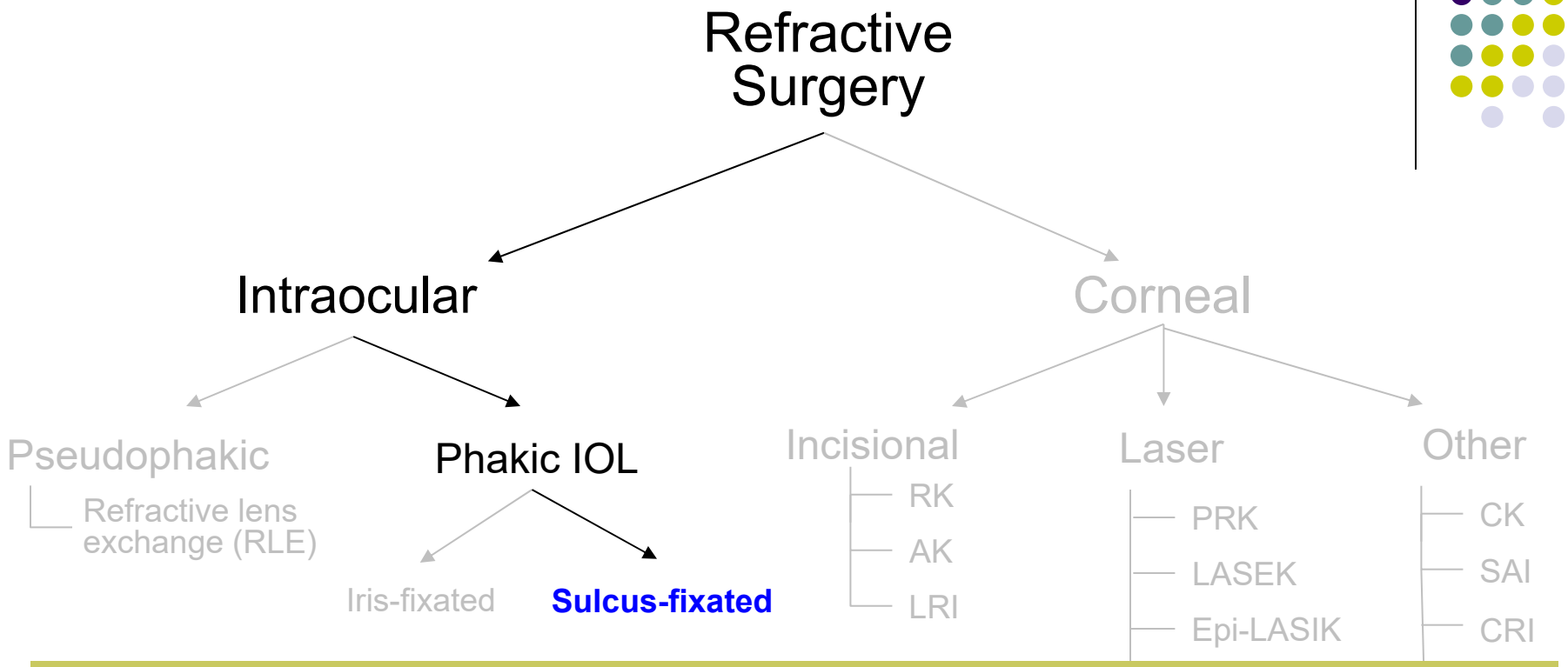

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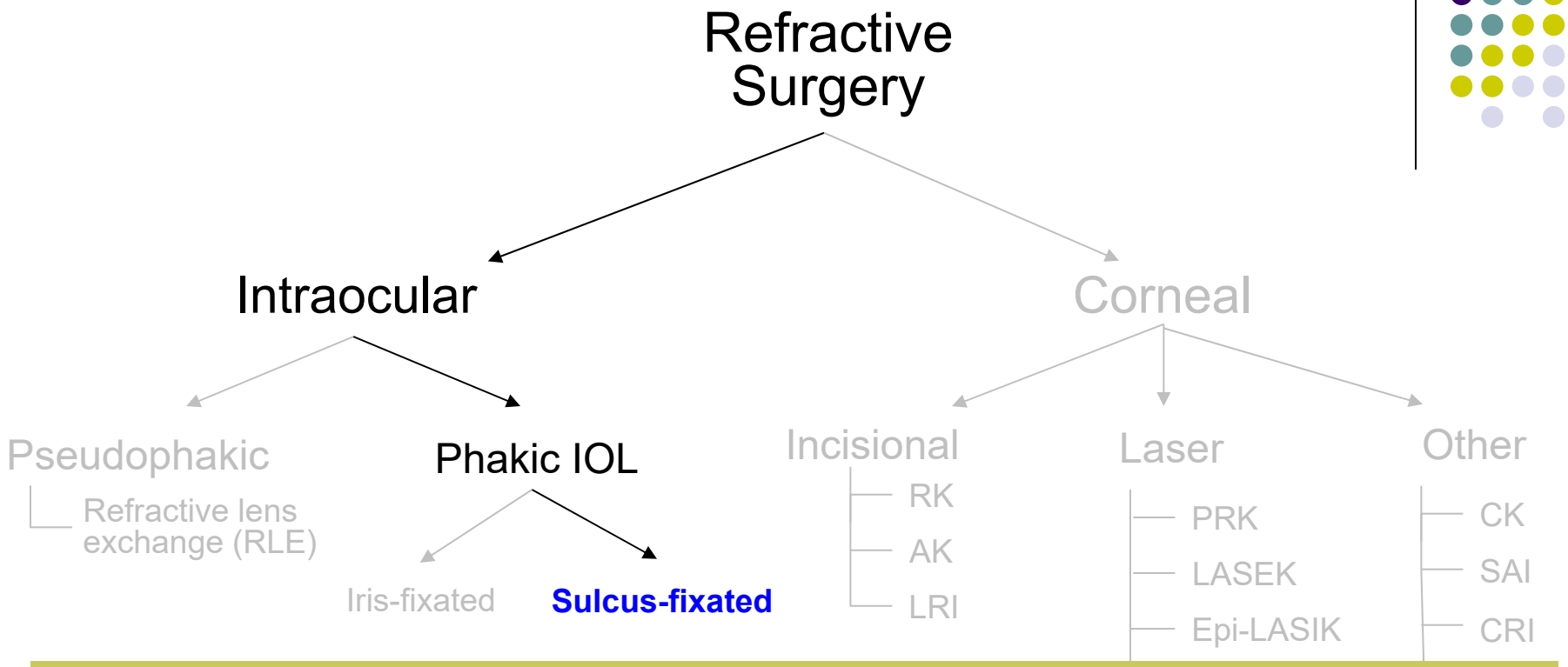
Intraocular Refractive Surgery



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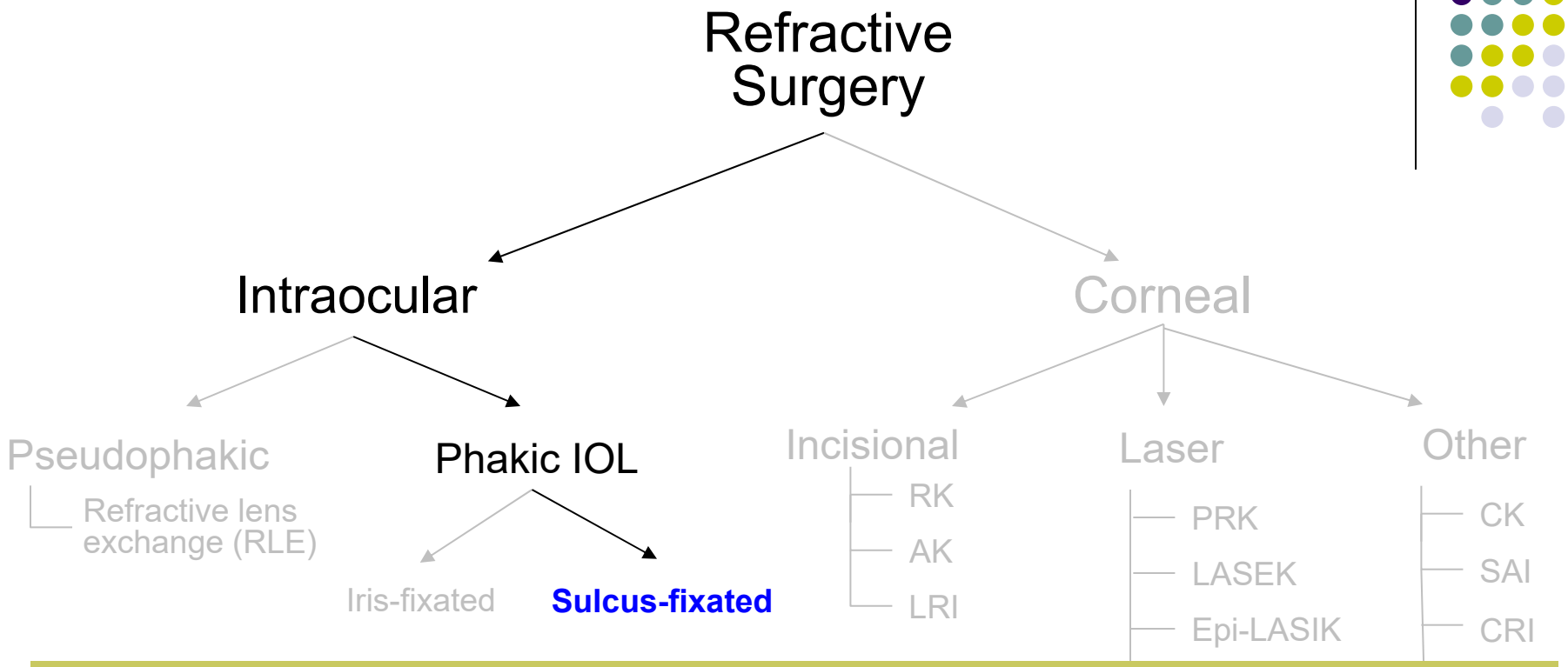
Intraocular Refractive Surgery



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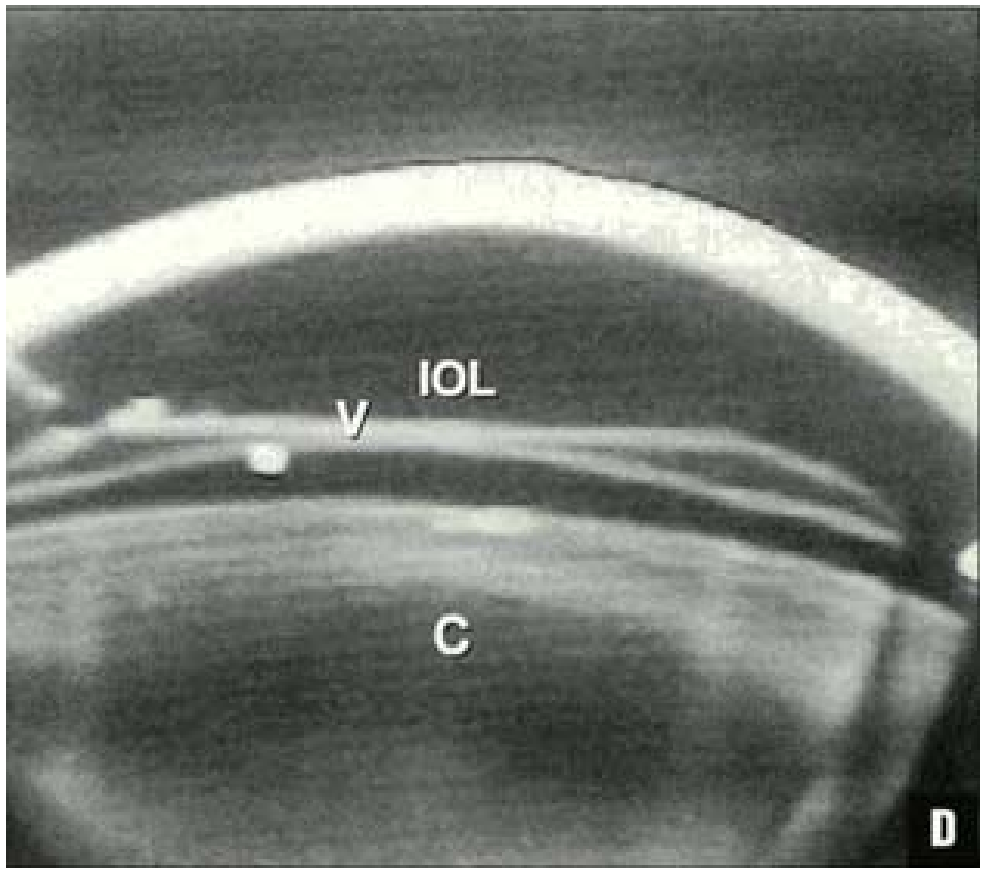
The optic of a sulcus-fixated PIOL is 'vaulted' such that it does not touch the native lens

Intraocular Refractive Surgery

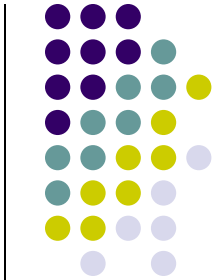
Sulcus-fixated PIOL

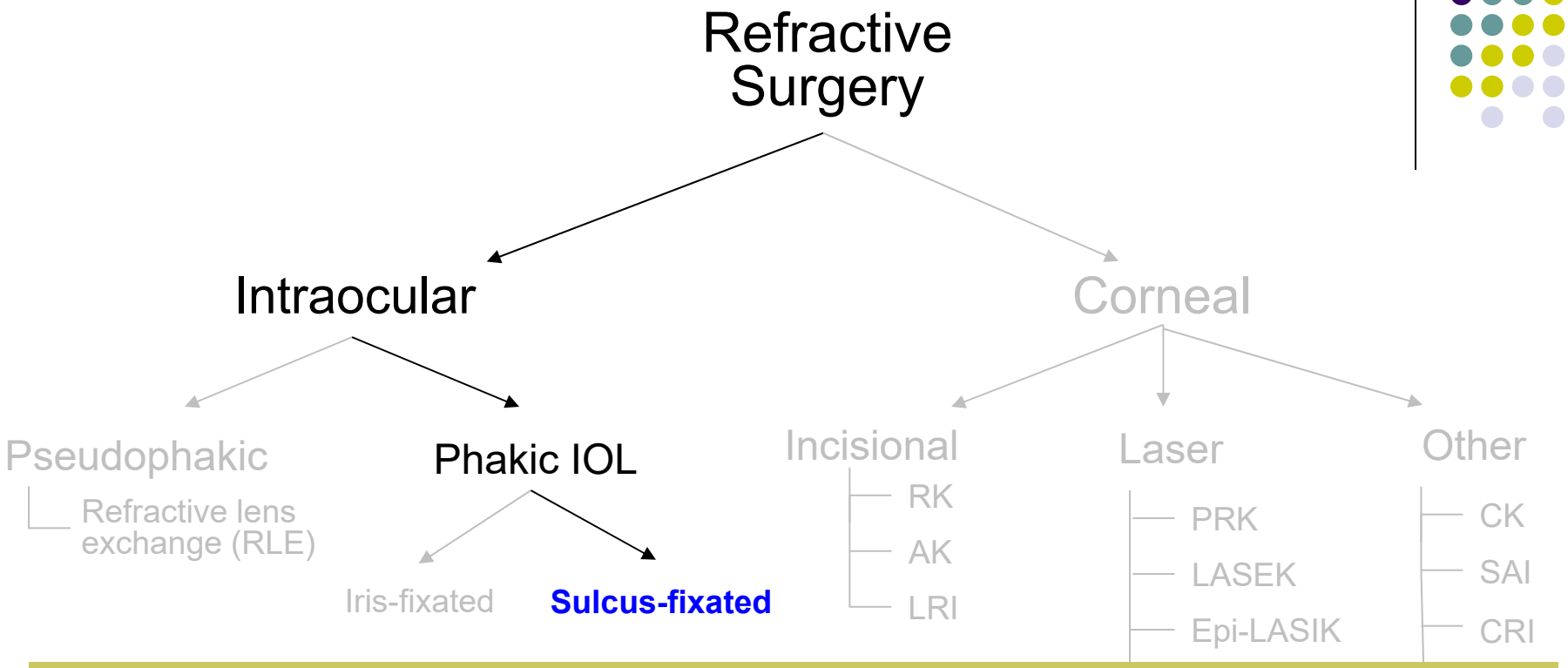
Intraocular Refractive Surgery



Sulcus-fixated PIOL. Note how the PIOL vaults the native lens

Intraocular Refractive Surgery





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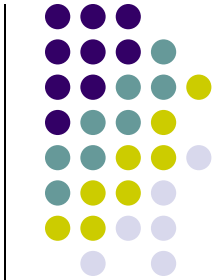

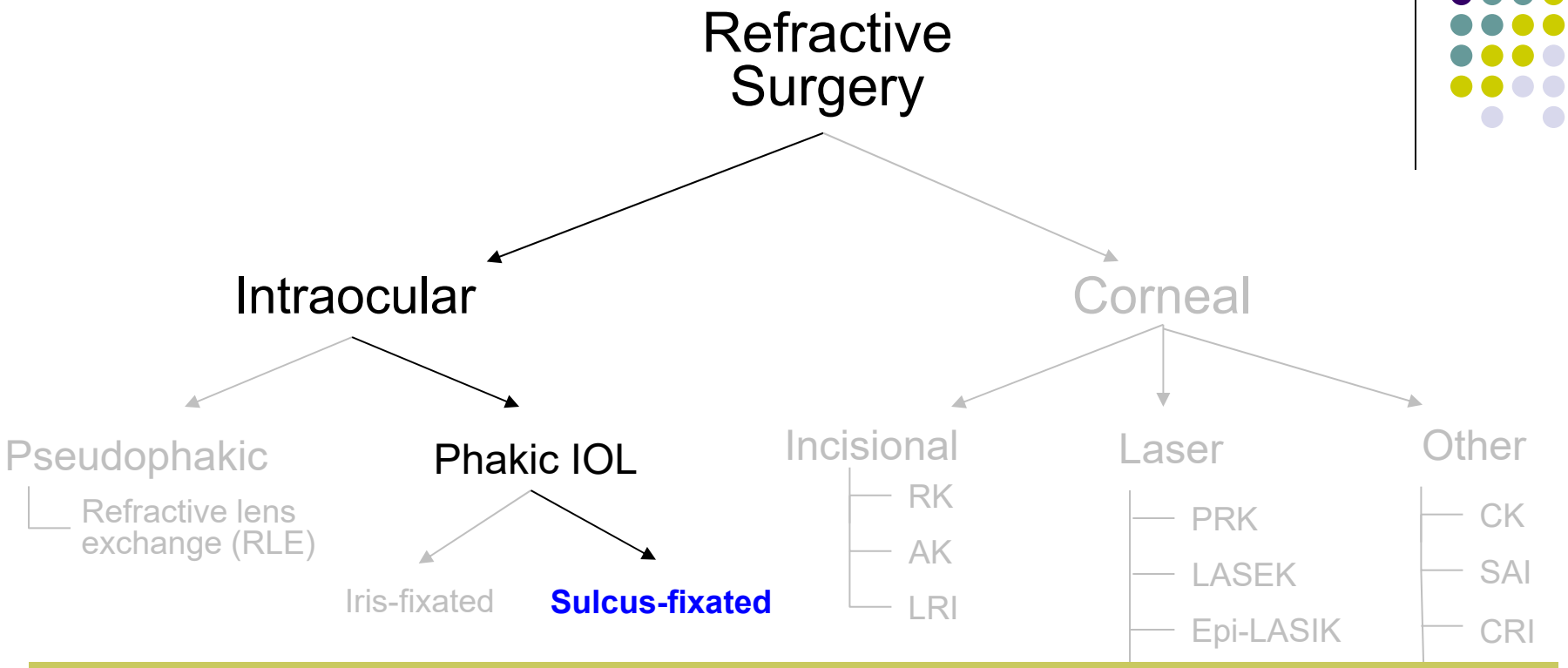

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Approved lense…

Why is it important that the PIOL not touch the native lens?
--To allow aqueous to reach the native lens so that the lens' metabolic needs can be met
--To reduce the likelihood of PIOL-induced cataract formation

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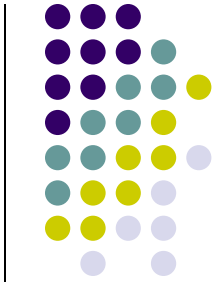

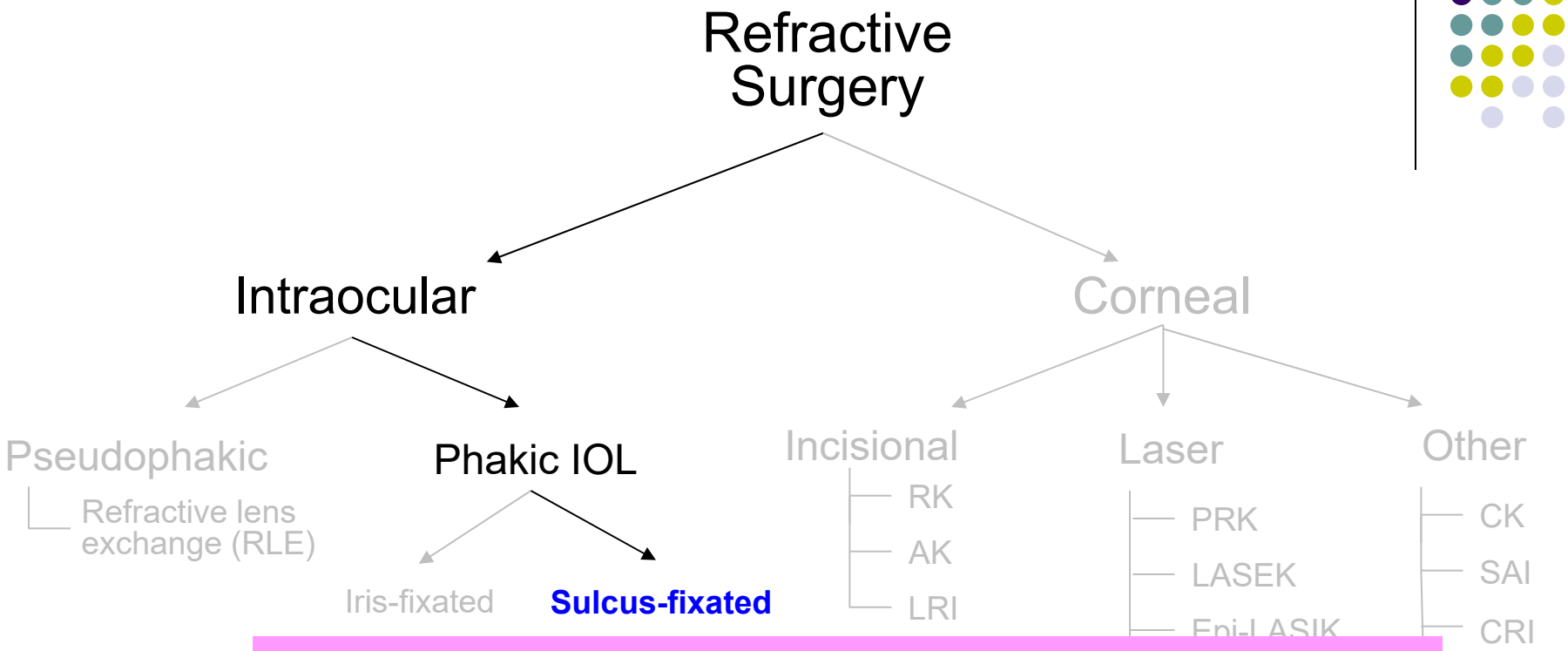

Is sizing an issue in selecting a sulcus-fixated PIOL?

Prior to surger
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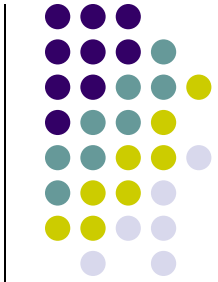
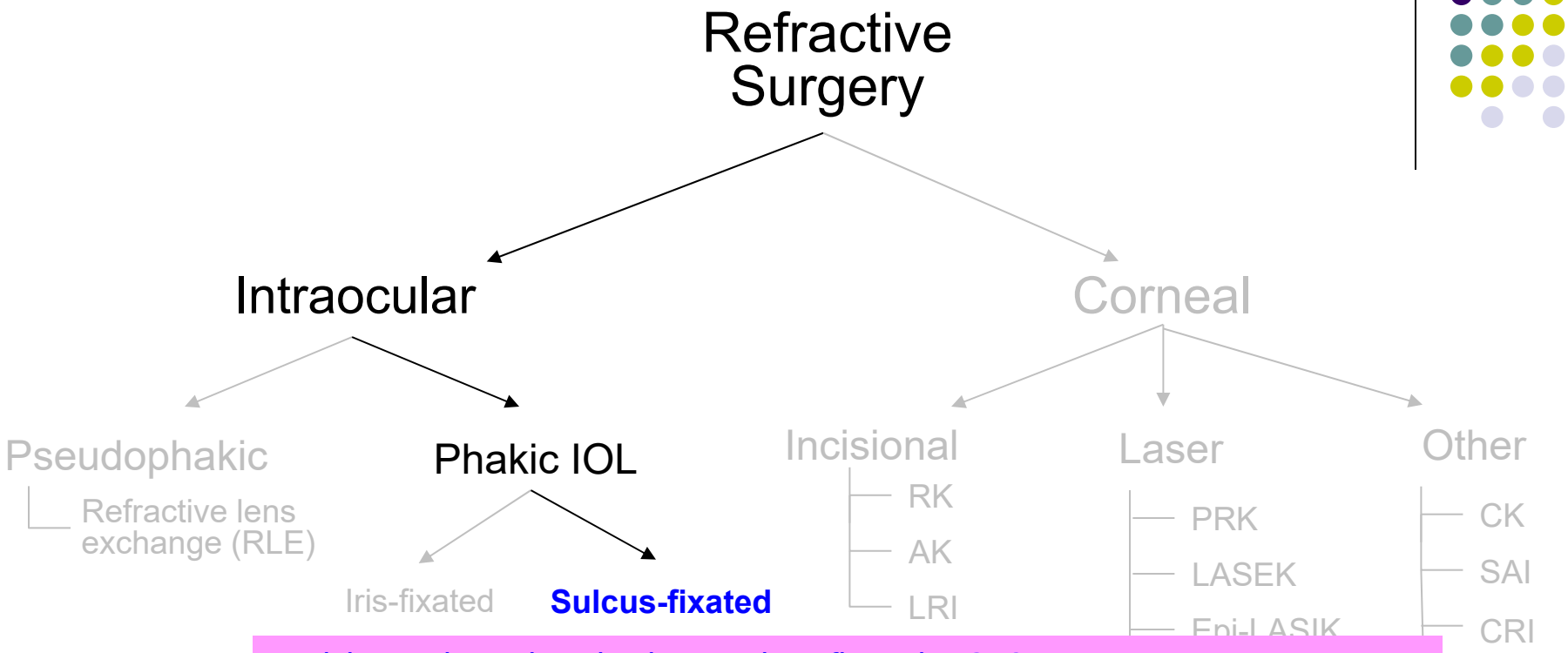
Intraocular Refractive Surgery





Is sizing an issue in selecting a sulcus-fixated PIOL?
Very much so. Accurate sizing is key to successful surgery.

Prior to surger
Dilated

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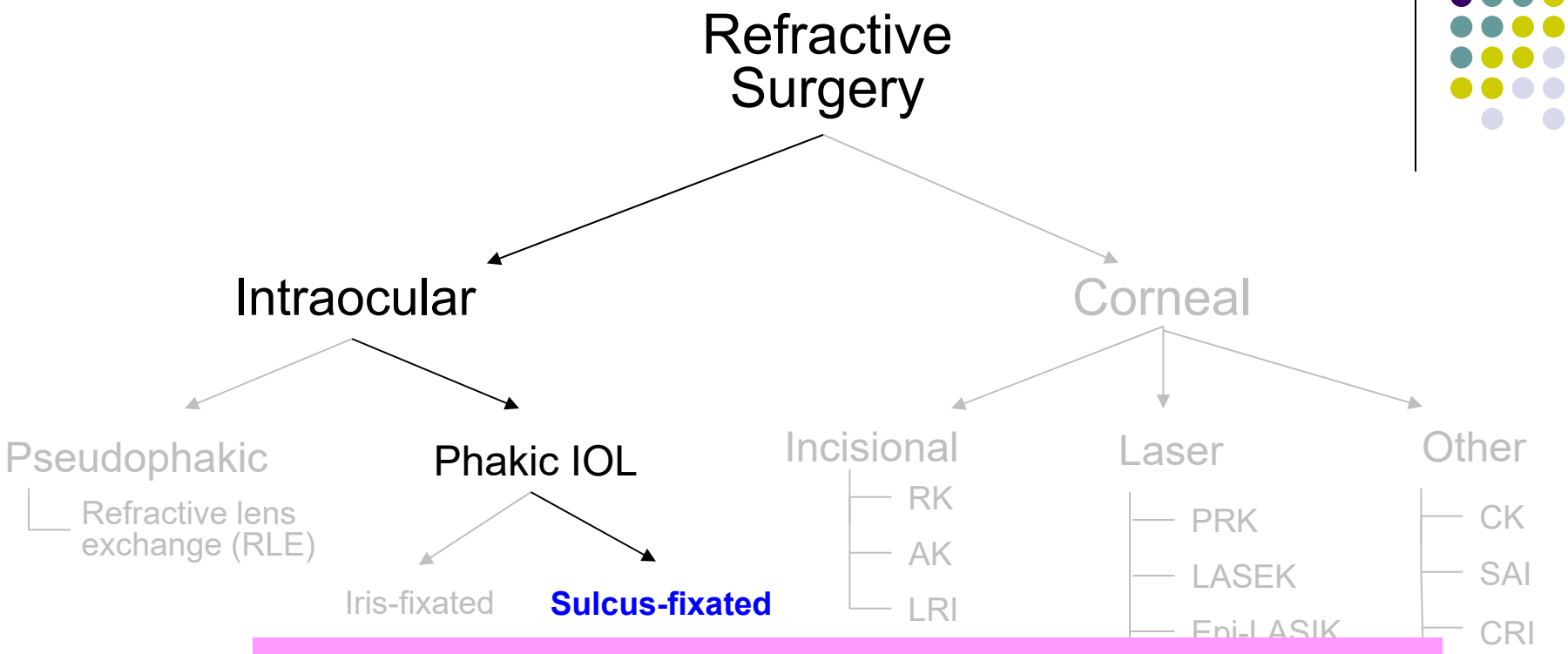
Approved lens

Compared to t *PIOL?*
The optic of a

Intraocular Refractive Surgery



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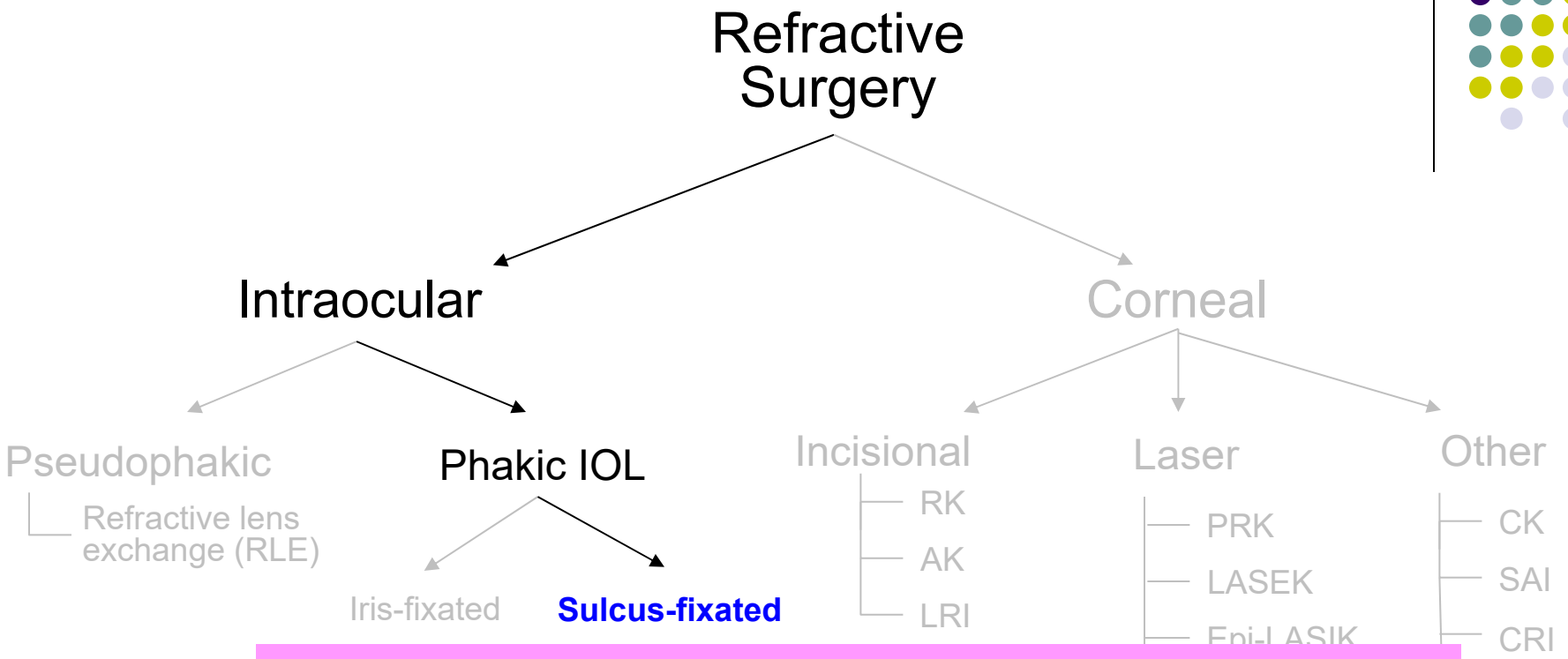

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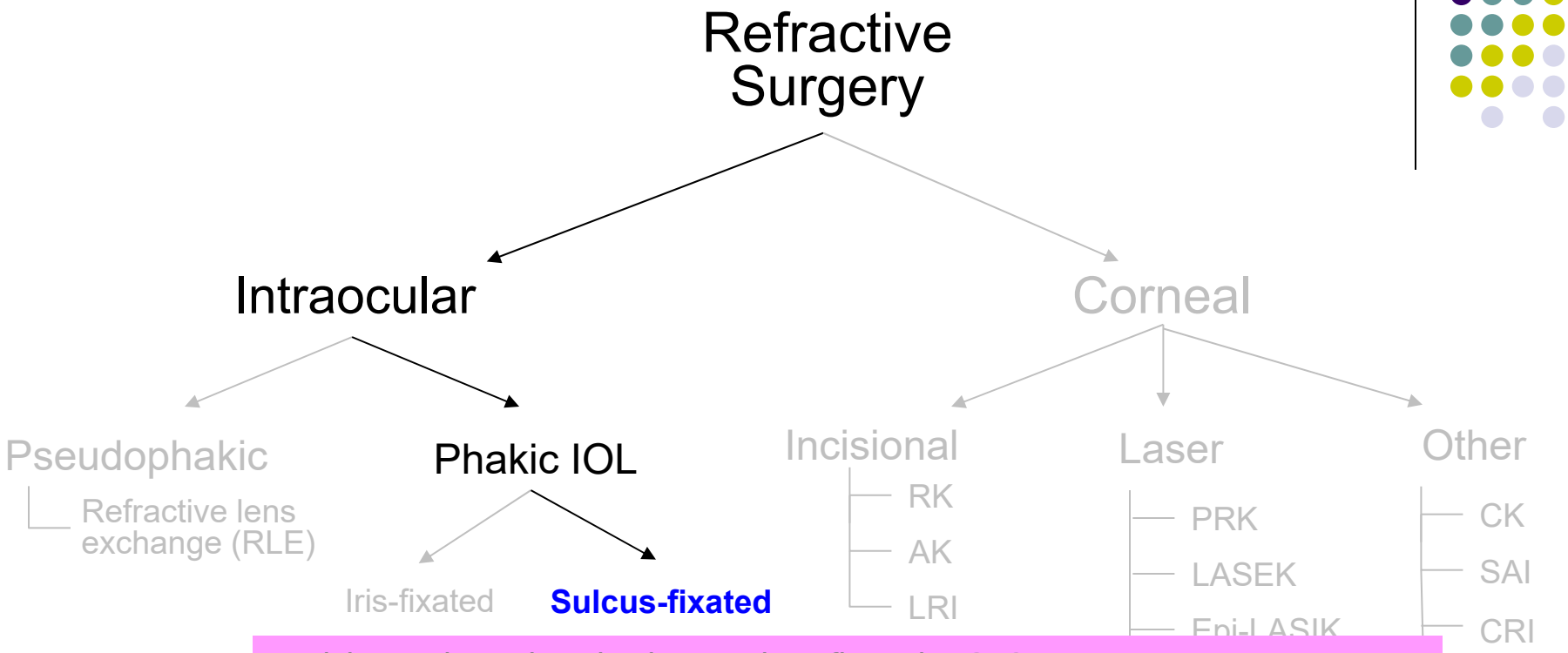

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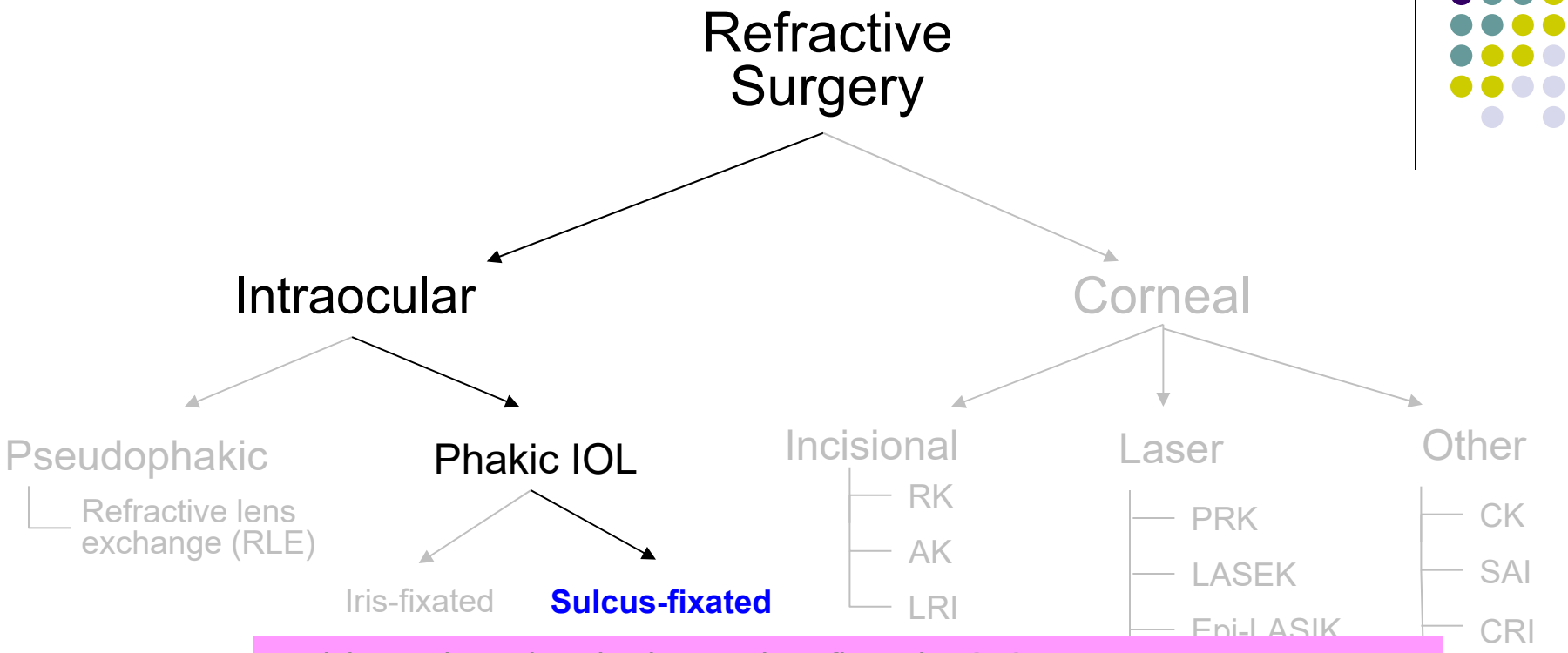

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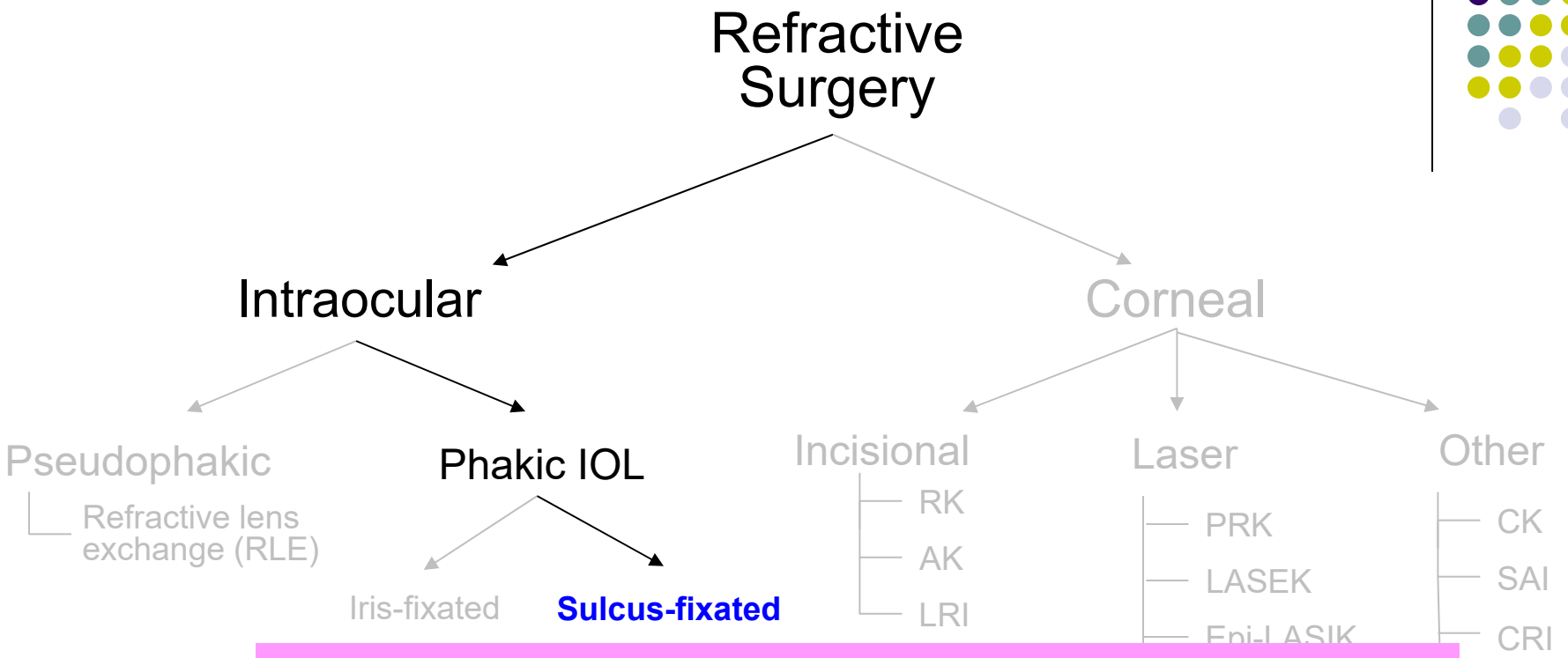

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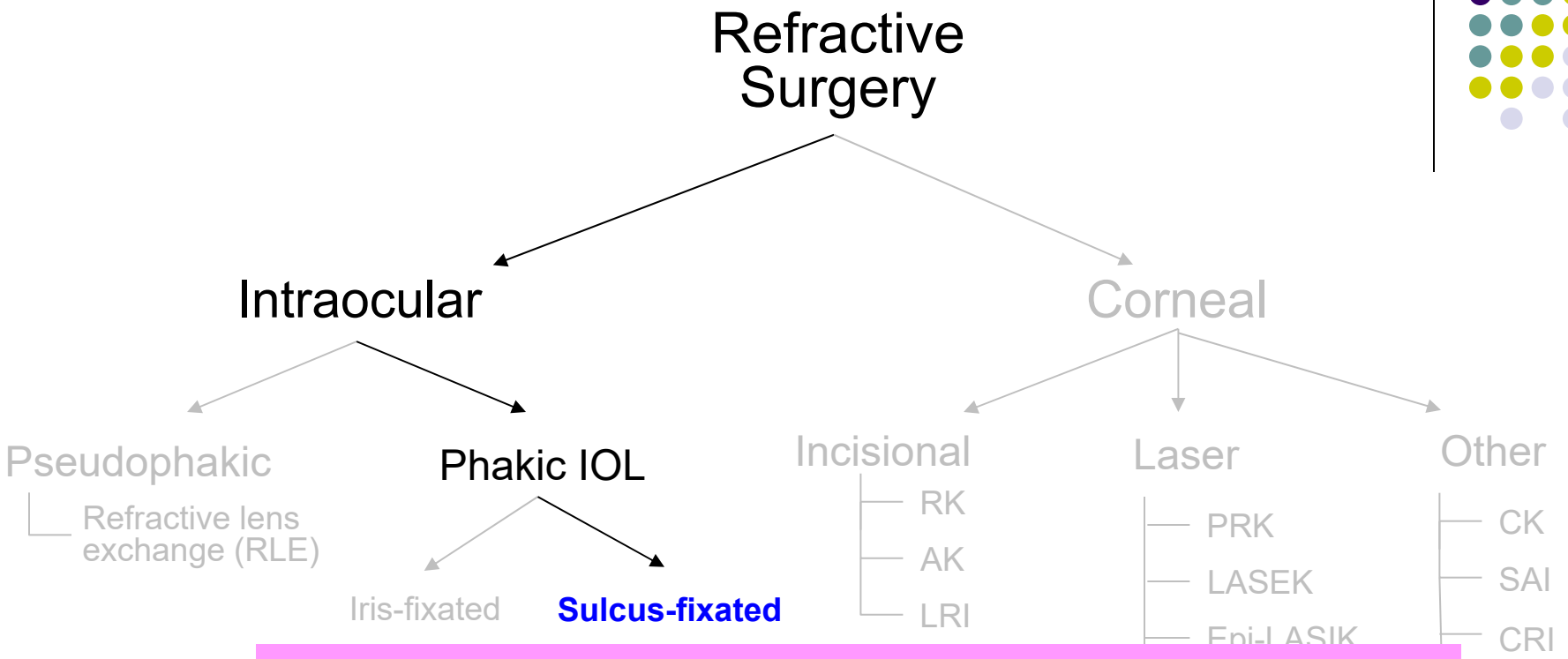

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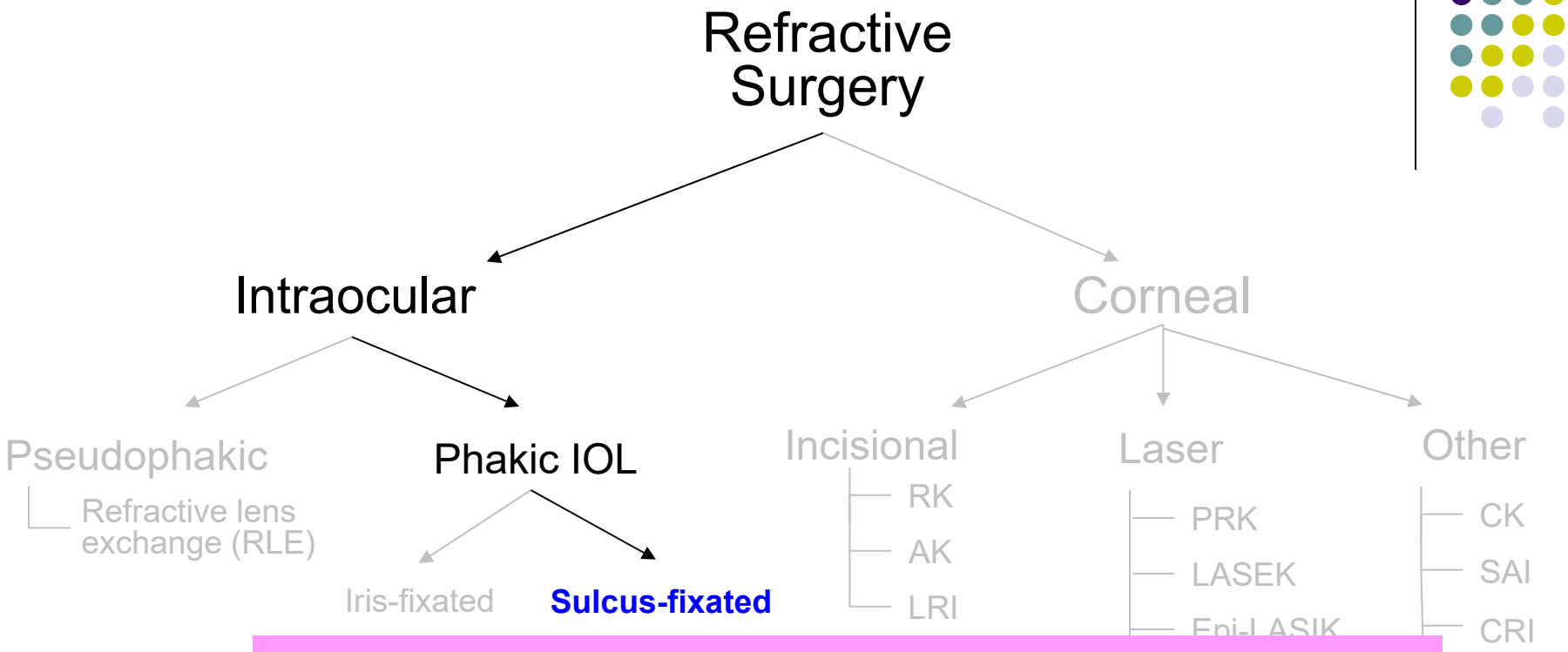

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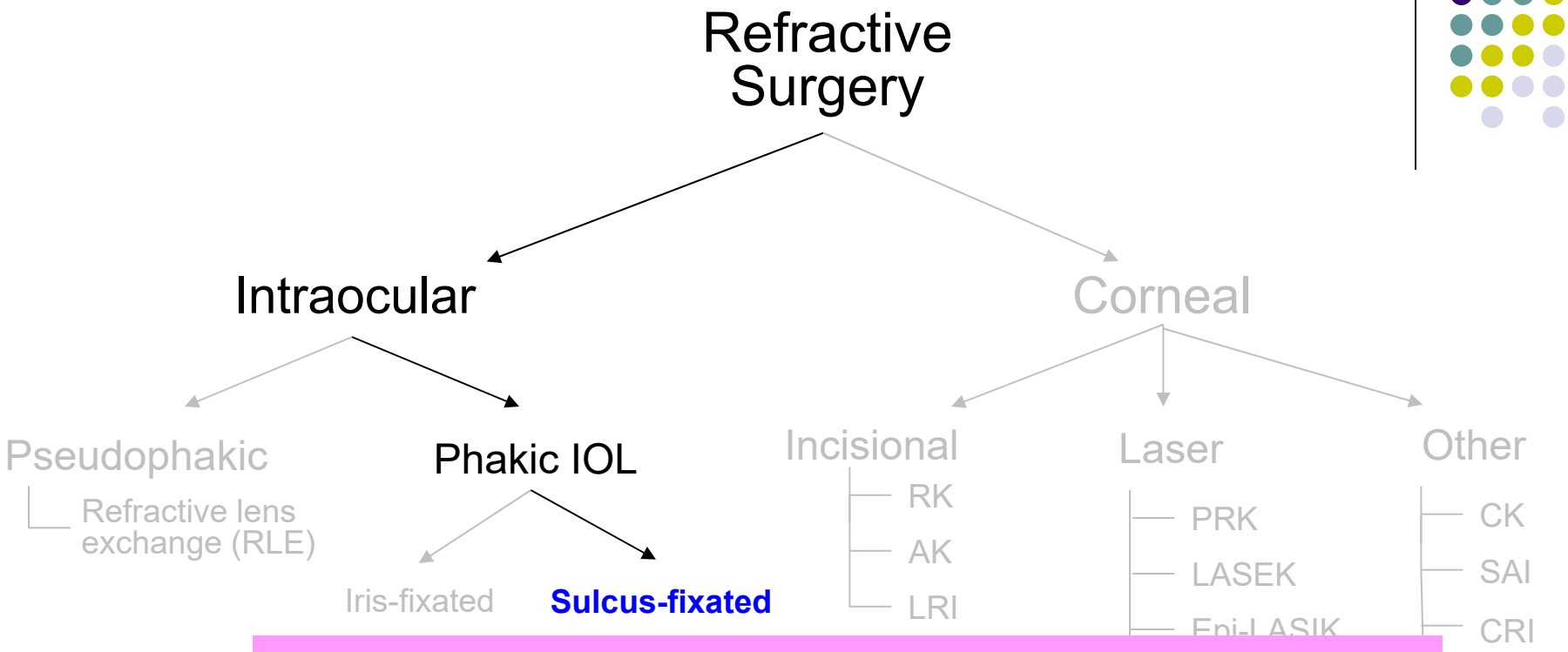

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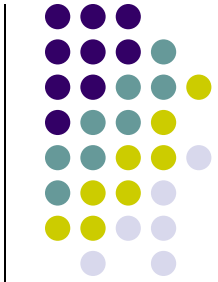

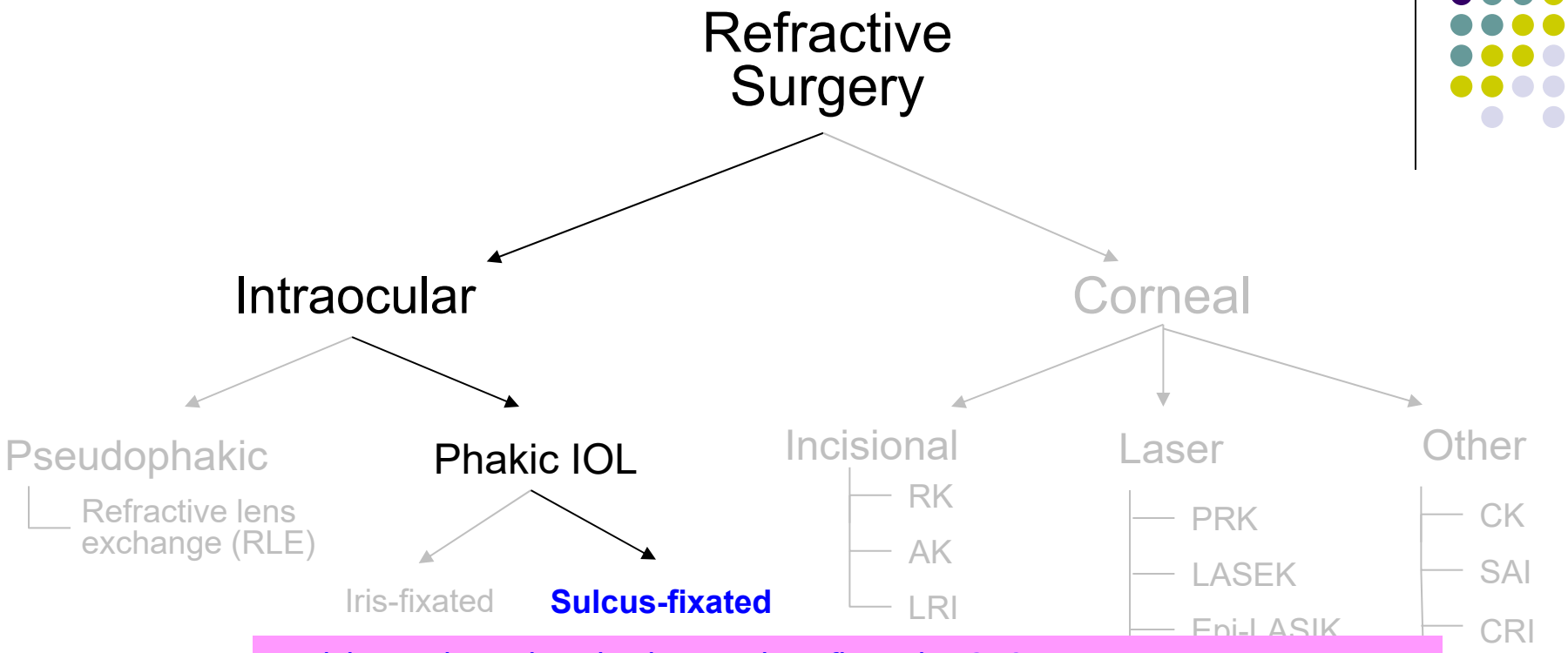

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Prior to surger
Dilated

Referring to FL
Approved lens

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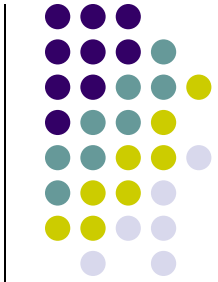
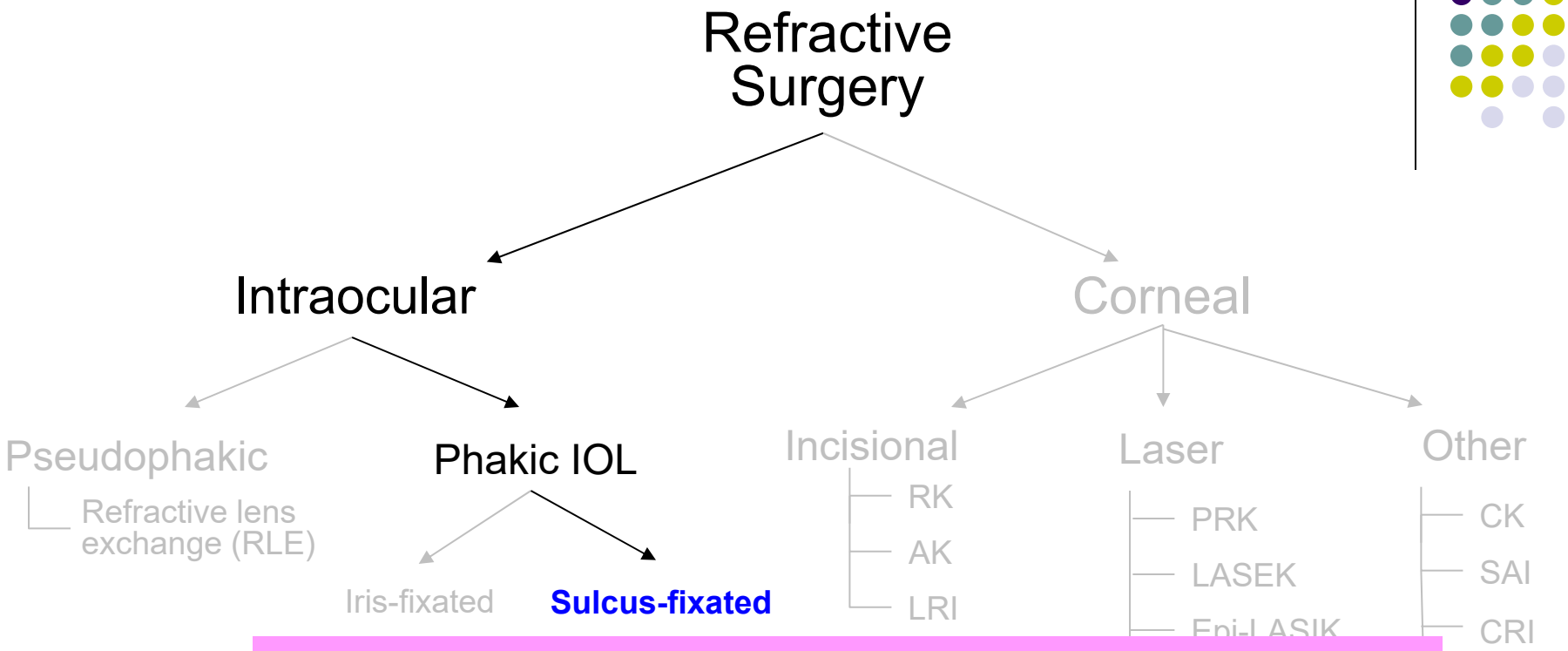
The optic of a

Intraocular Refractive Surgery





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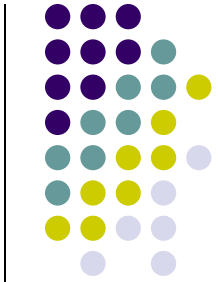

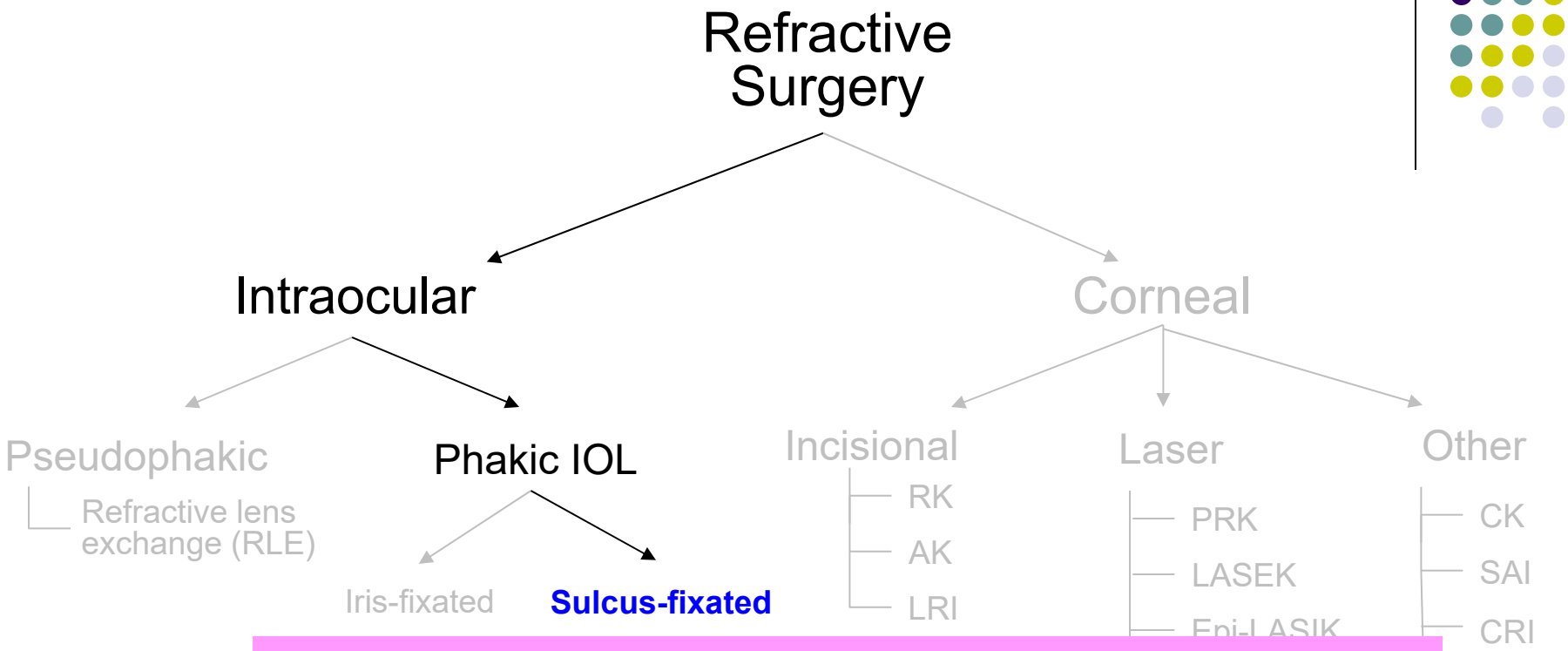

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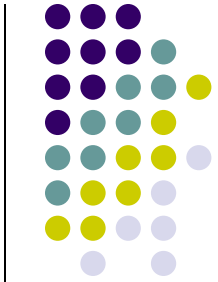

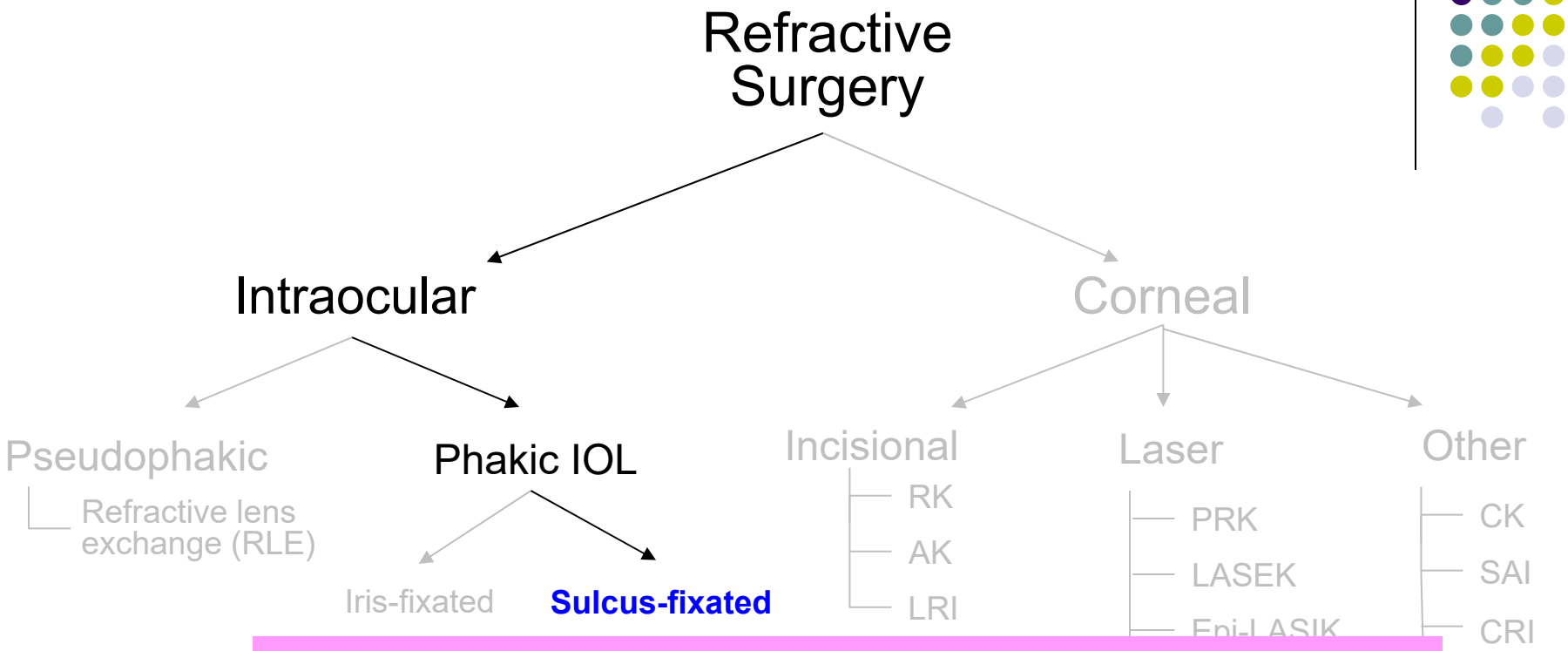

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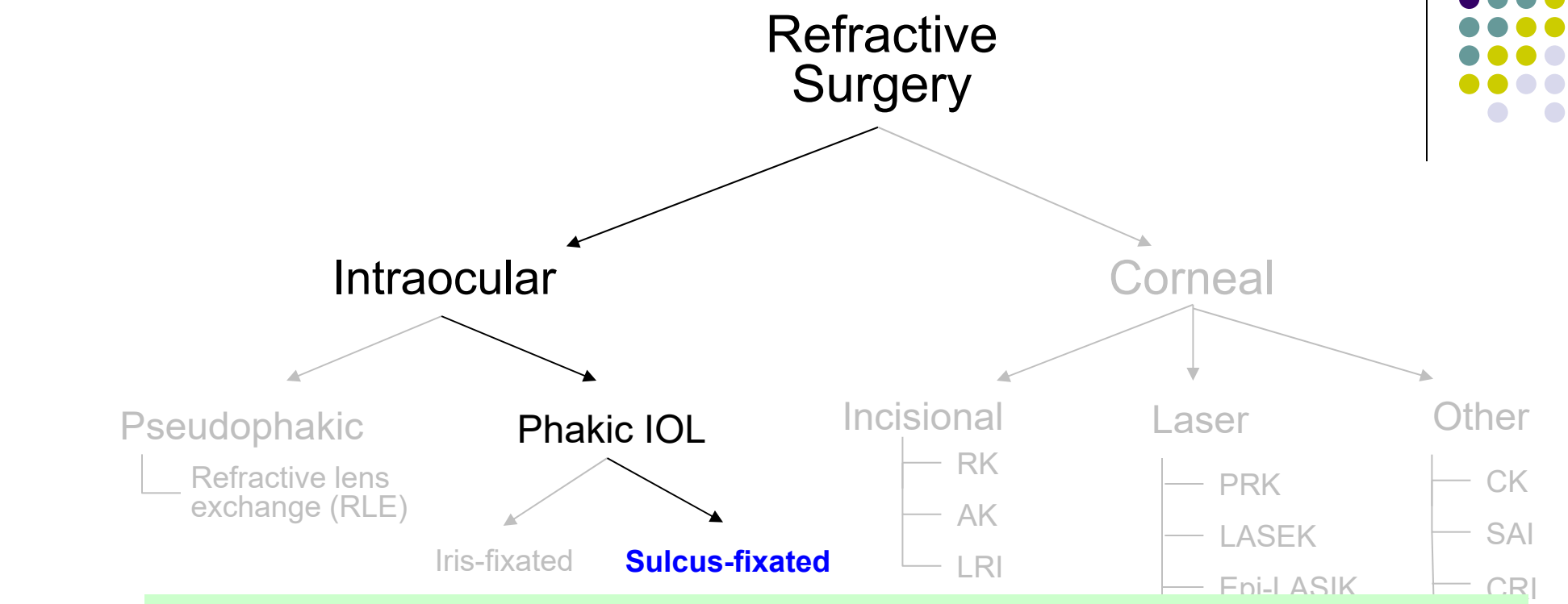
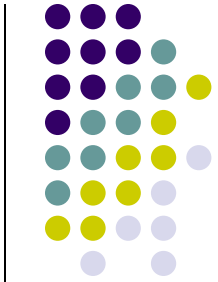
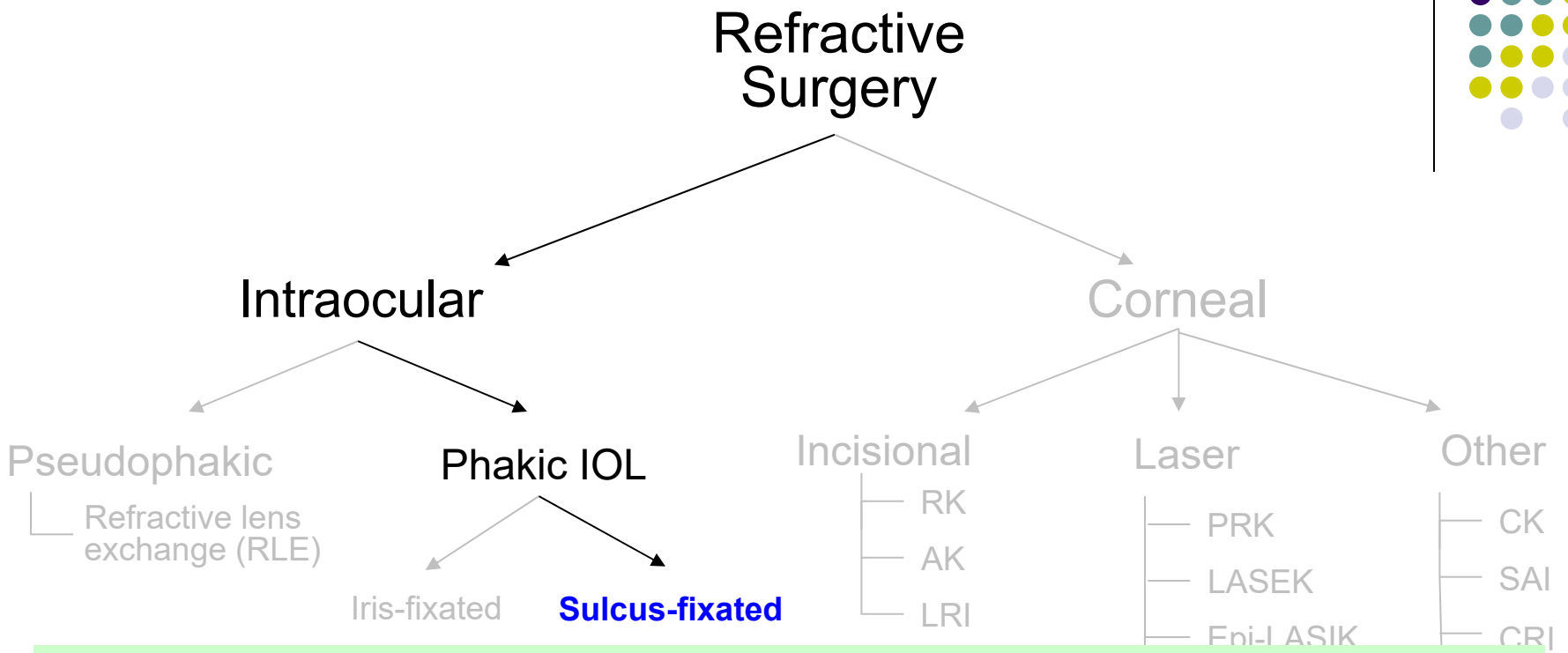


Do sulcus-fixated PIOLs have a good safety record?

Intraocular Refractive Surgery





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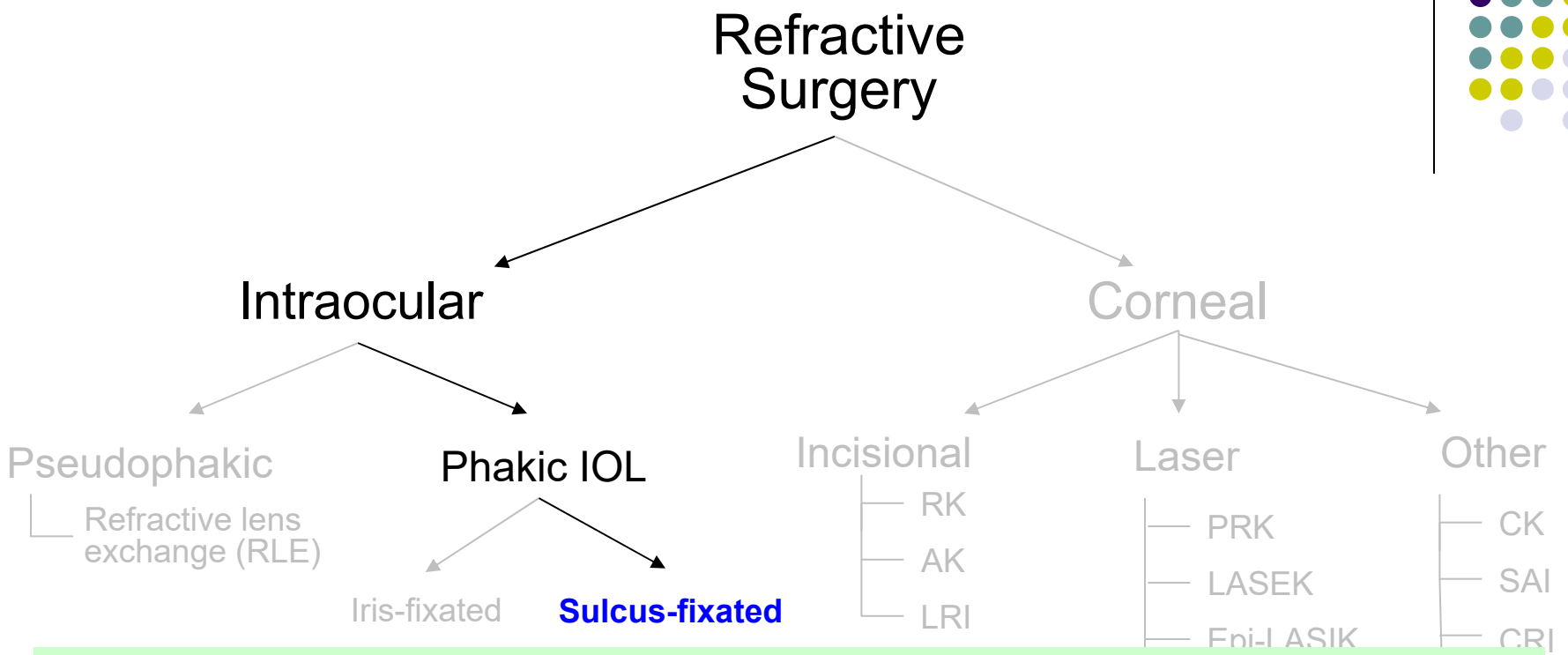

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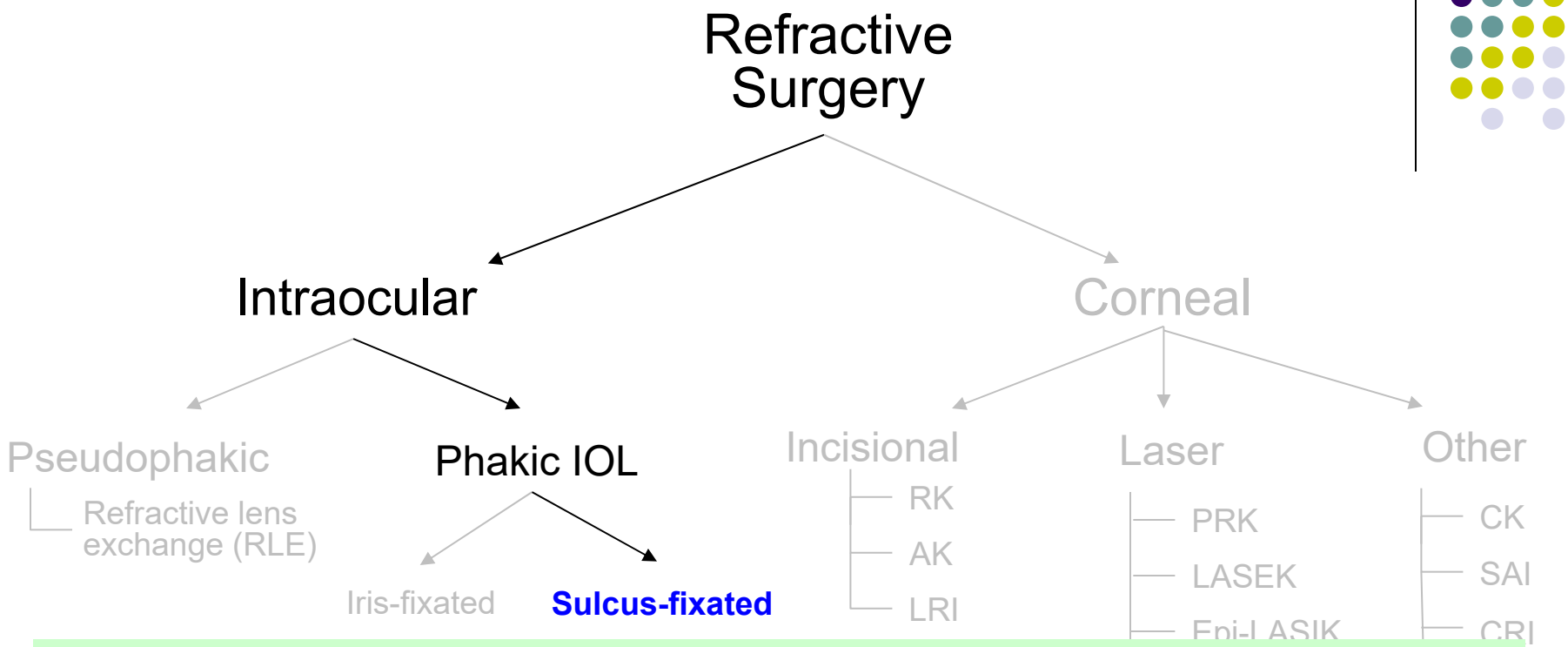

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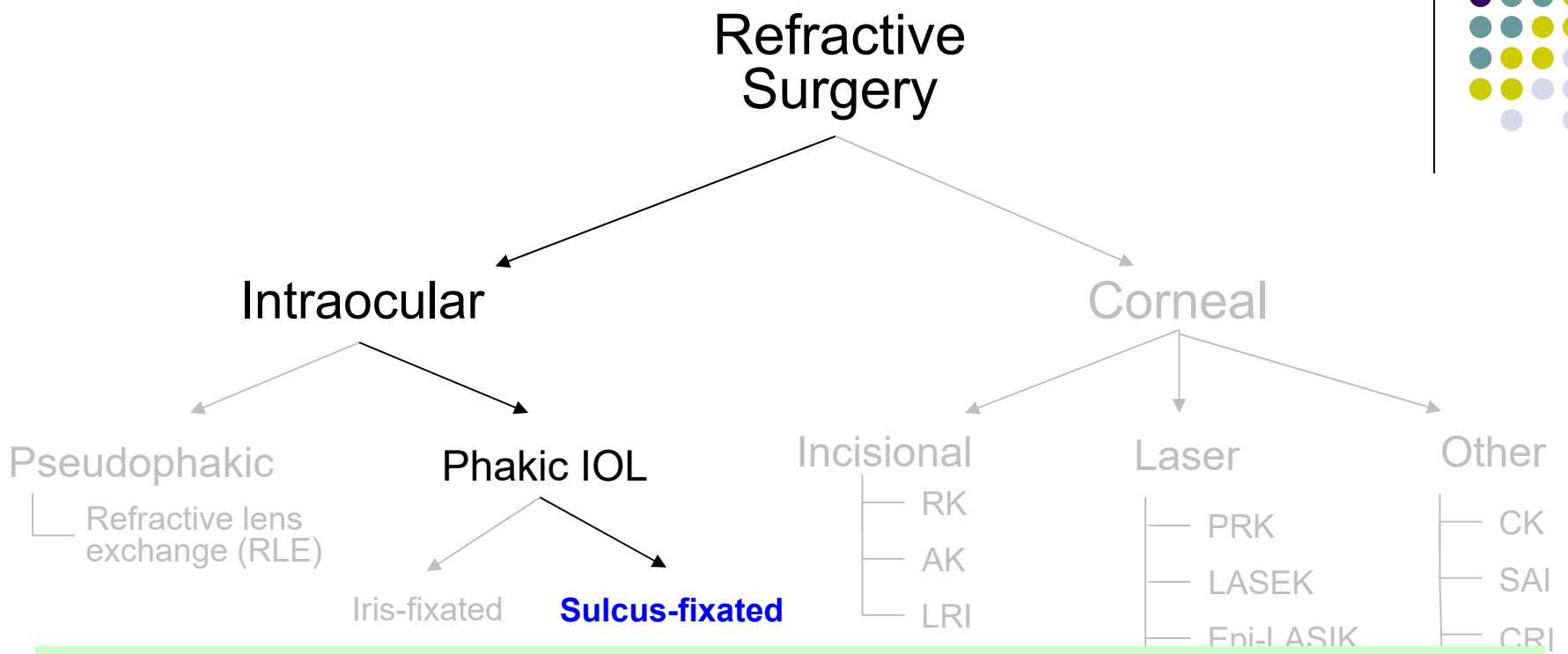

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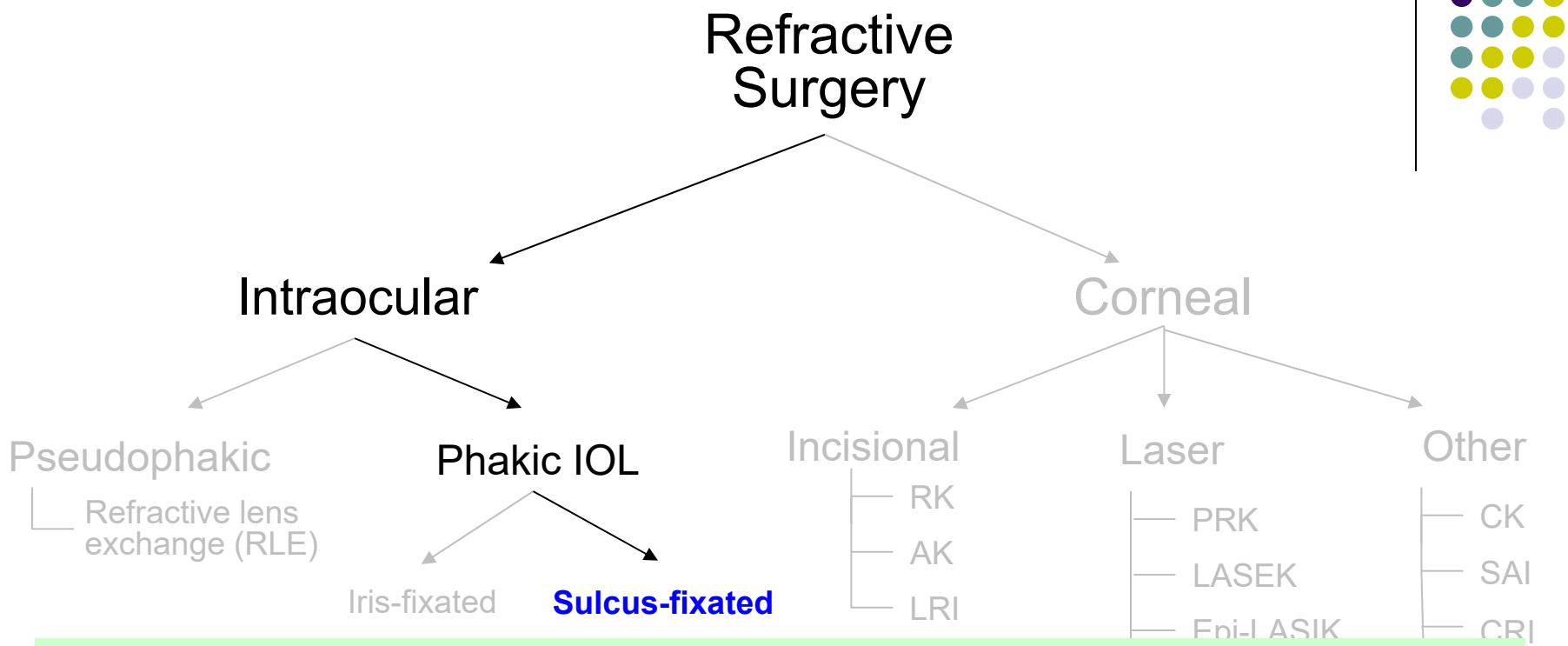

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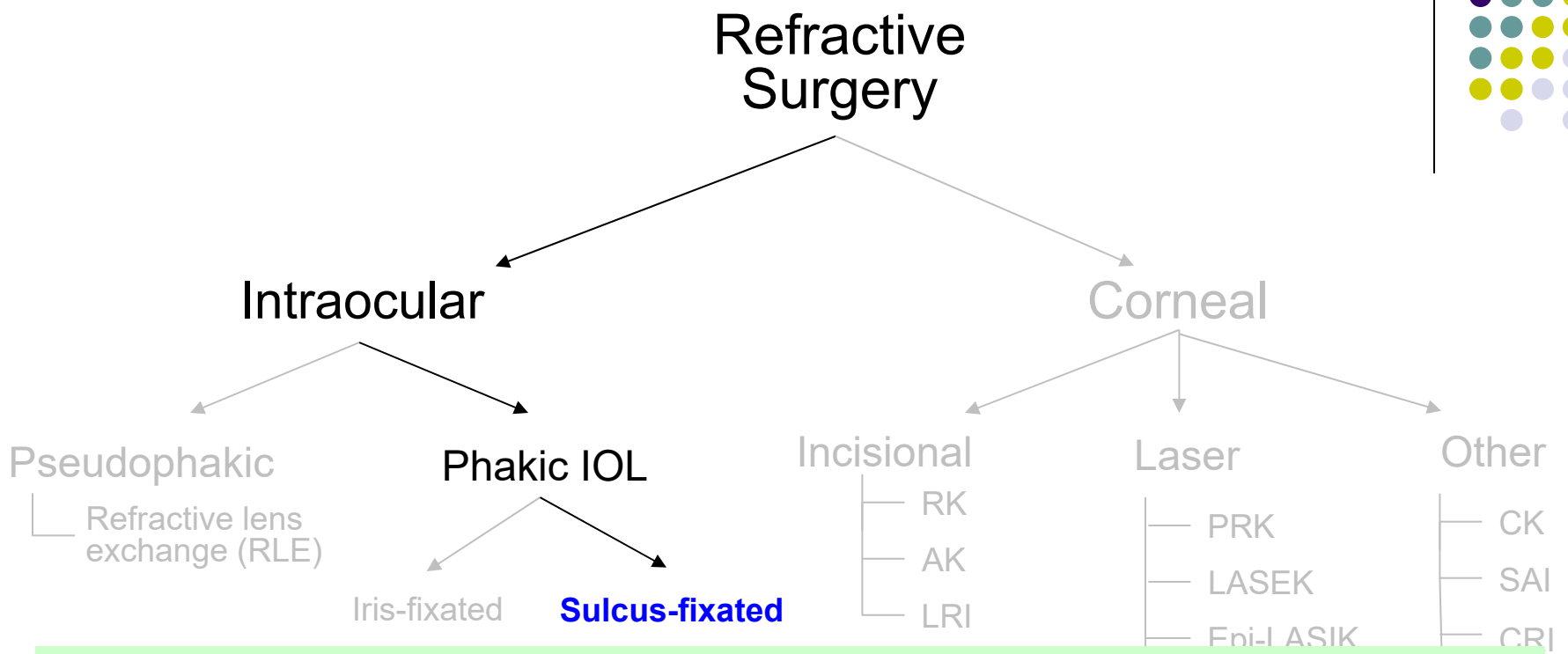

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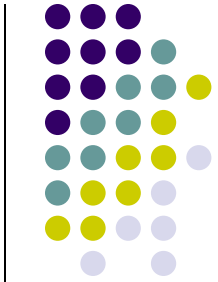

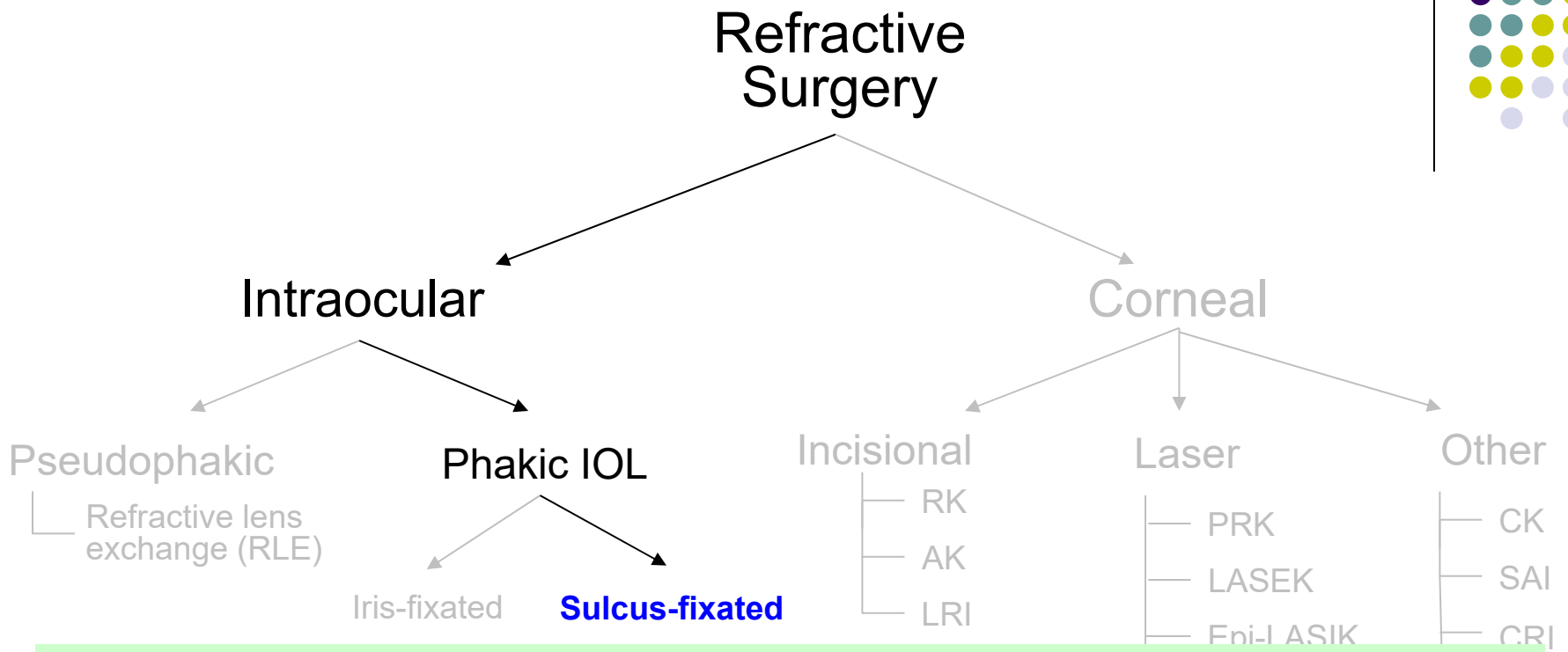

Do sulcus-fixated PIOLs have a good safety record?

How does placement of a too-large sulcus-fixated PIOL lead to pigment dispersion?

ses--hyphema, iritis,
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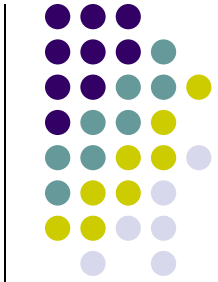

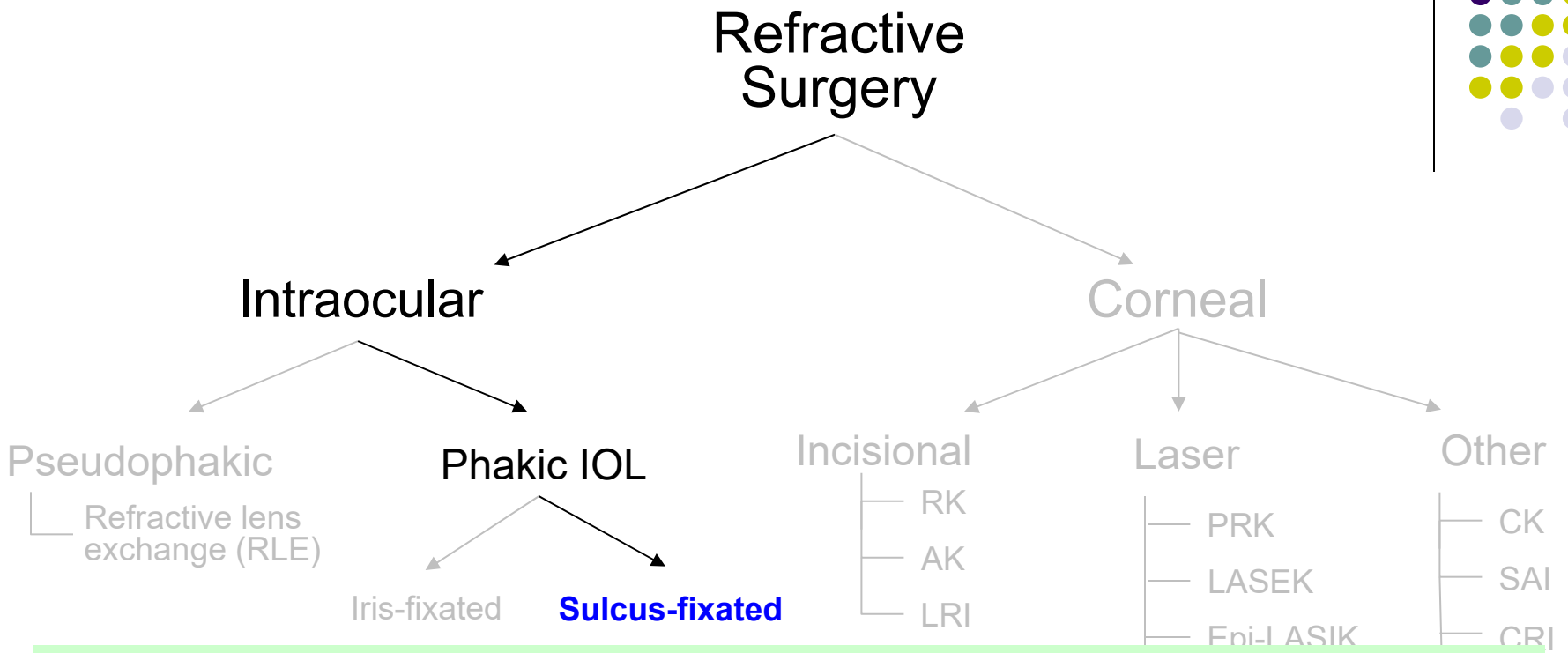

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How does placement of a too-large sulcus-fixated PIOL lead to pigment dispersion?
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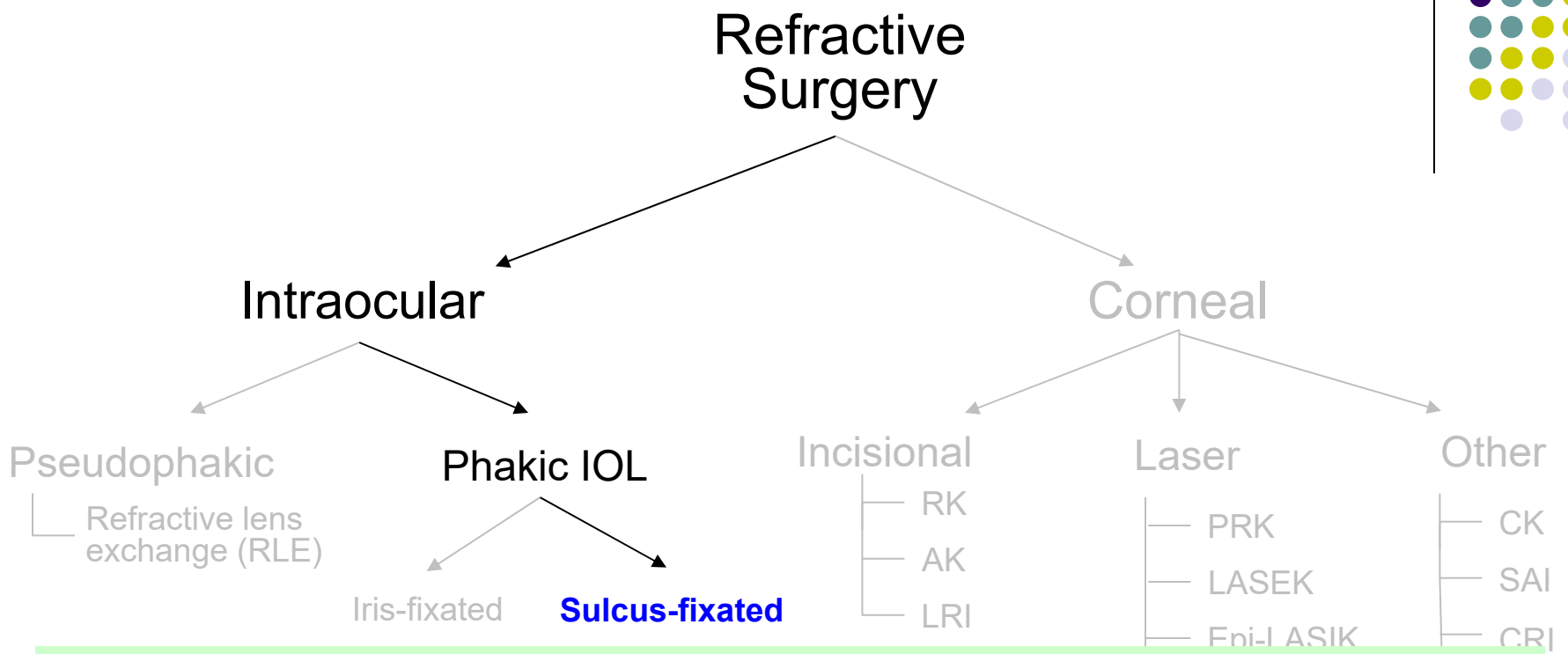

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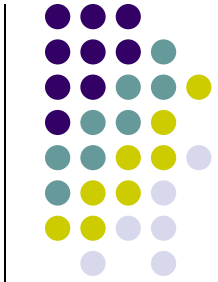

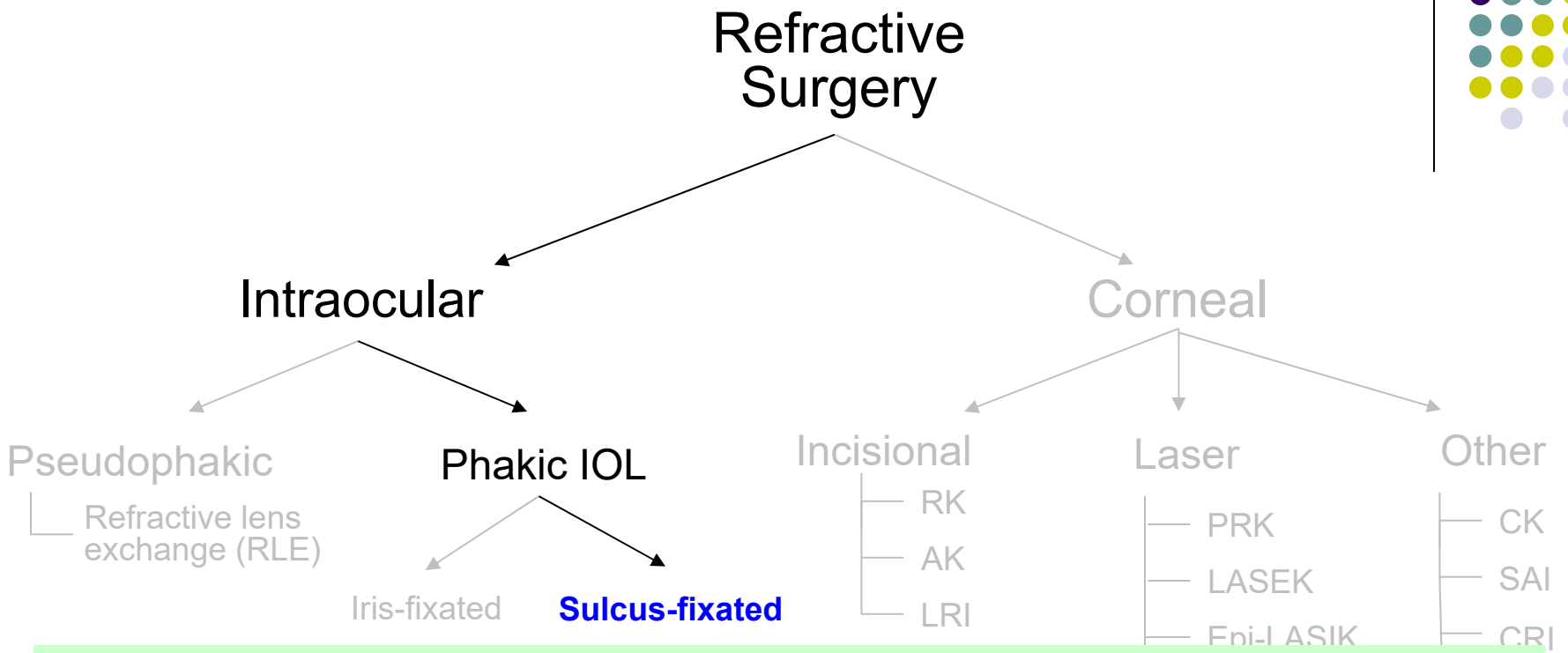

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*How does placement of a too-**small** sulcus-fixated PIOL lead to cataract formation?*
Such a lens will vault **insufficiently**, leading to contact with the native lens and subsequent cataract formation

...ses--hyphema, iritis, ...ent several potential

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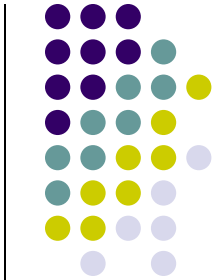
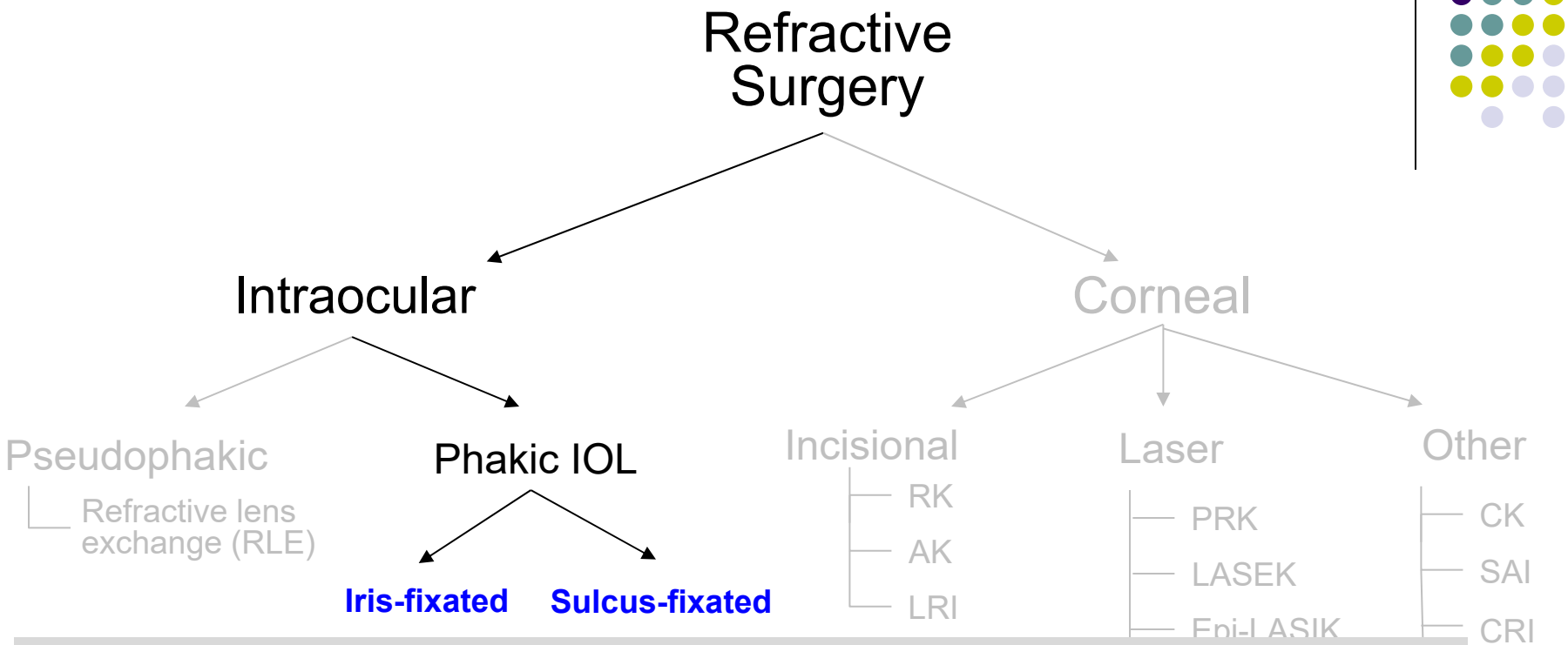
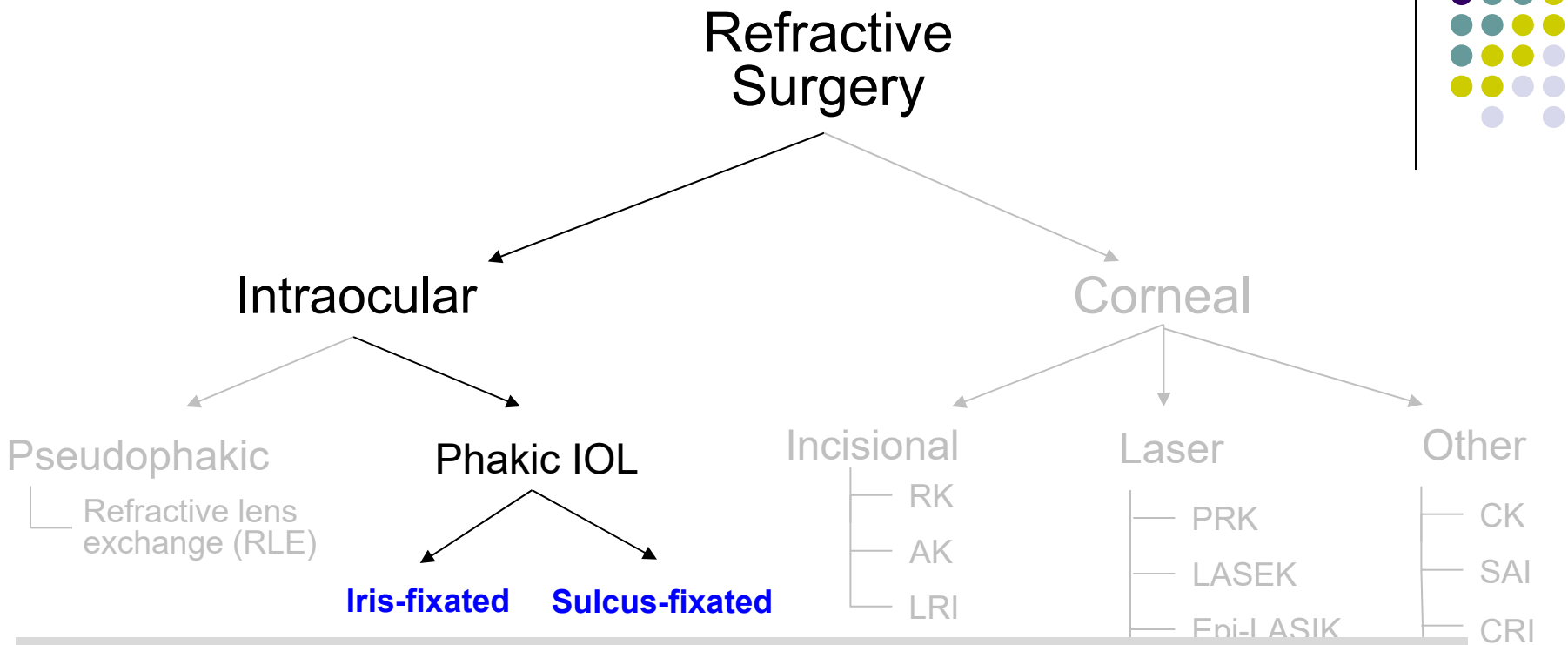




With regard to visual outcomes, how does post-PIOL corrected distance visual acuity (CDVA) compare to pre-op best-corrected visual acuity (BCVA)?

Intraocular Refractive Surgery



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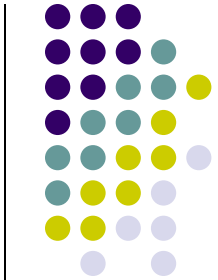

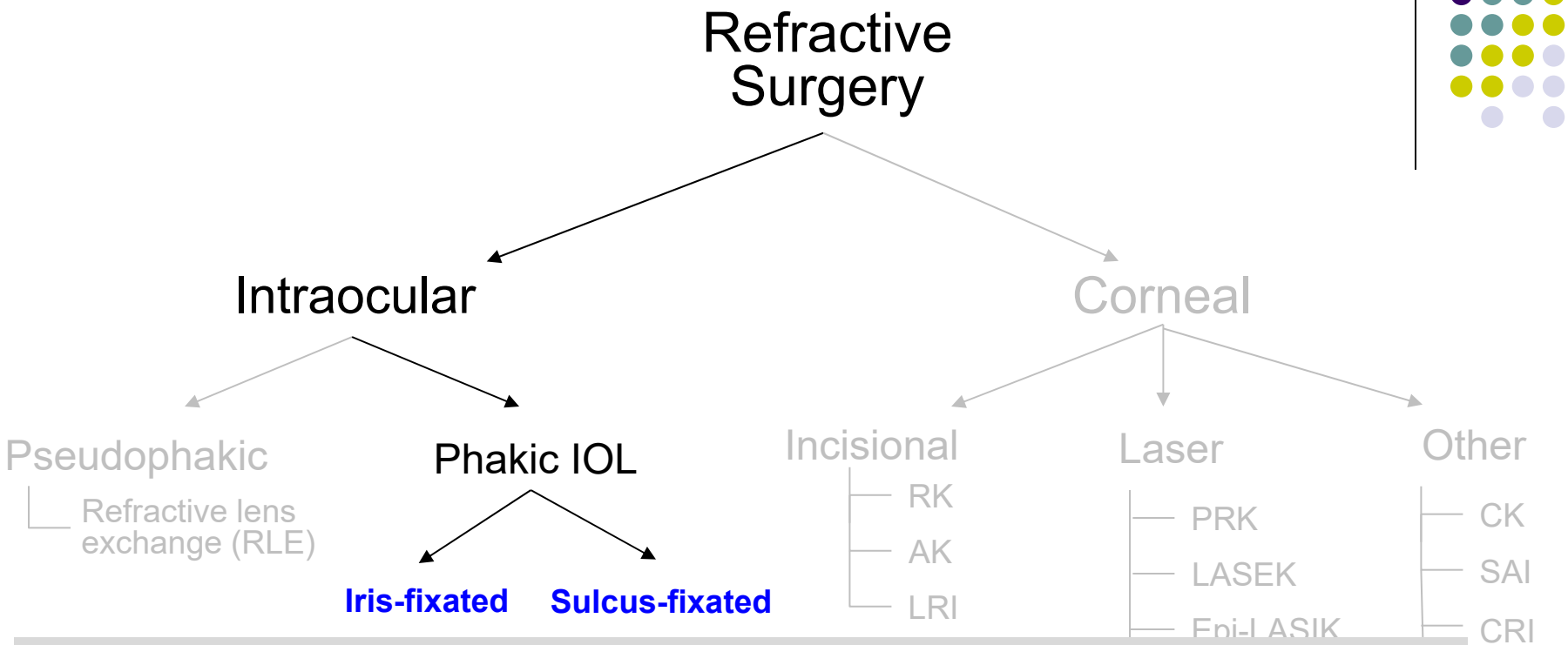

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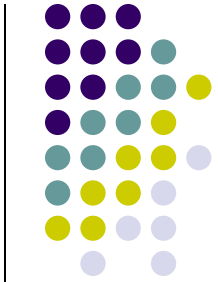

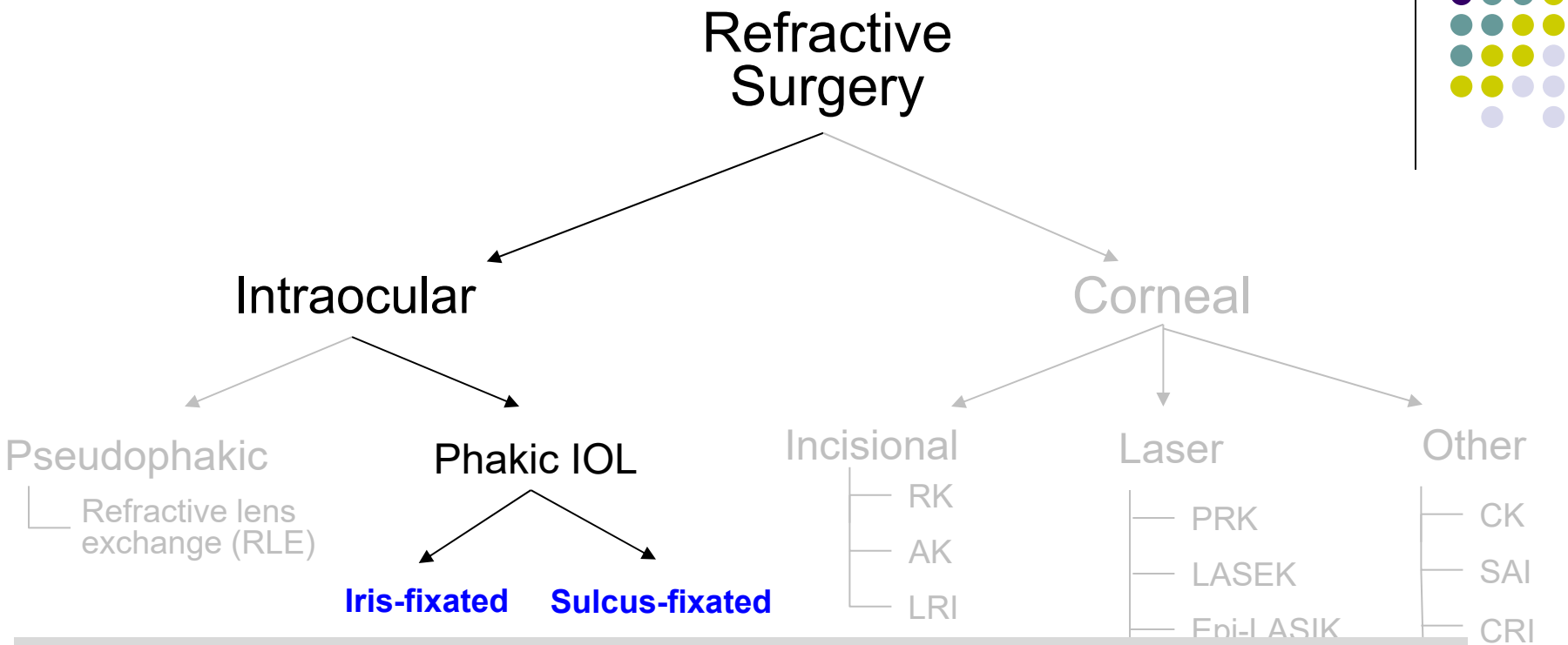

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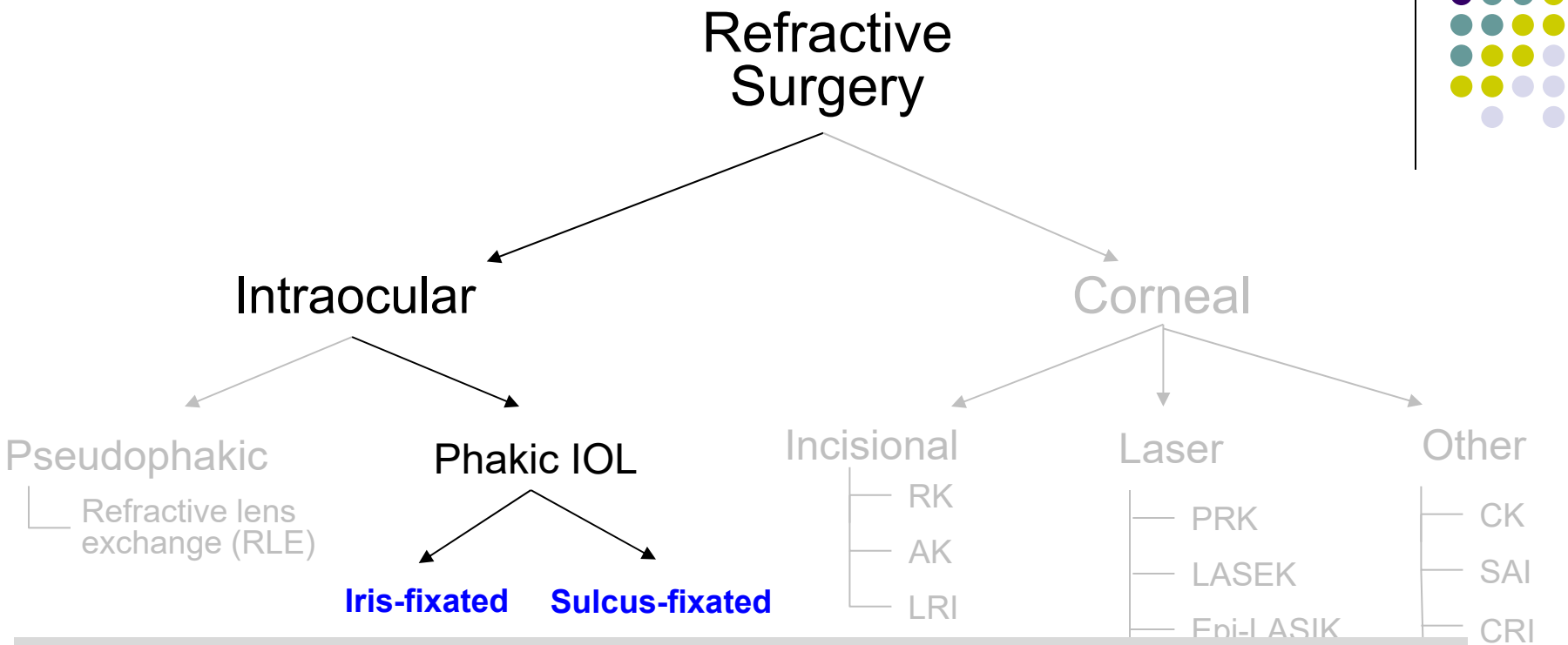

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Let's take a minute to unpack the Optics underlying this…

Intraocular Refractive Surgery

Refractive Surgery

Intraocular

Corneal

Other

CK

SAI

CRI

CXL

ICRS

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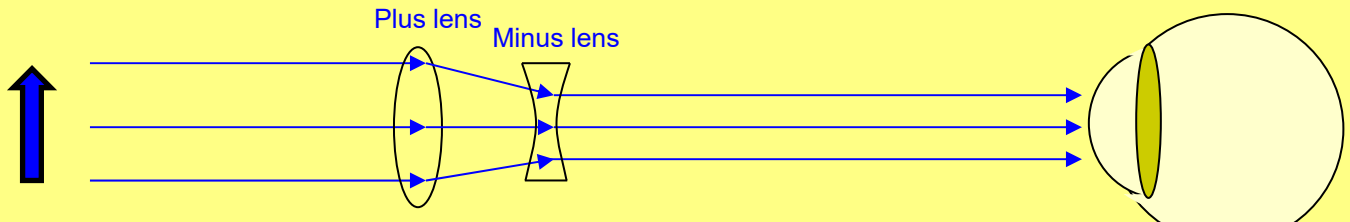

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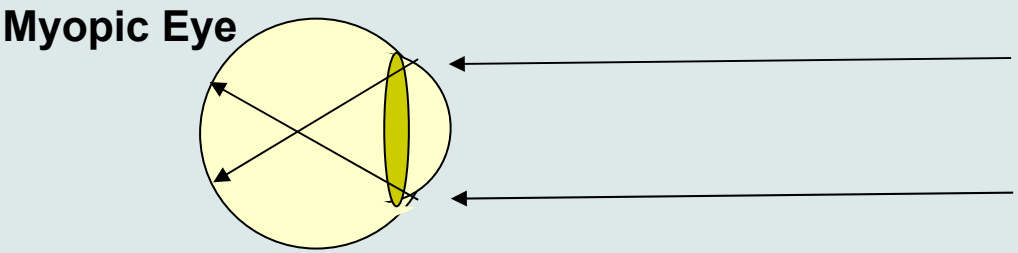

Pse

Other

- CK
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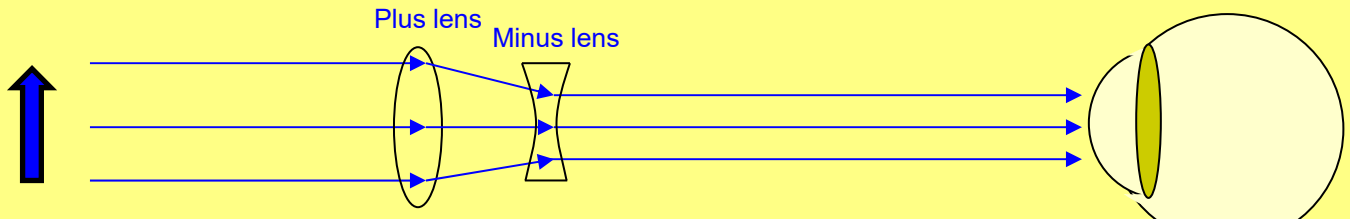

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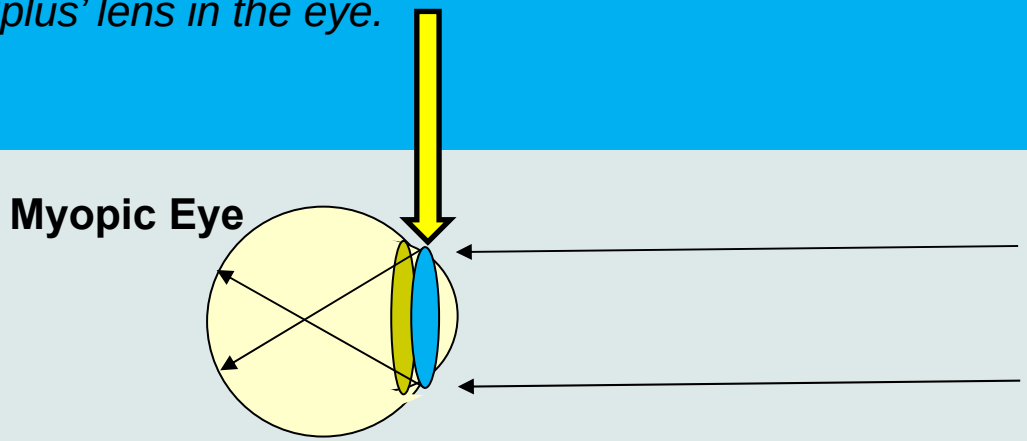

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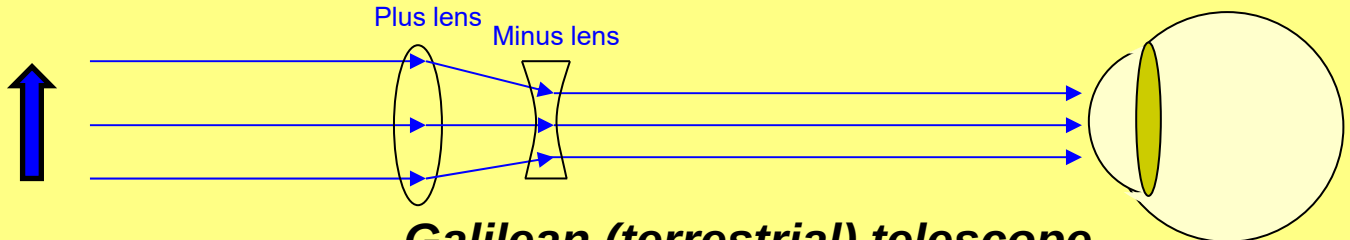

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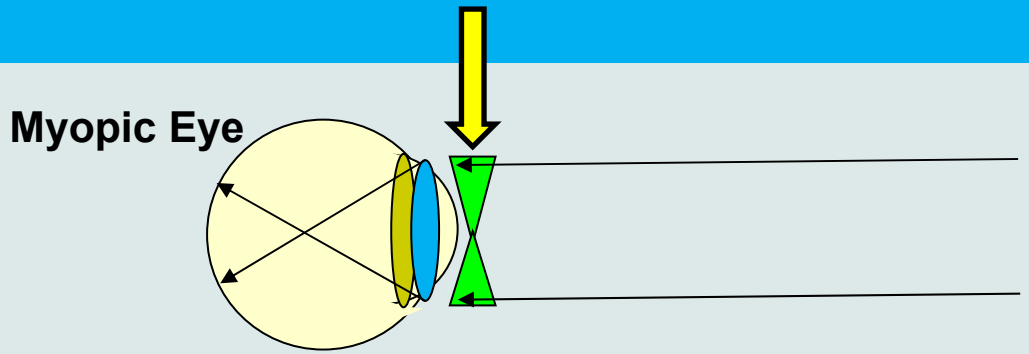

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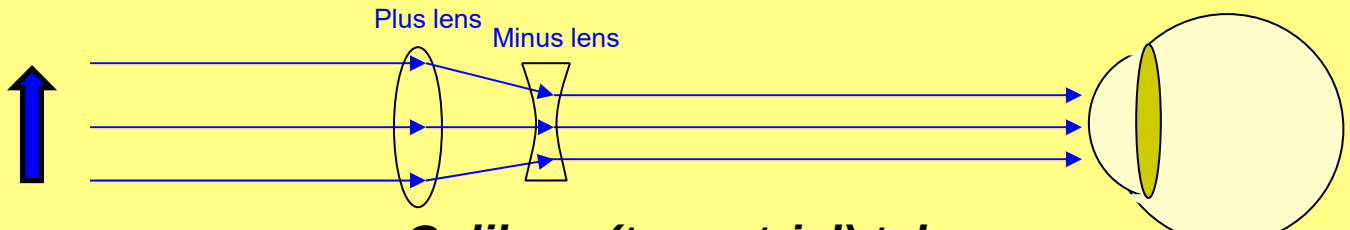

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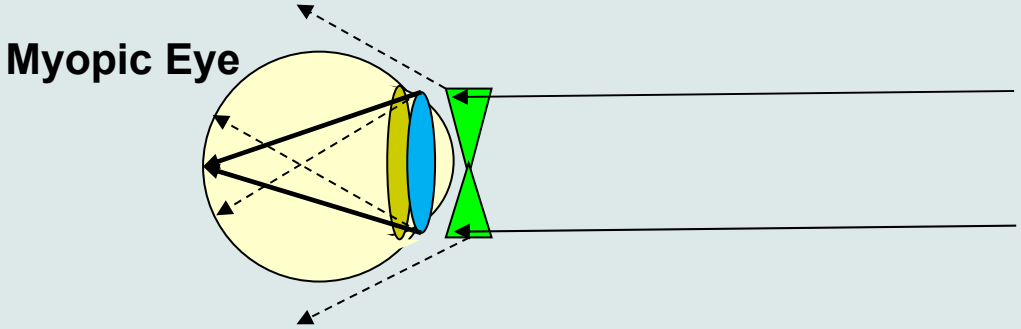

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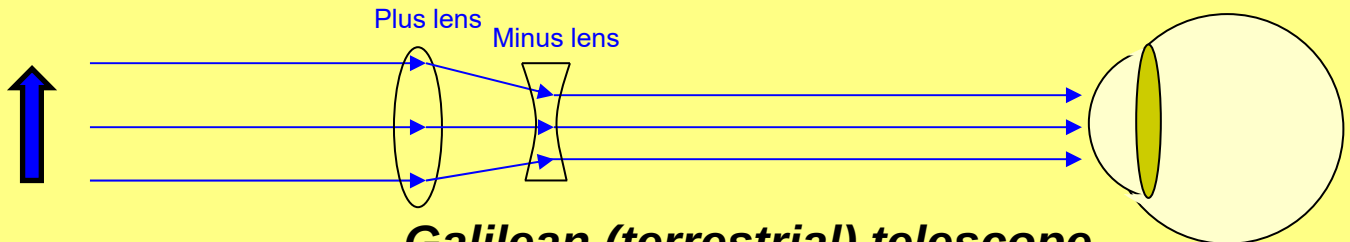

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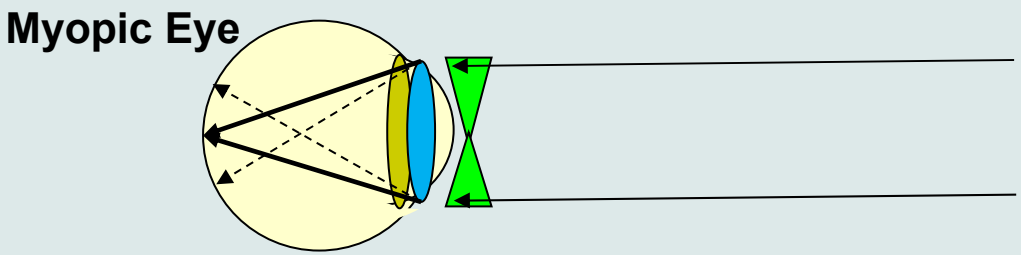

Other
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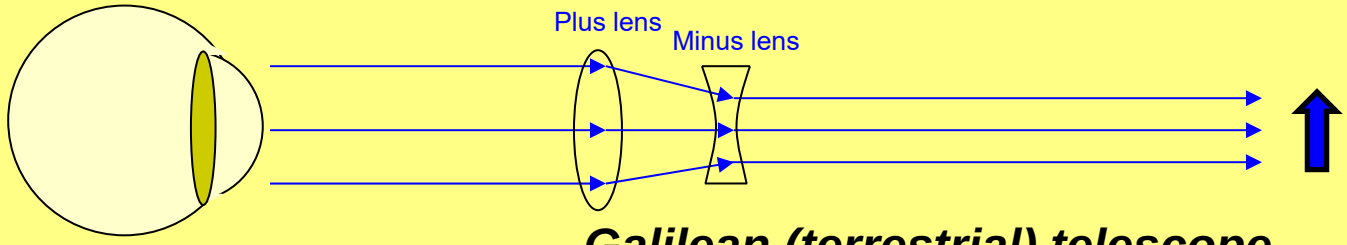
Recall as well that, as any little kid can tell you, if you look through the 'wrong' end of a telescope, the image you see is **minified***.*



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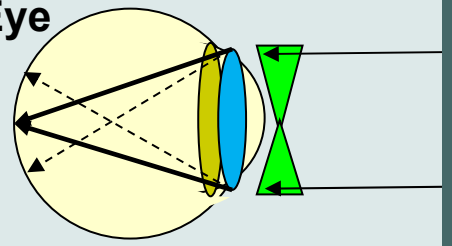
Myopic Eye



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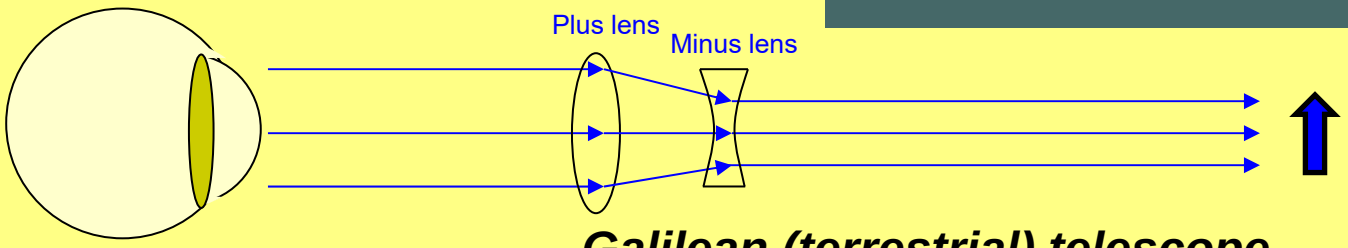

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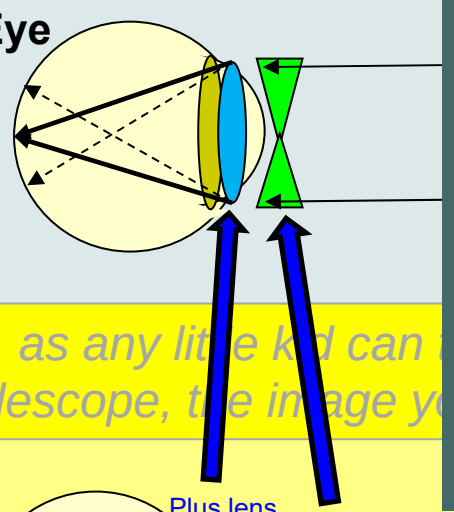

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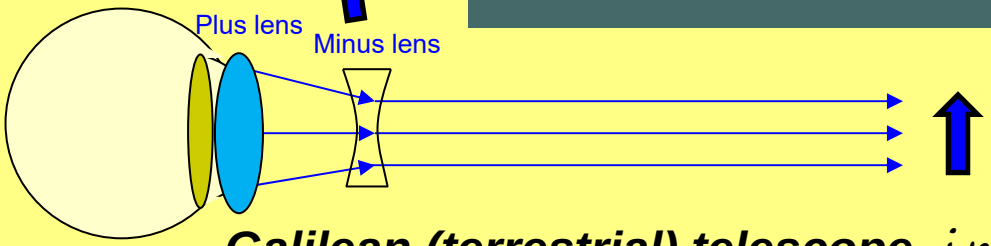

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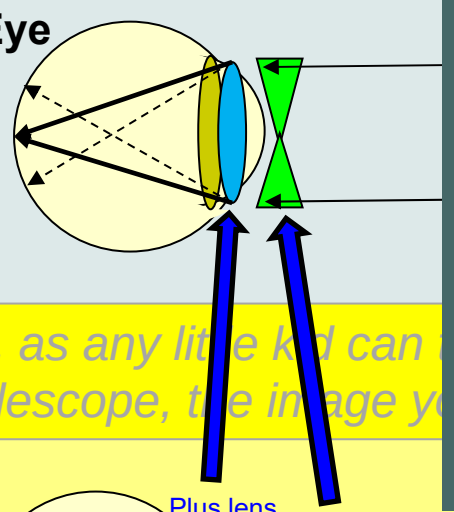

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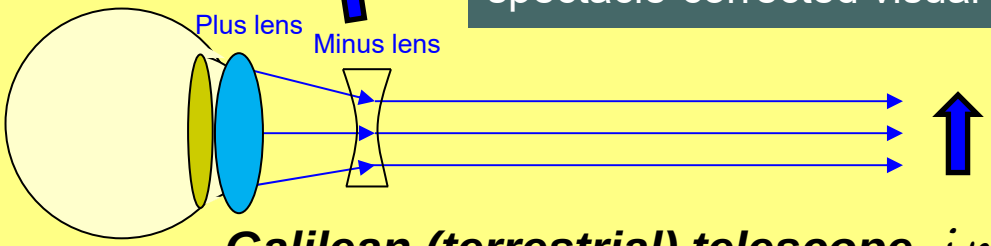

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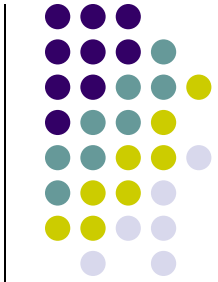
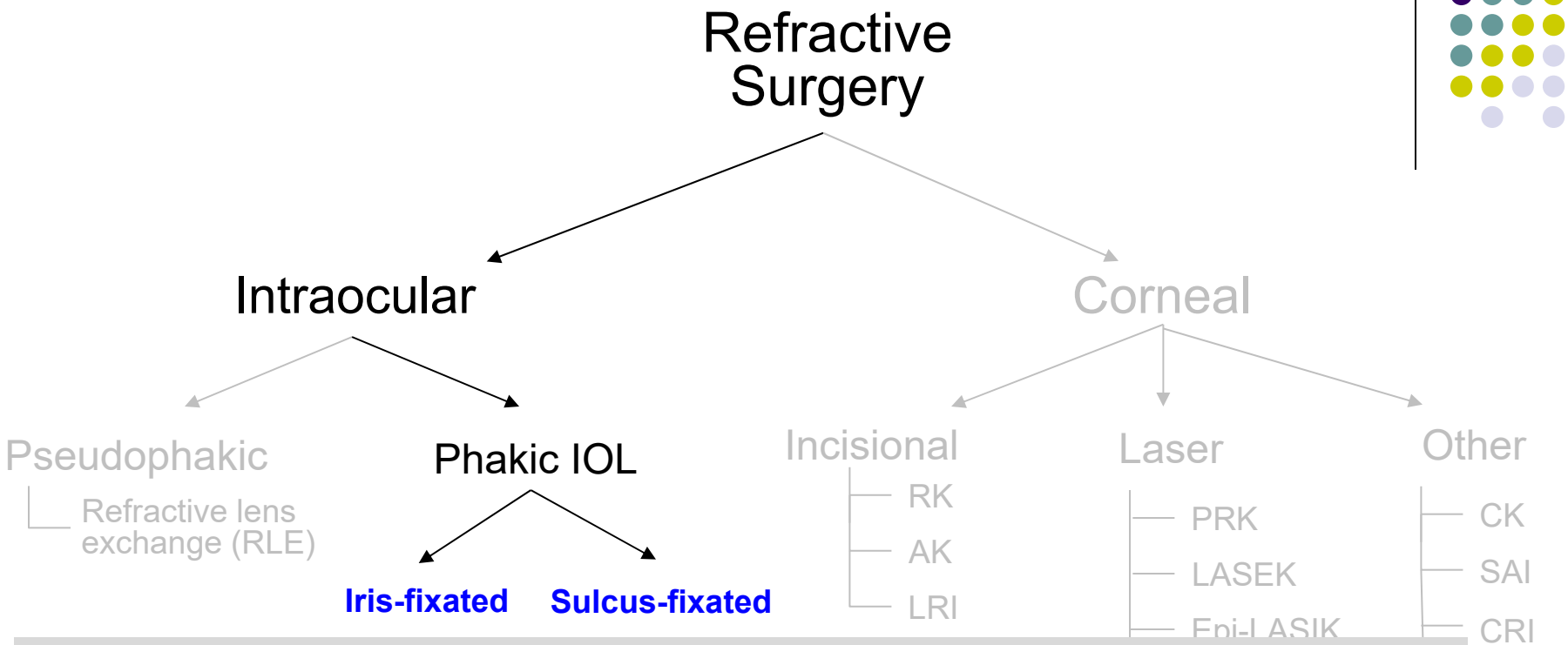
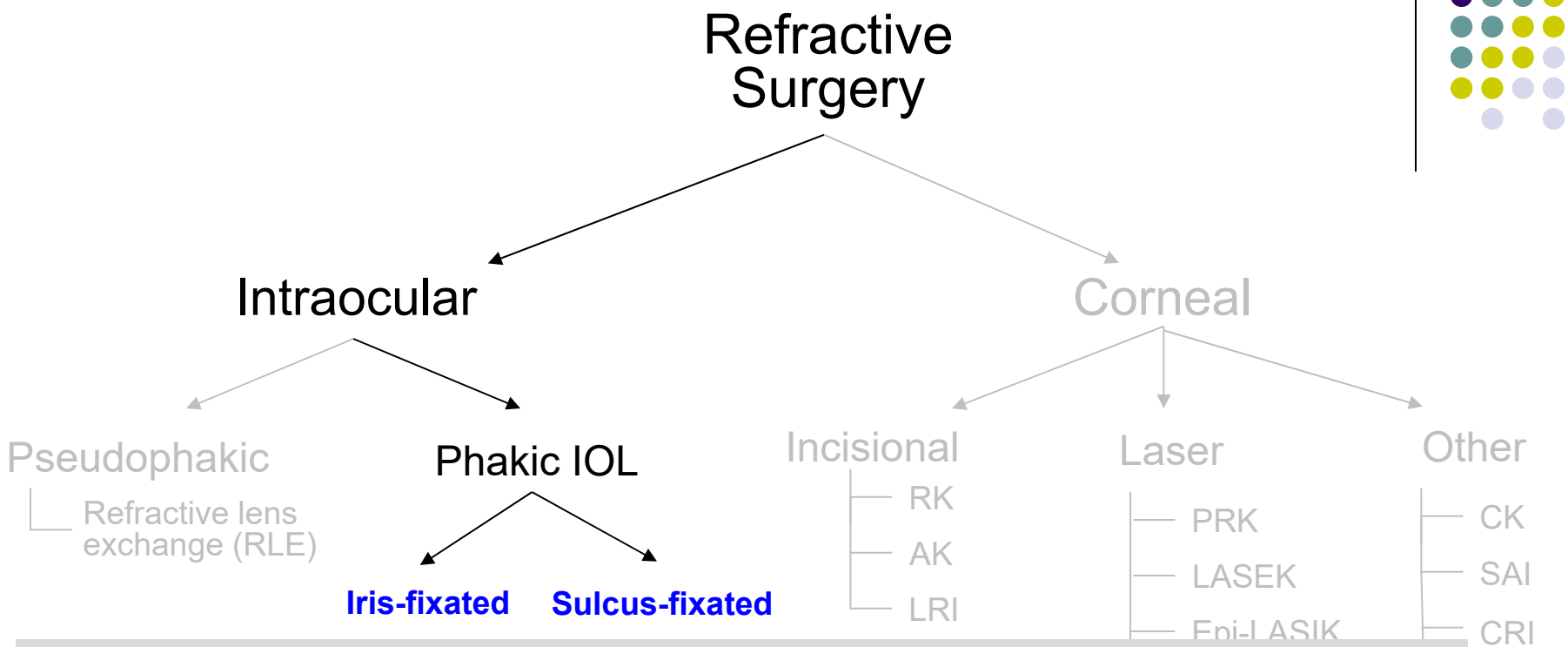




With regard to visual outcomes, how does post-PIOL corrected distance visual acuity (CDVA) compare to pre-op best-corrected visual acuity (BCVA)?
CDVA is rarely worse than BCVA, and is often actually superior to it

How does post-PIOL vision compare to post-LASIK vision in pts of similar pre-op refractive status?

Intraocular Refractive Surgery



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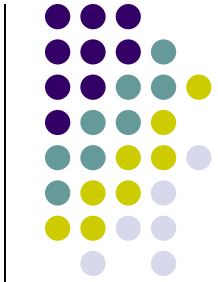
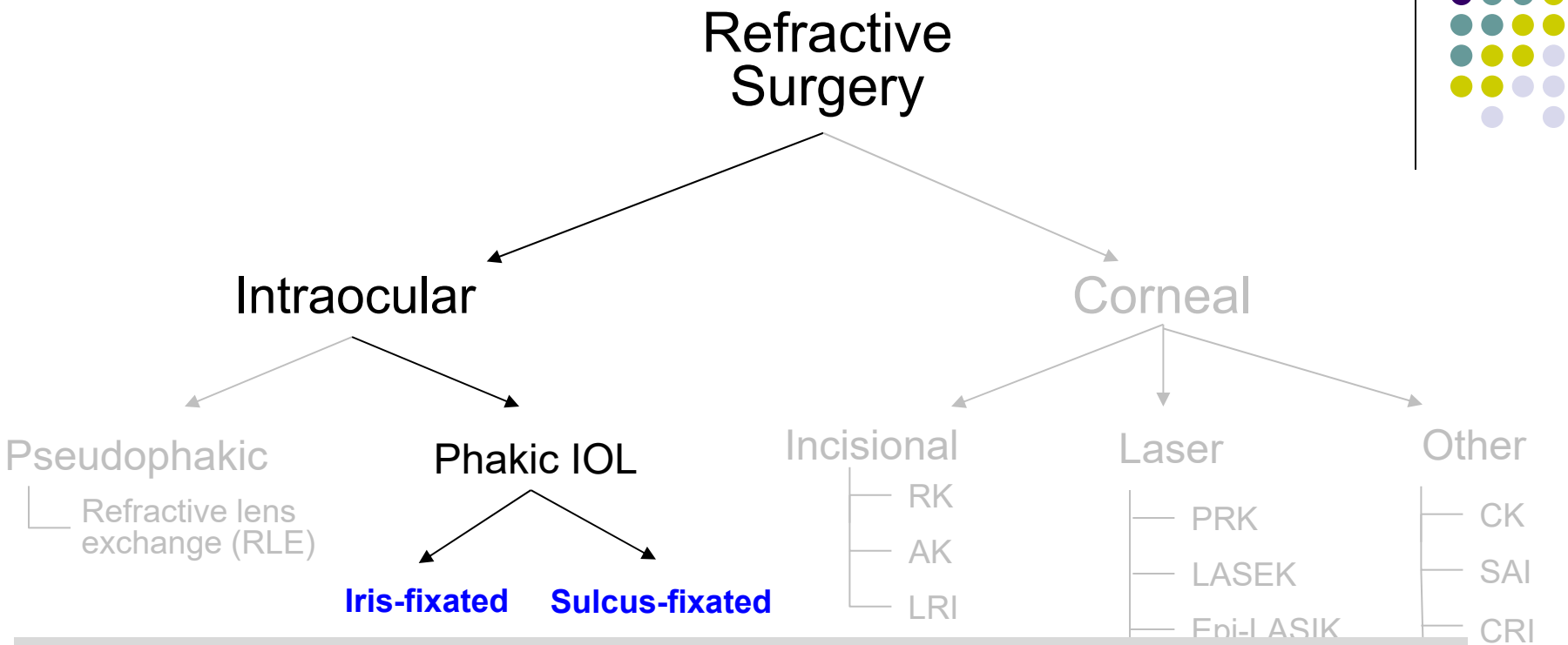
Intraocular Refractive Surgery





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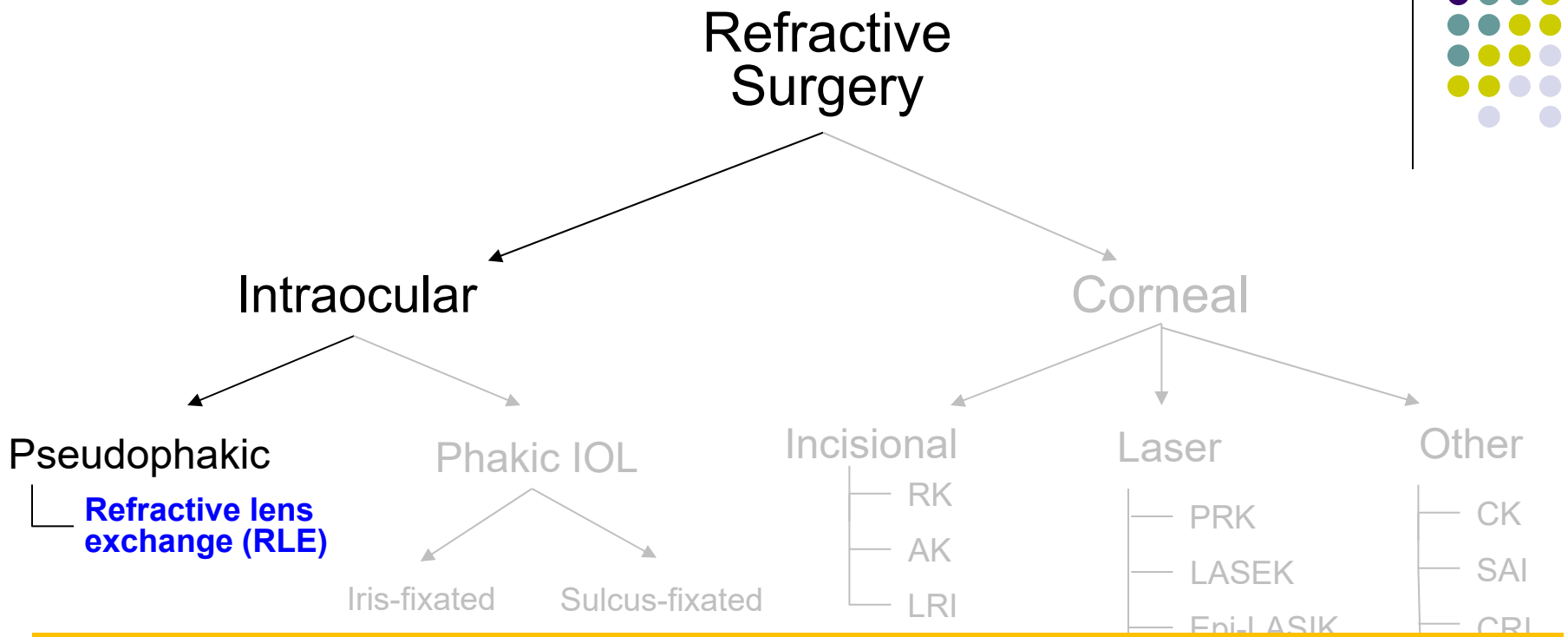
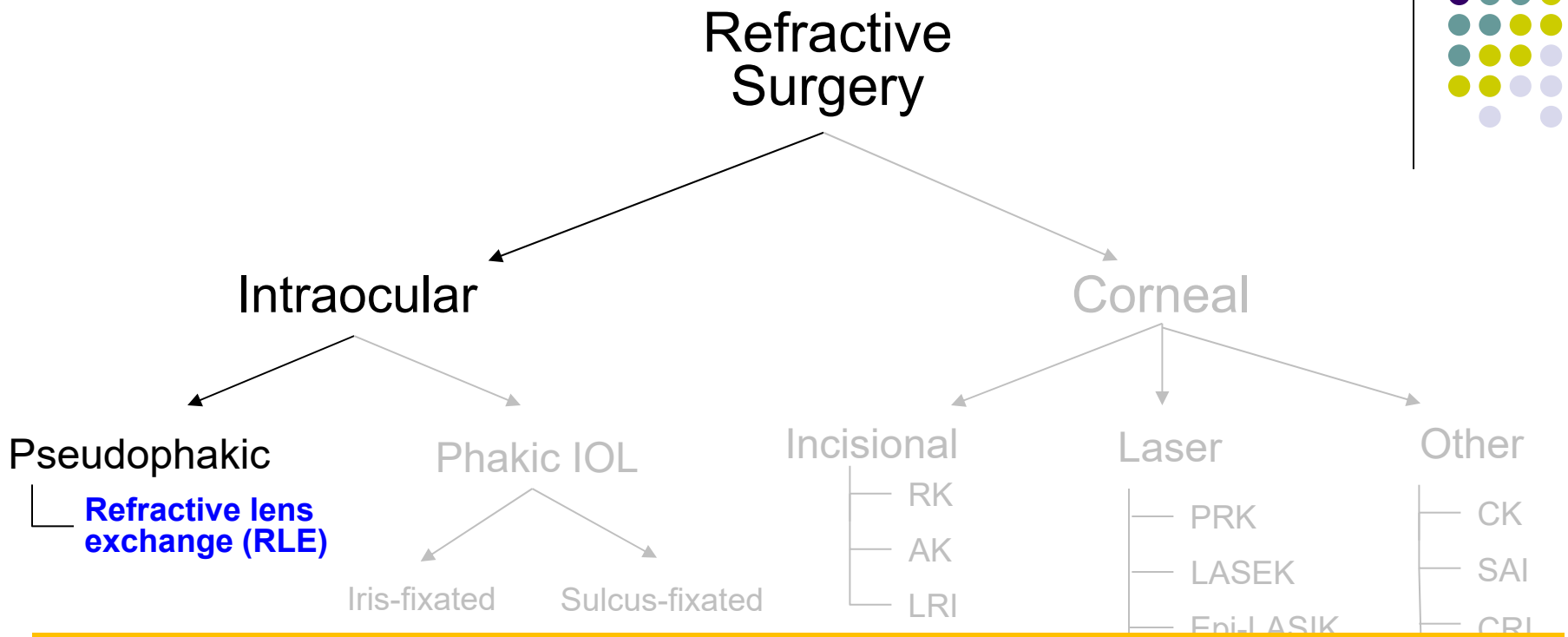
Intraocular Refractive Surgery



What is the most common indication for RLE?

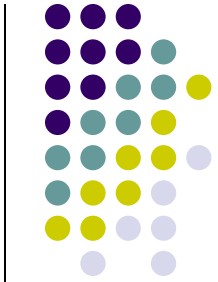
Intraocular Refractive Surgery

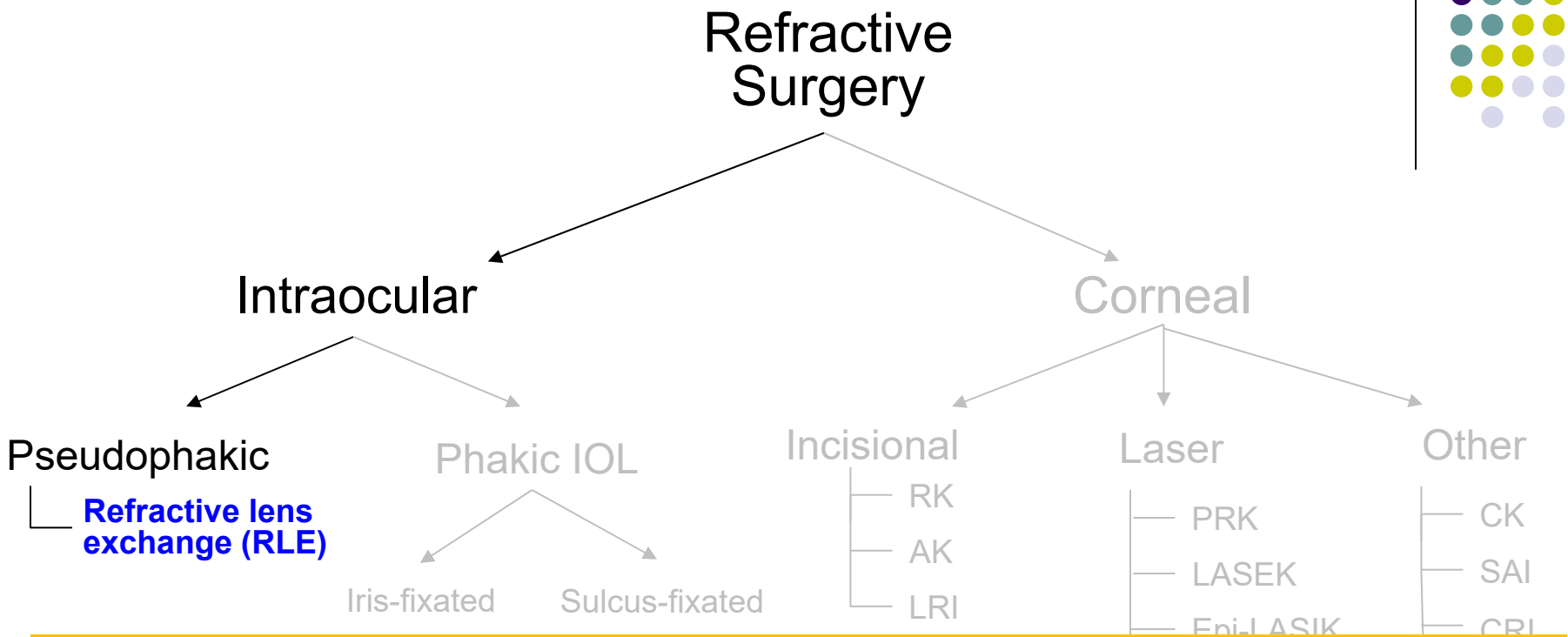


What is the most common indication for RLE?

It is the procedure of choice for presbyopic pts who have already begun to develop lens opacities

Intraocular Refractive Surgery





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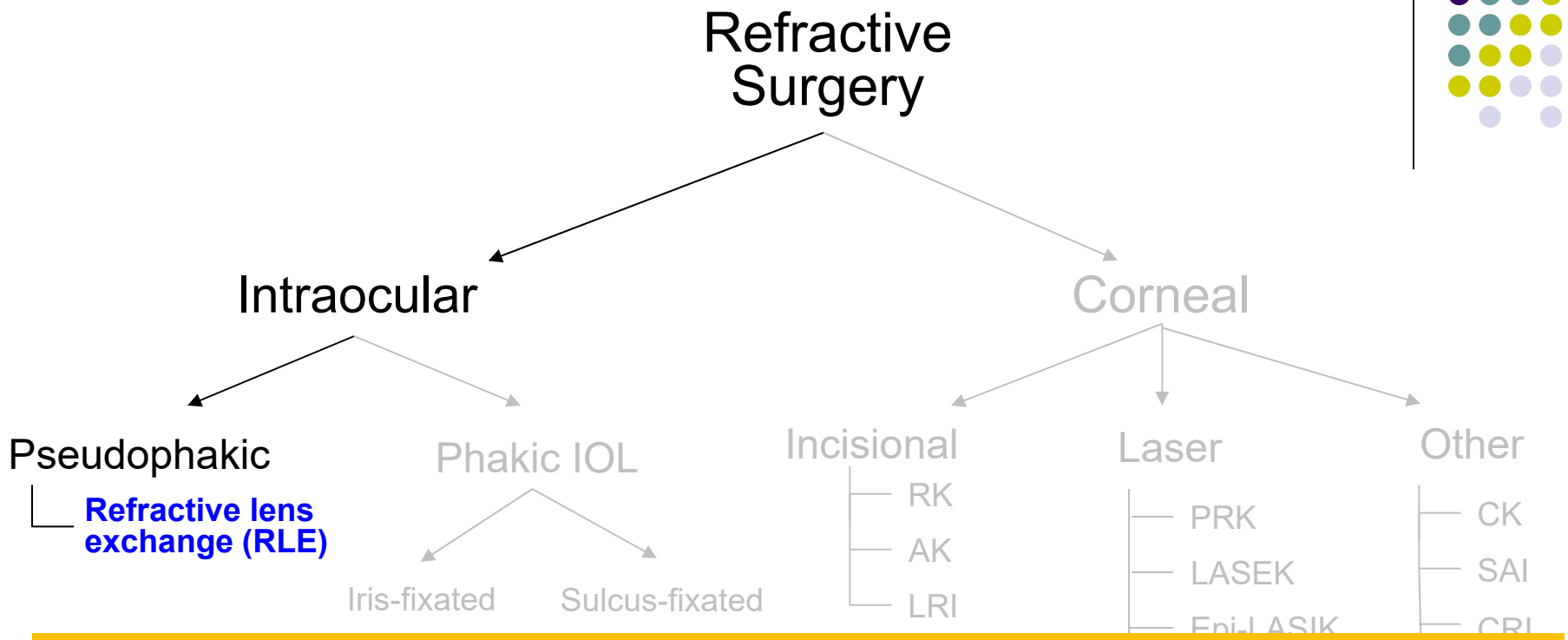

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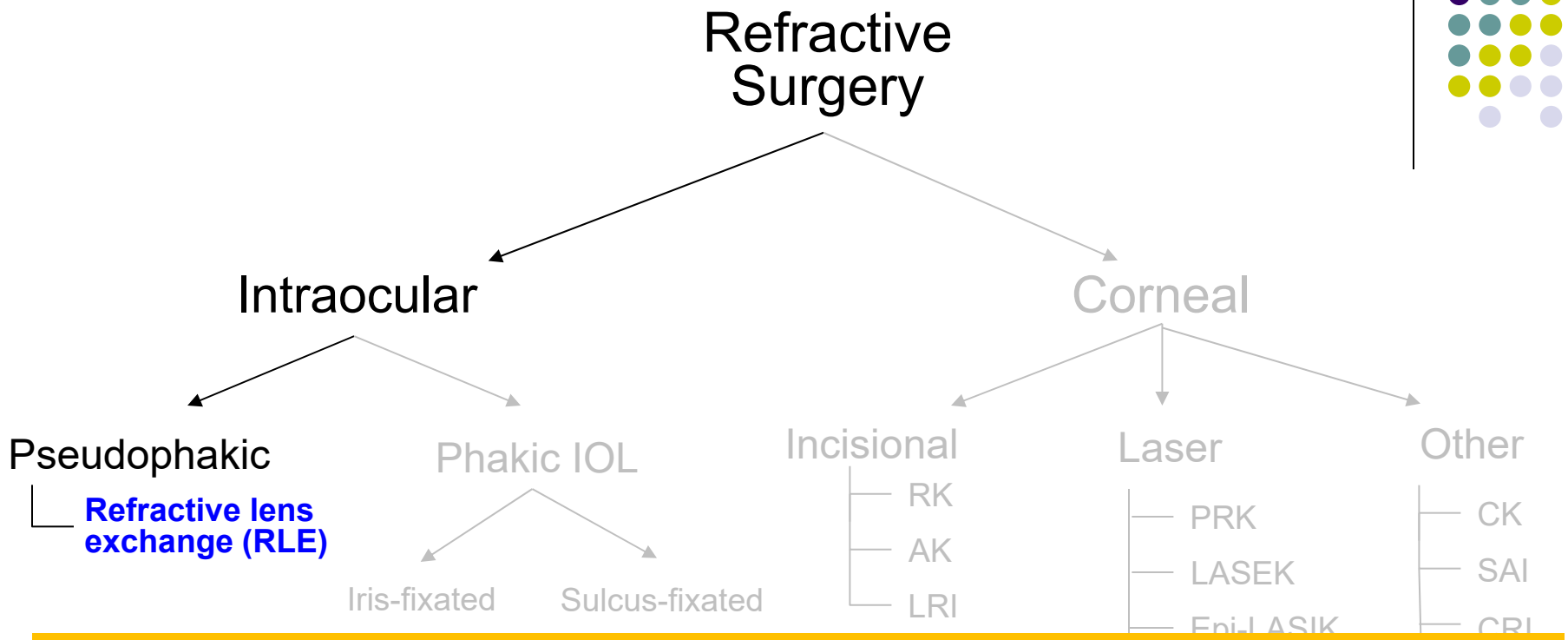

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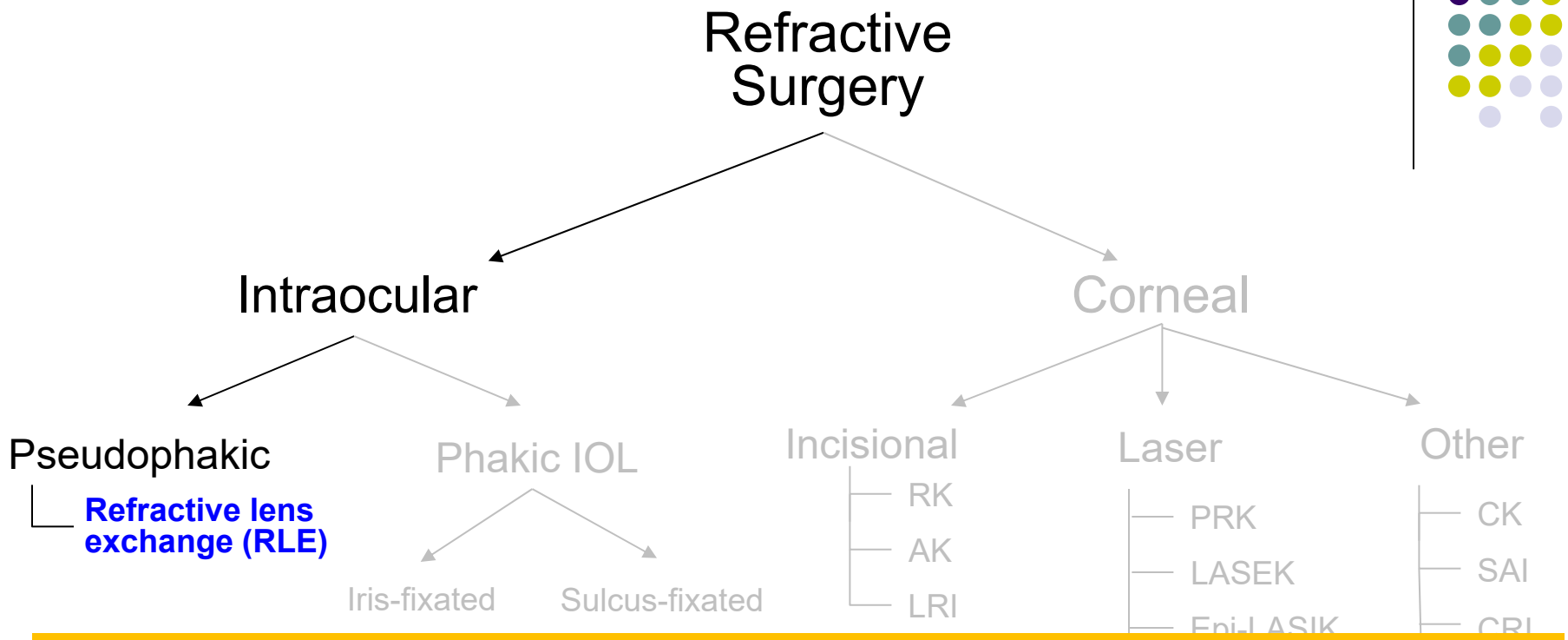

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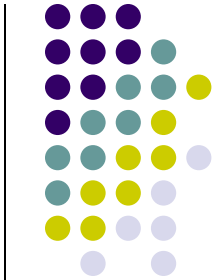

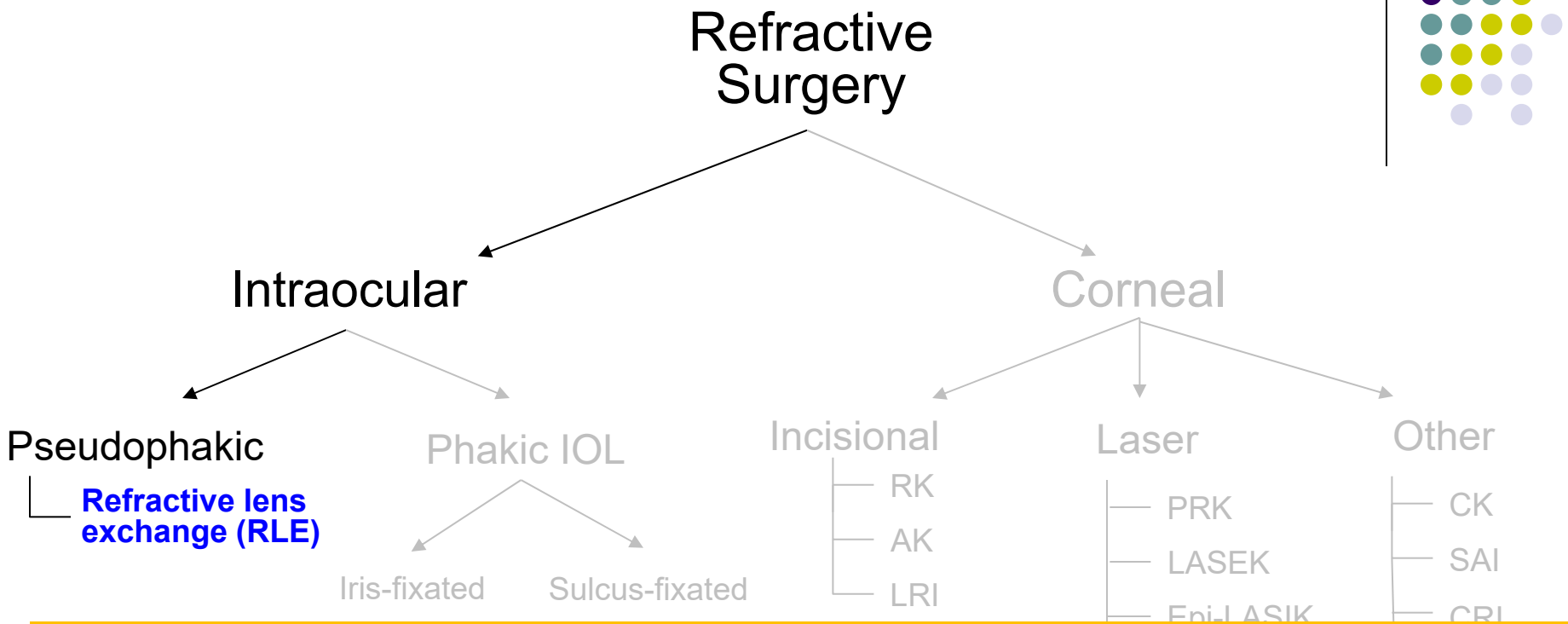

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In general, what sorts of refractive error are we talking about?
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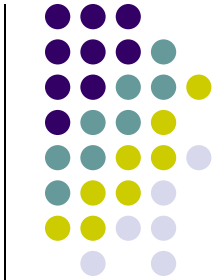

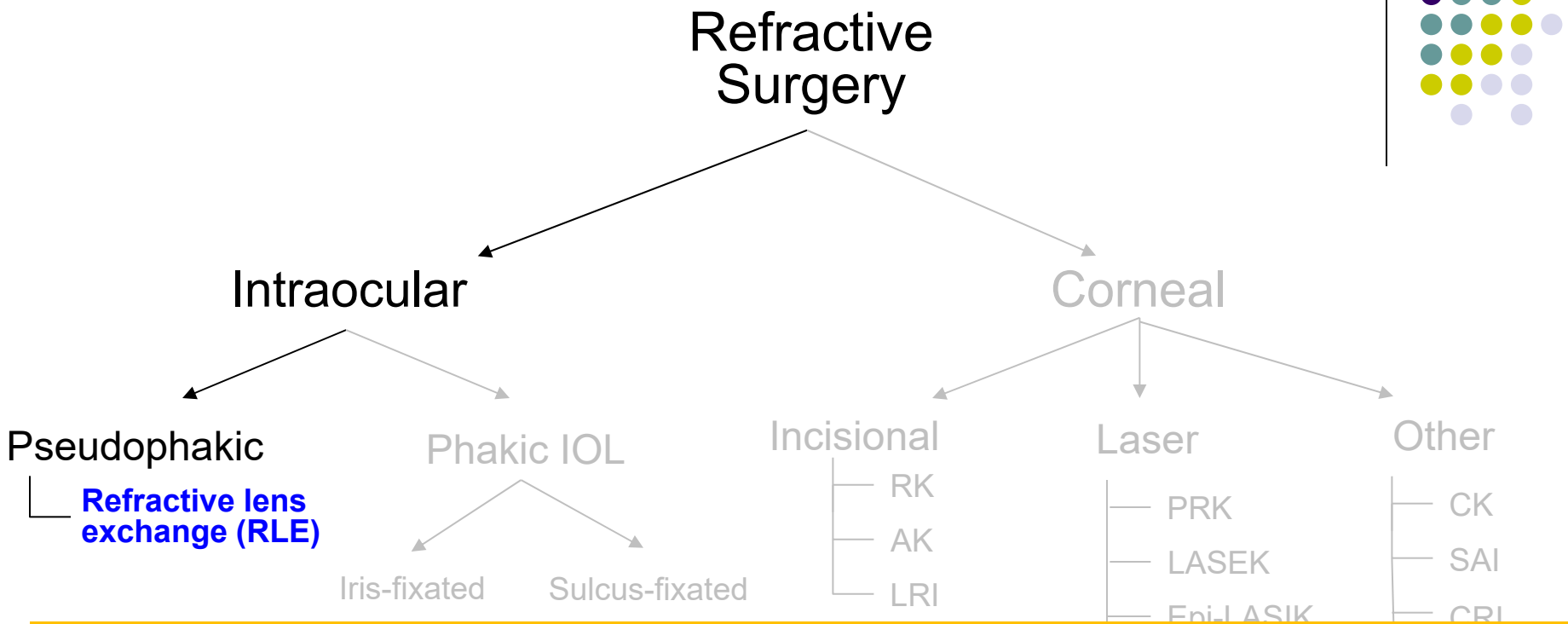

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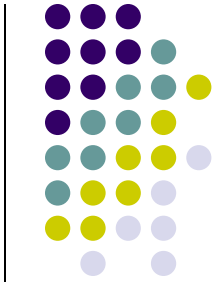

Refractive Surgery

- Intraocular
  - Pseudophakic
    - **Refractive lens exchange (RLE)**
  - Phakic IOL
    - Iris-fixated
    - Su
- Corneal
  - Incisional
  - Laser
  - Other

Are there any limits on the level of myopia that can be corrected via RLE?

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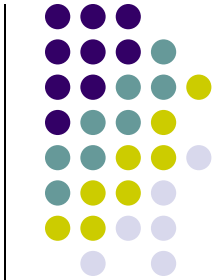

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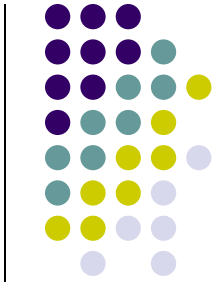

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- Corneal
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  - Laser
  - Other

Are there any limits on the level of myopia that can be corrected via RLE?
No

What devastating event are high myopes at risk for?

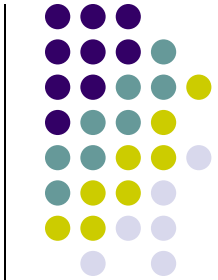
What is the most common indication f
It is the procedure of choice for presby

What is the other major indication?
It is the procedure of choice for pts whose **refractive error is too extreme to be corrected by other means**

Why might a high hyperopia pt be a poor can
Because the AC is likely to be too short for sa

In general, what sorts of refractive error are we talking about?
--Extreme myopia
--Extreme hyperopia
--Extreme astigmatism

Intraocular Refractive Surgery



Refractive Surgery

- Intraocular
  - Pseudophakic
    - **Refractive lens exchange (RLE)**
  - Phakic IOL
    - Iris-fixated
    - Su
- Corneal
  - Incisional
  - Laser
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Retinal detachment

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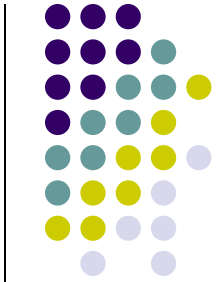

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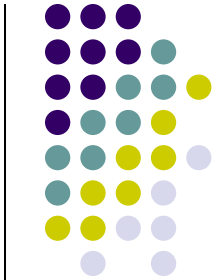

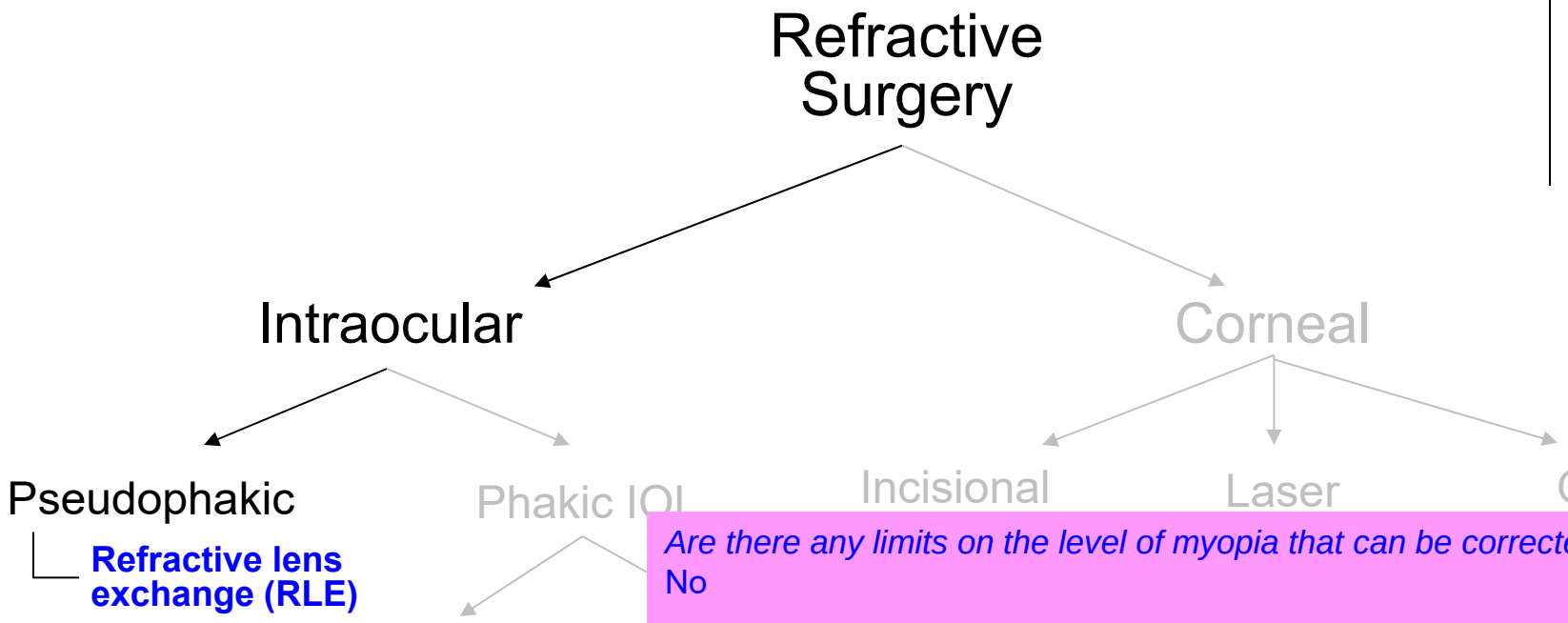

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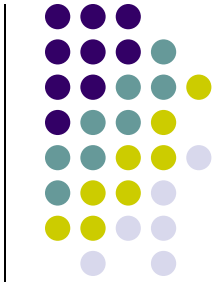

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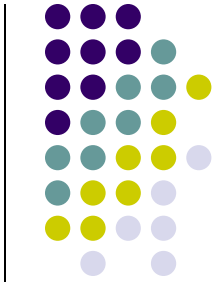

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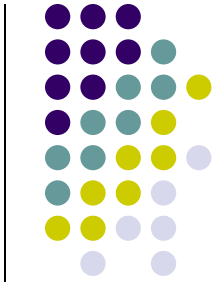

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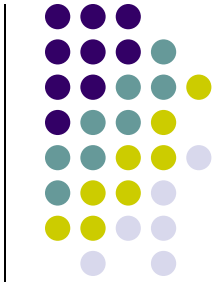

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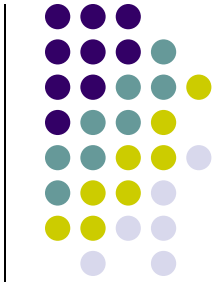

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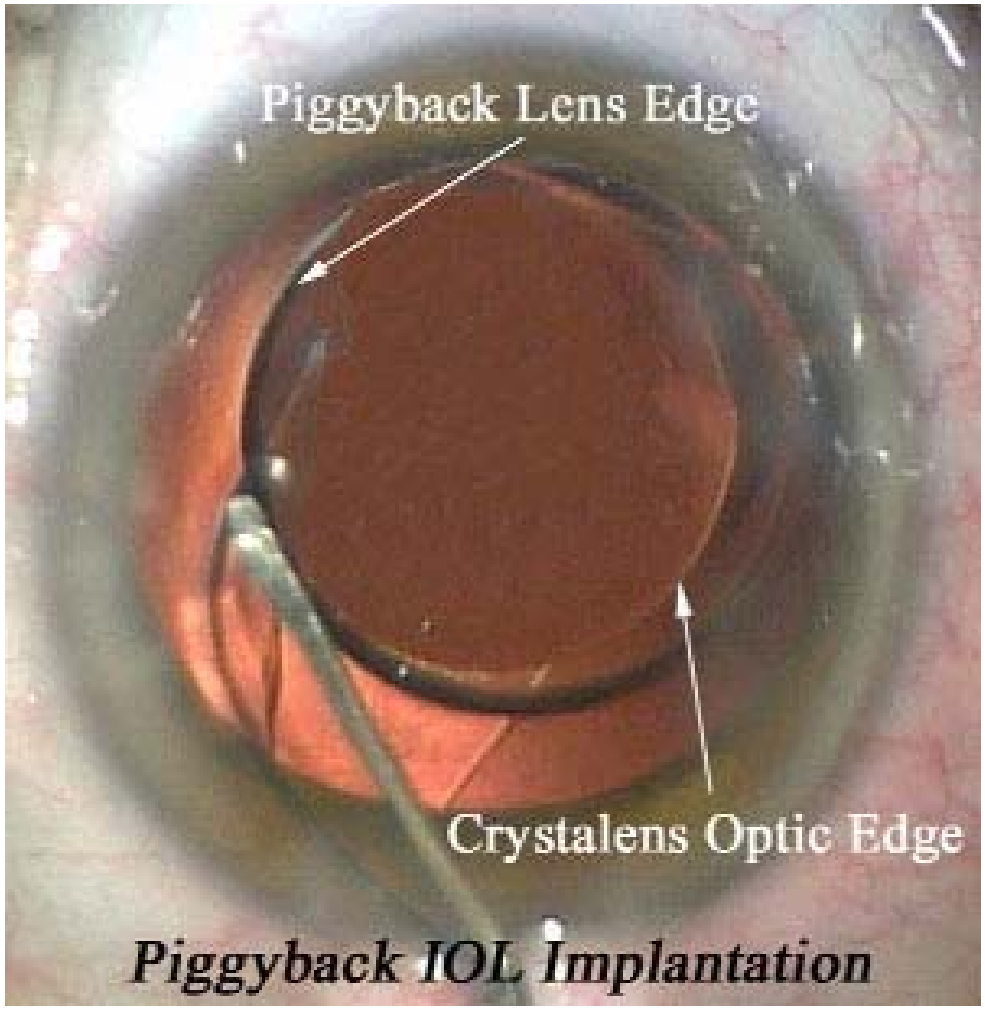
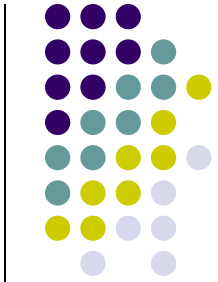


Piggyback IOLs

Intraocular Refractive Surgery



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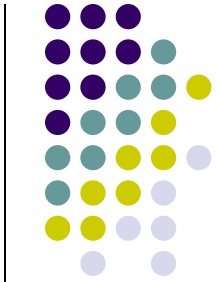

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What is entailed by the piggyback approach?
Dividing the requisite power between two IOLs, one of which is place in the bag and the other in the sulcus

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Intraocular Refractive Surgery

Refractive Surgery

Pseudop

Refra
excha

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What is
It is the

bag and the other in the sulcus

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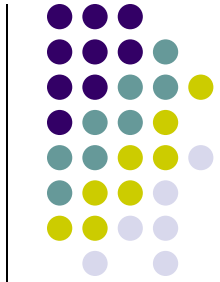

Refractive Surgery

Pseudop

Refra
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What is the dreaded potential long-term complication associated with the piggyback approach?
The formation of a visually significant membrane between the IOLs (= two words)

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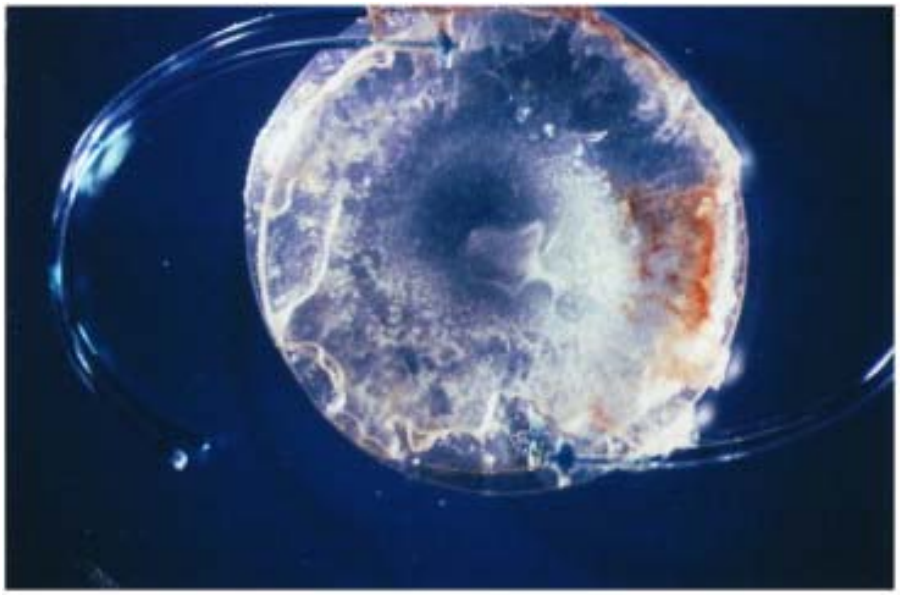

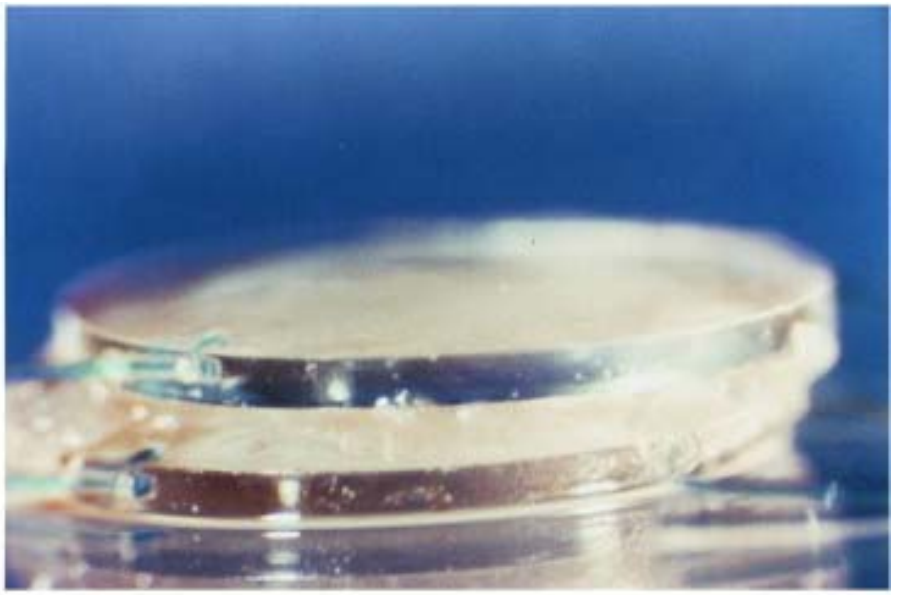

Piggyback IOLs: Interlenticular opacification

Intraocular Refractive Surgery

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What simple step can the piggyback surgeon take to reduce the risk of interlenticular opacification formation?

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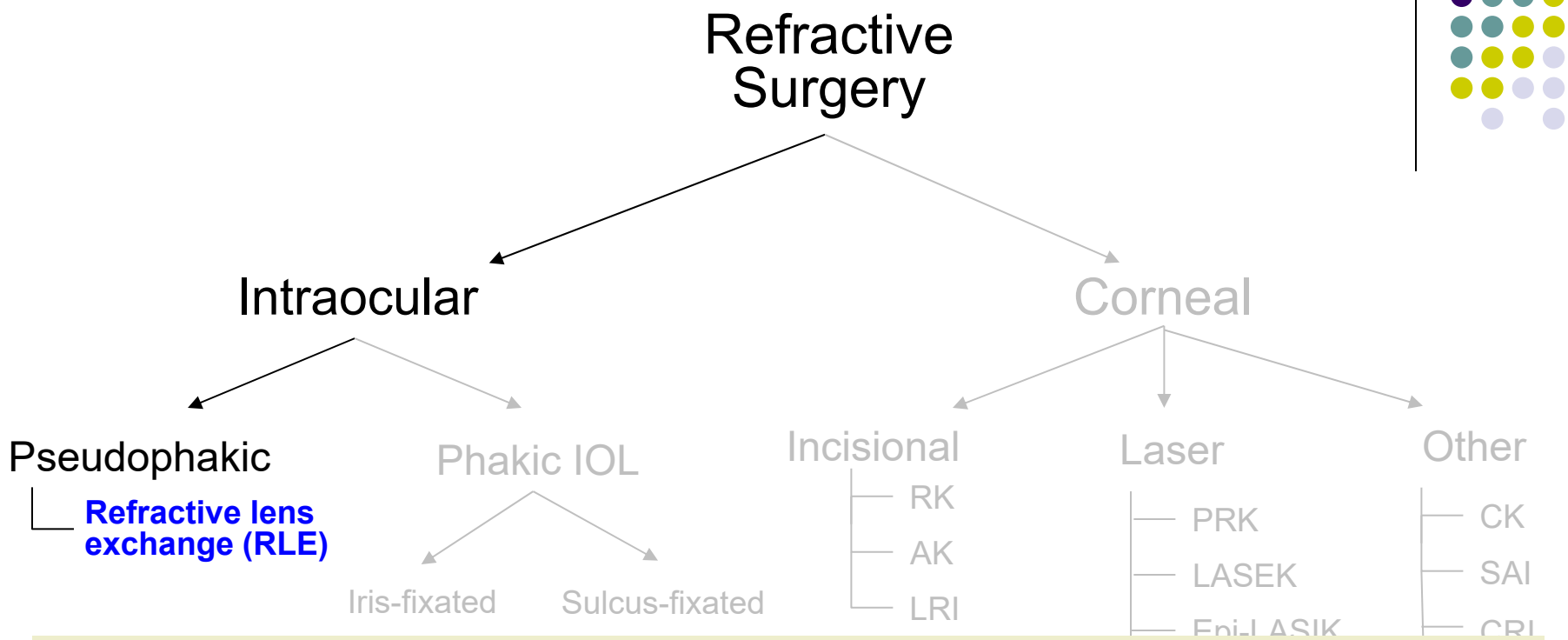
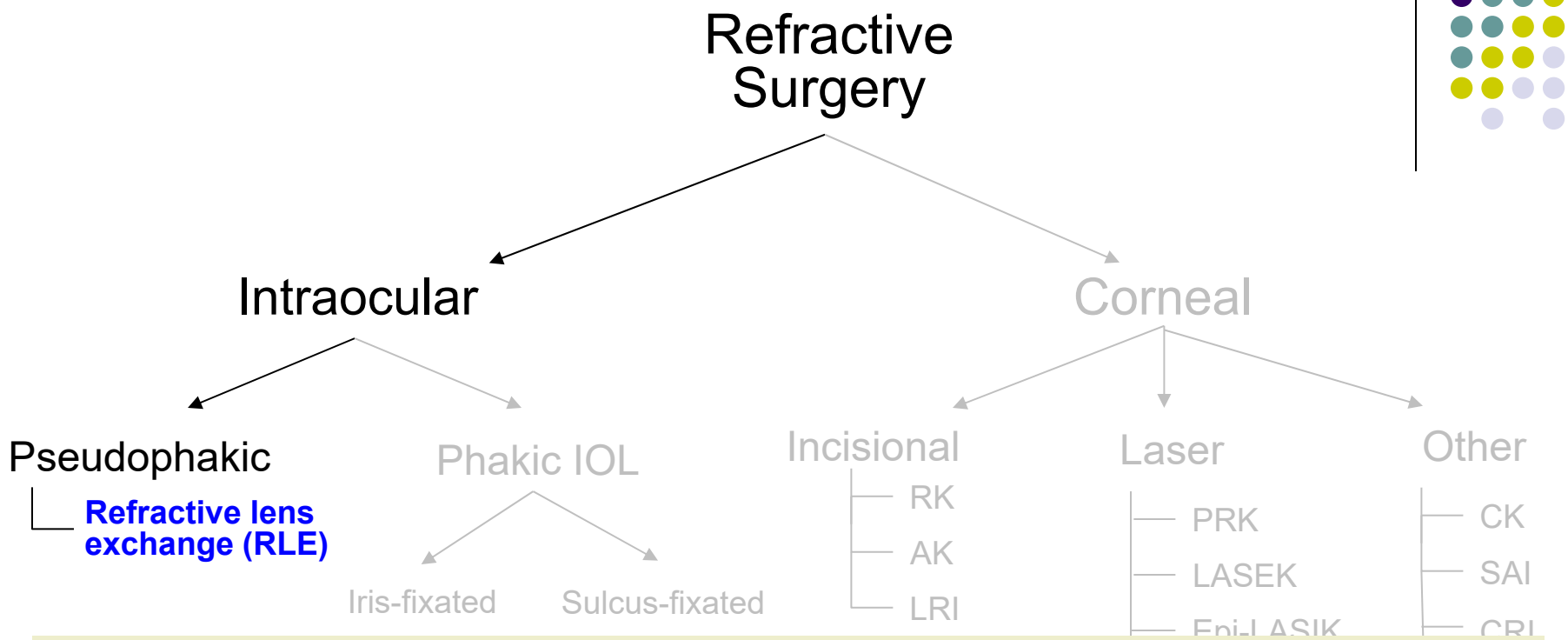


How is RLE surgery performed?

Intraocular Refractive Surgery



How is RLE surgery performed?

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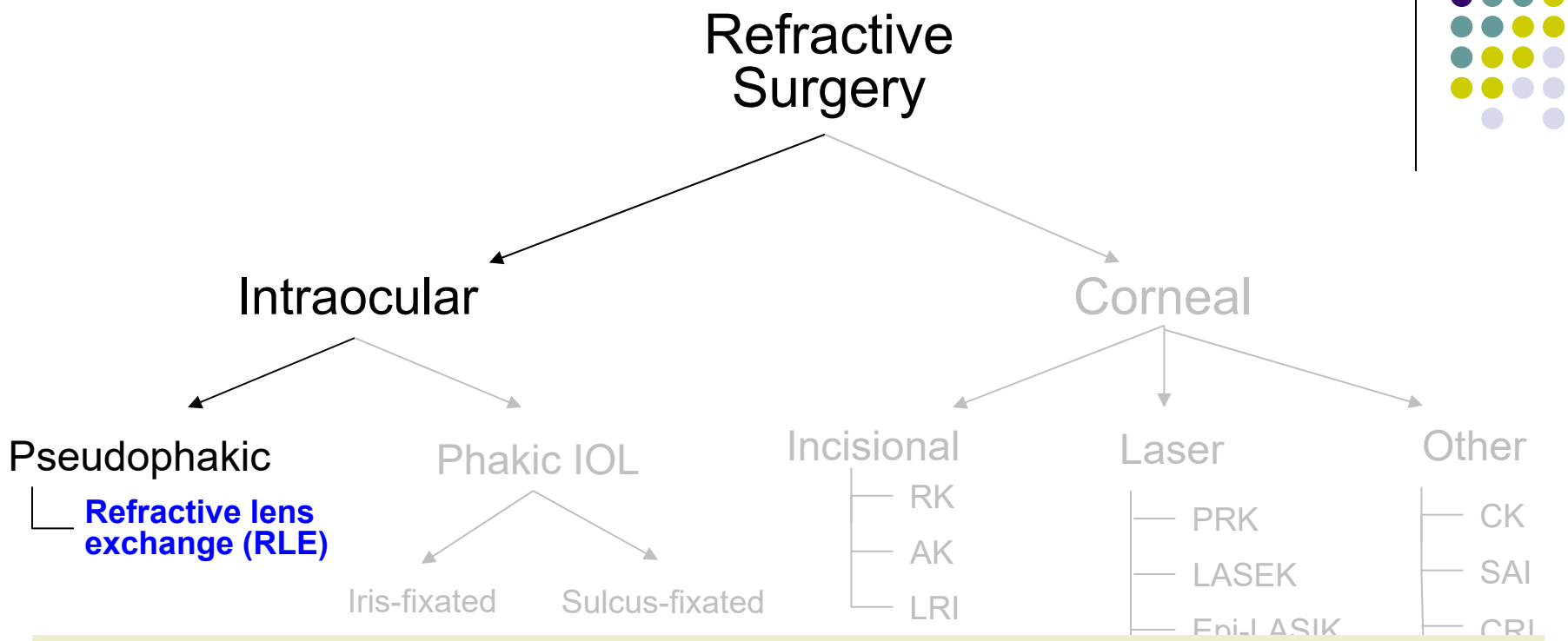

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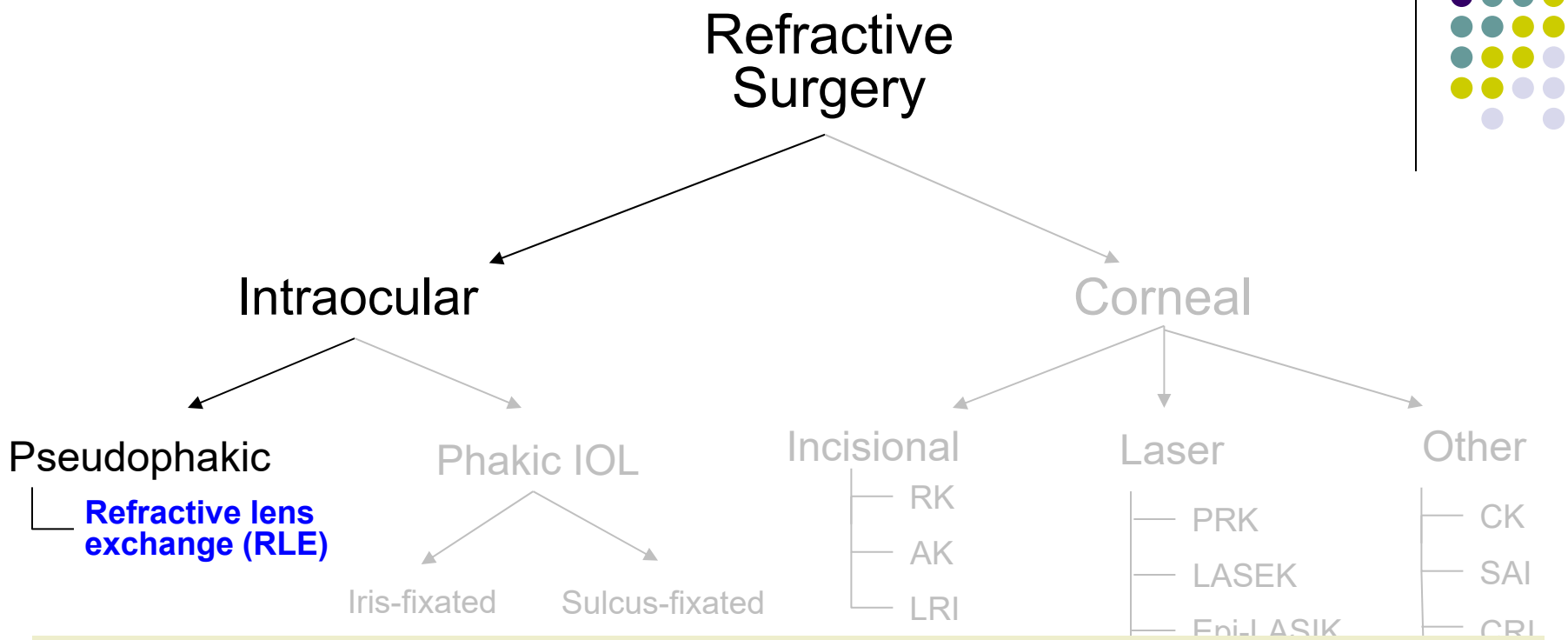
Intraocular Refractive Surgery



How is RLE surgery performed?
Essentially in a manner identical to that of standard cataract surgery, with one exception

What is that exception?
A portion of RLE surgeons are willing to do both eyes at the same surgical visit, a practice which is still very uncommon in standard cataract surgery

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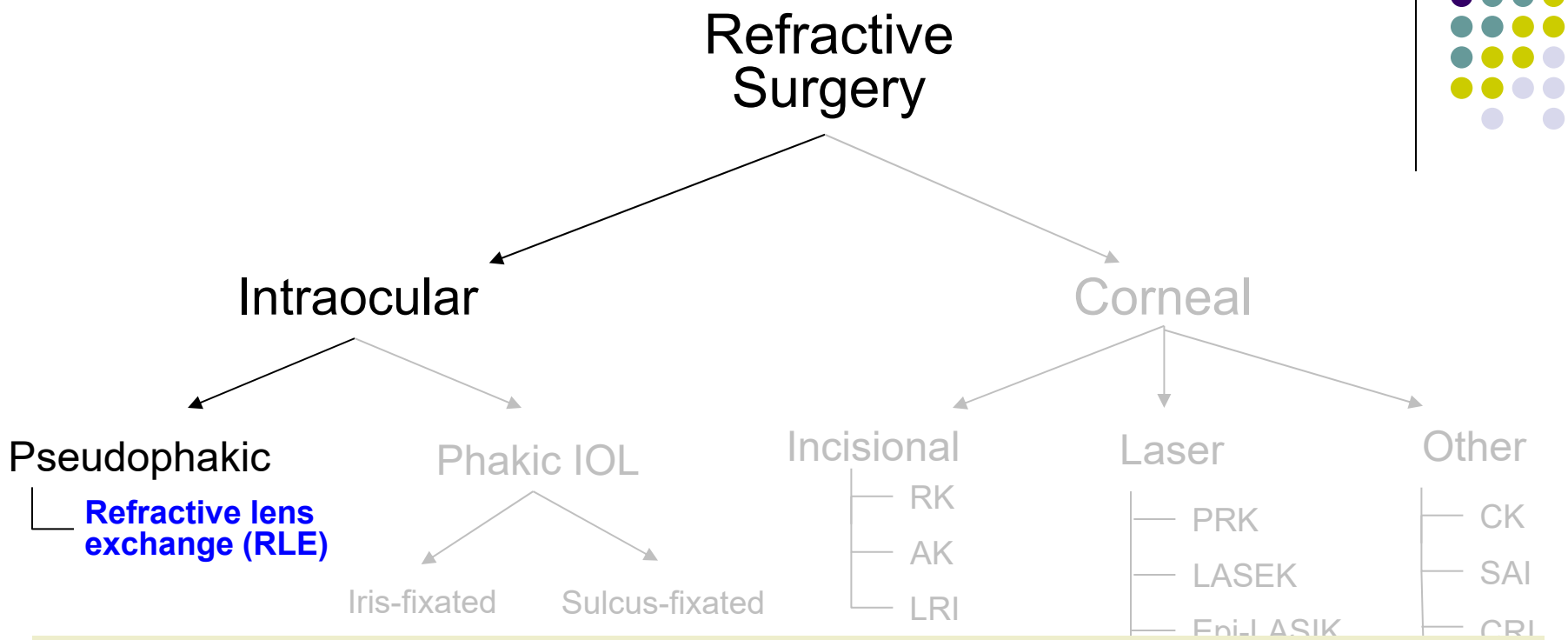

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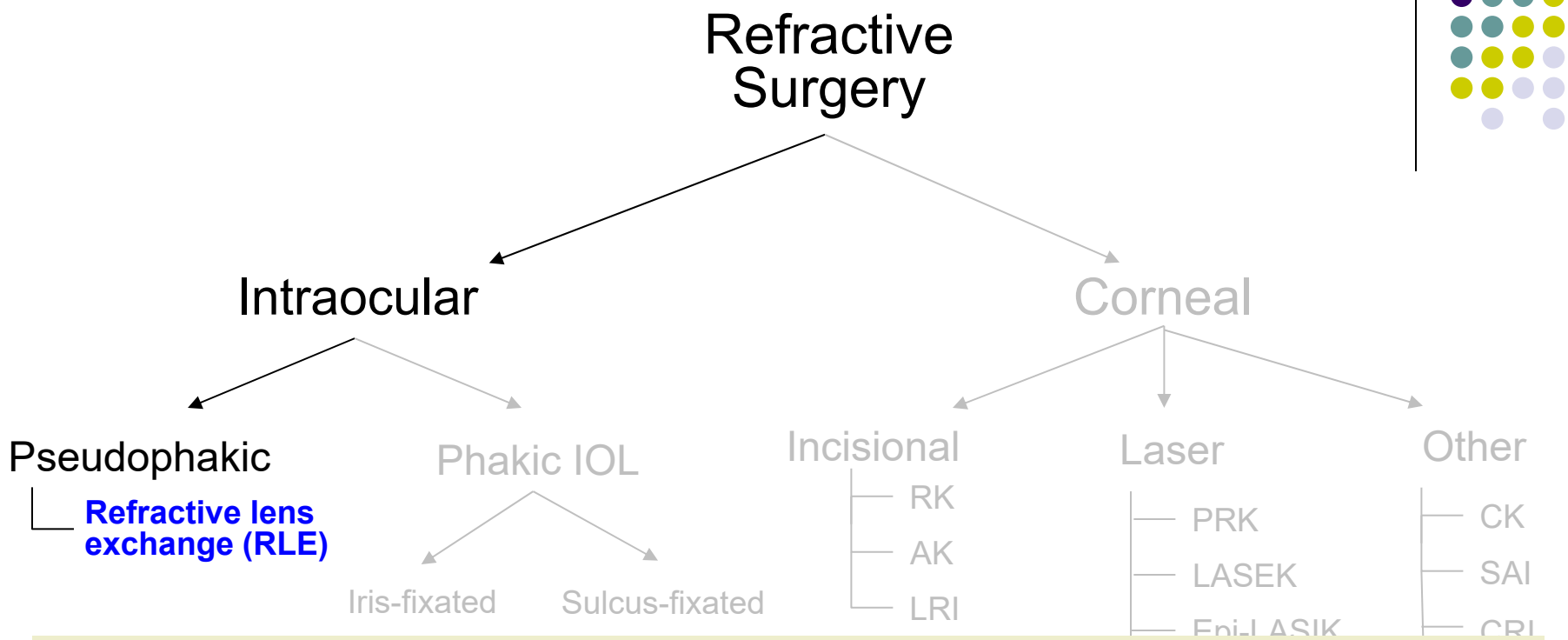

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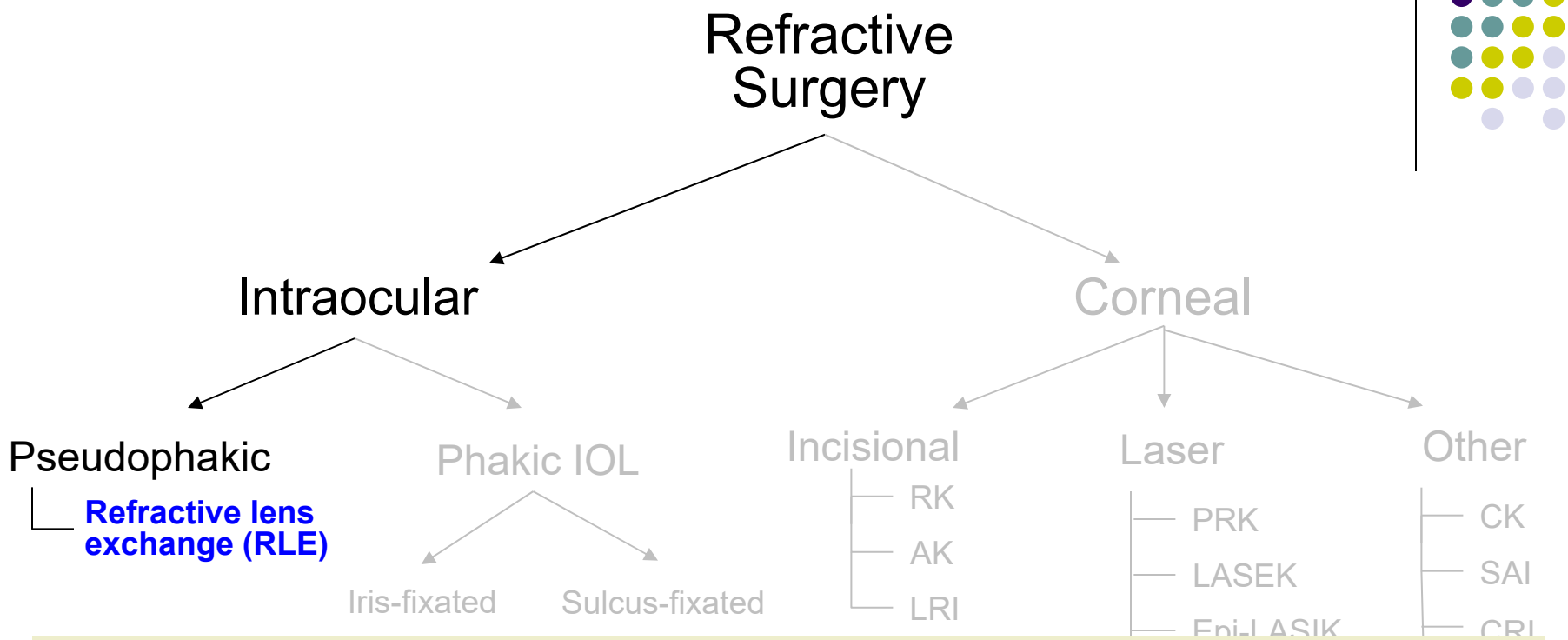

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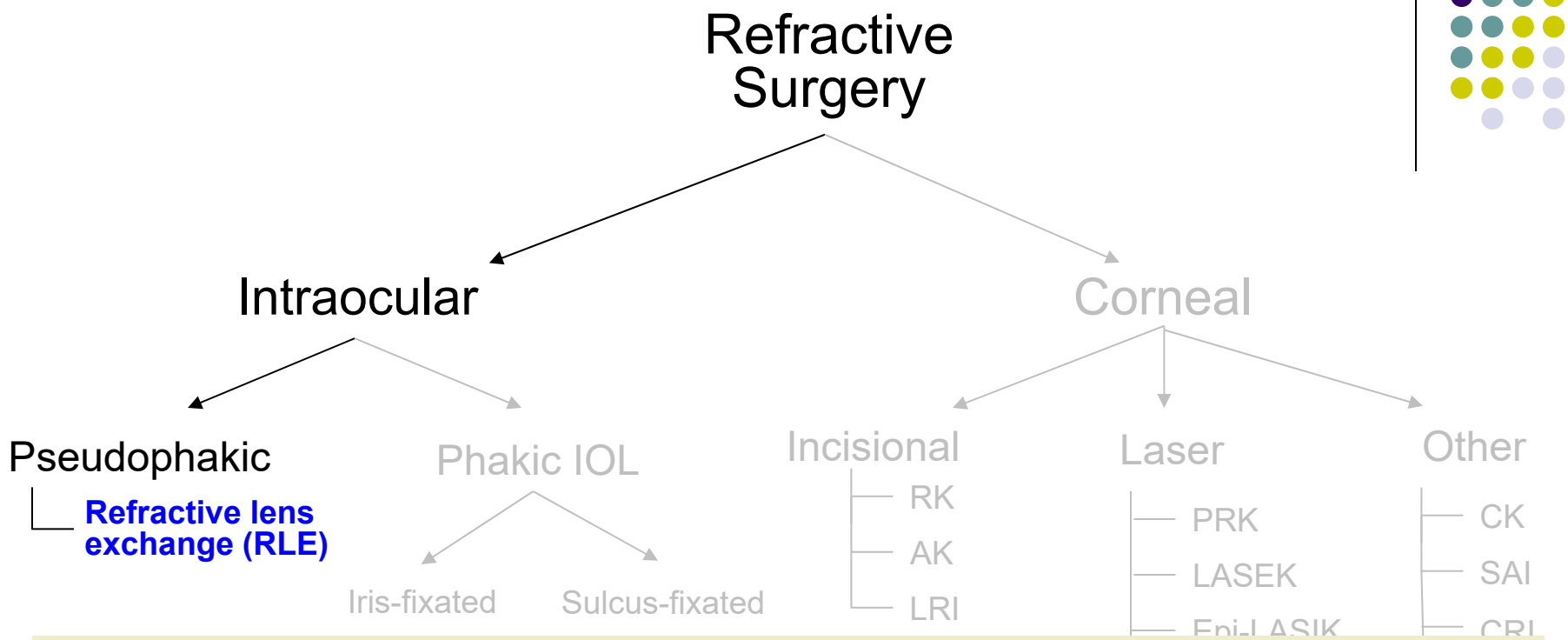

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IOLs do more than simply correct refractive error. They also play a crucial role in preventing the vitreous from prolapsing into the AC, especially if development of a PCO necessitates capsulotomy down the road.

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