

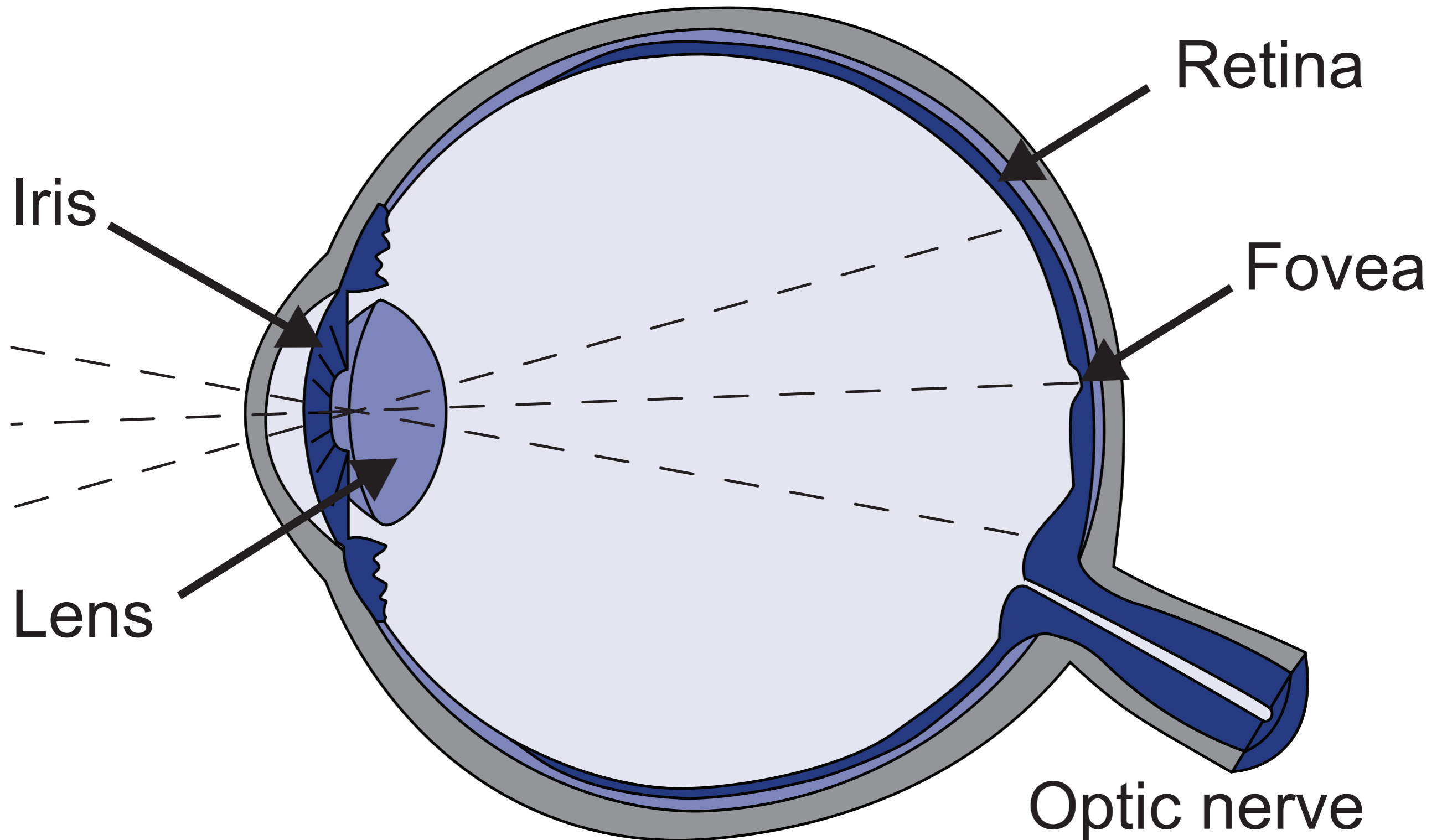
Chapter 2 - Perception

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 - Physiology of visual perception
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 - Gestalt laws
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 - Physiology of auditive perception
 - Specifics of auditive perception
- Feeling und proprioception
- Perception of smell and taste

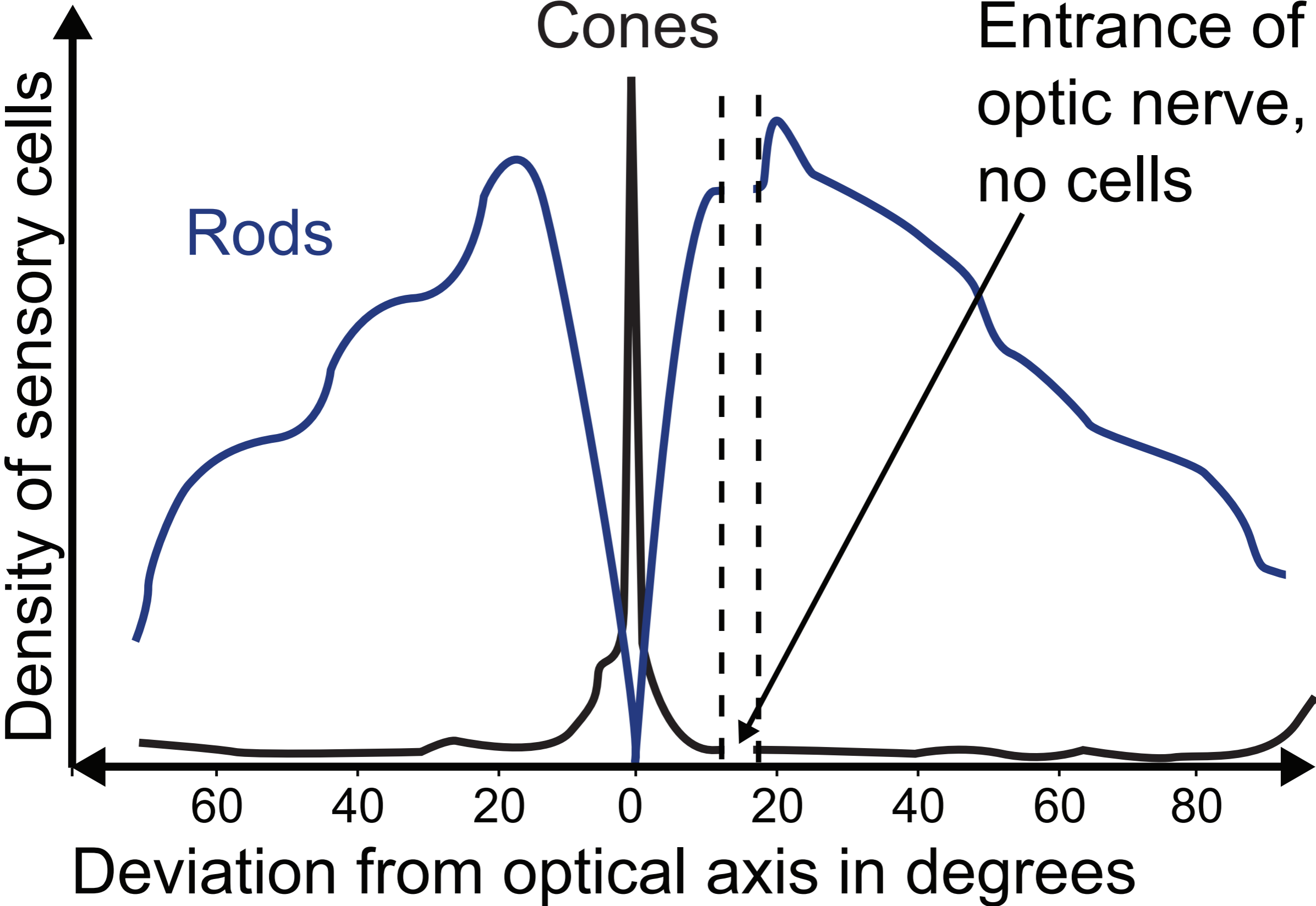
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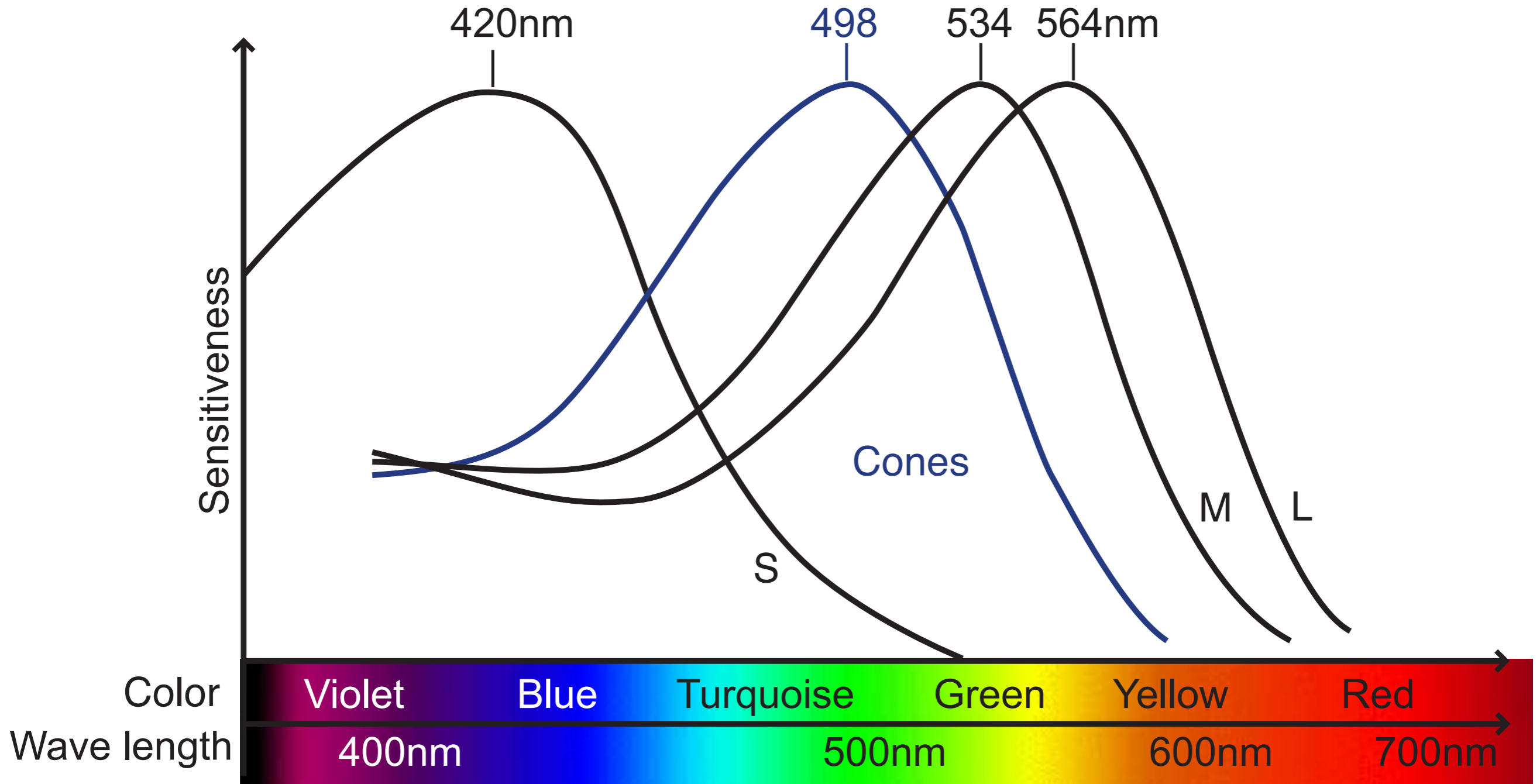
Cross-Sectional View of the Human Eye



Distribution of Sensor Cells within the Eye



Light Sensitivity of Sensor Cells in the Eye

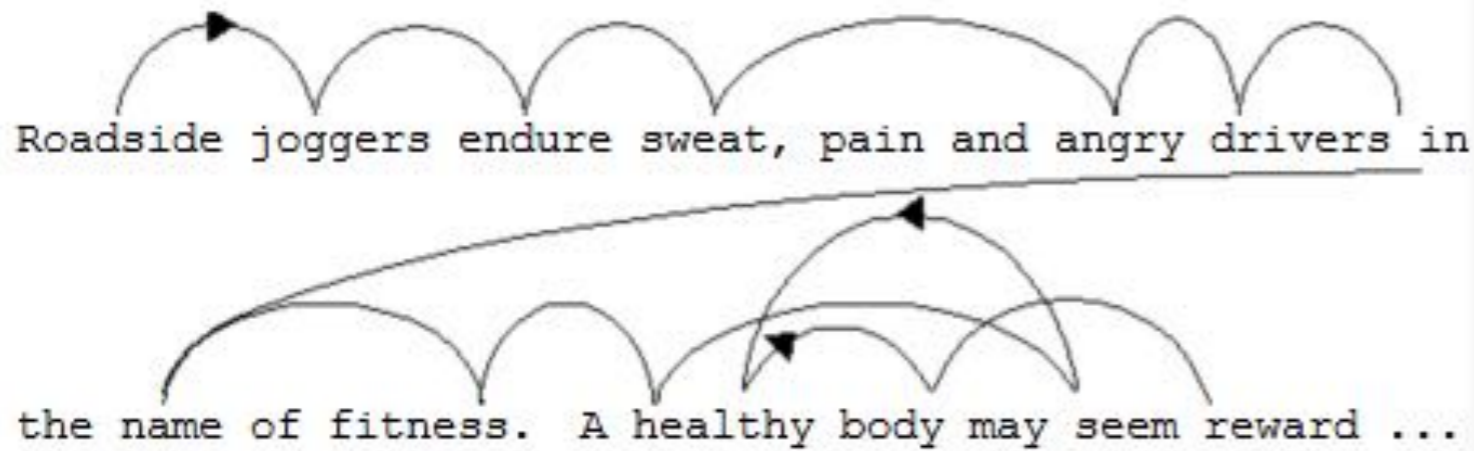
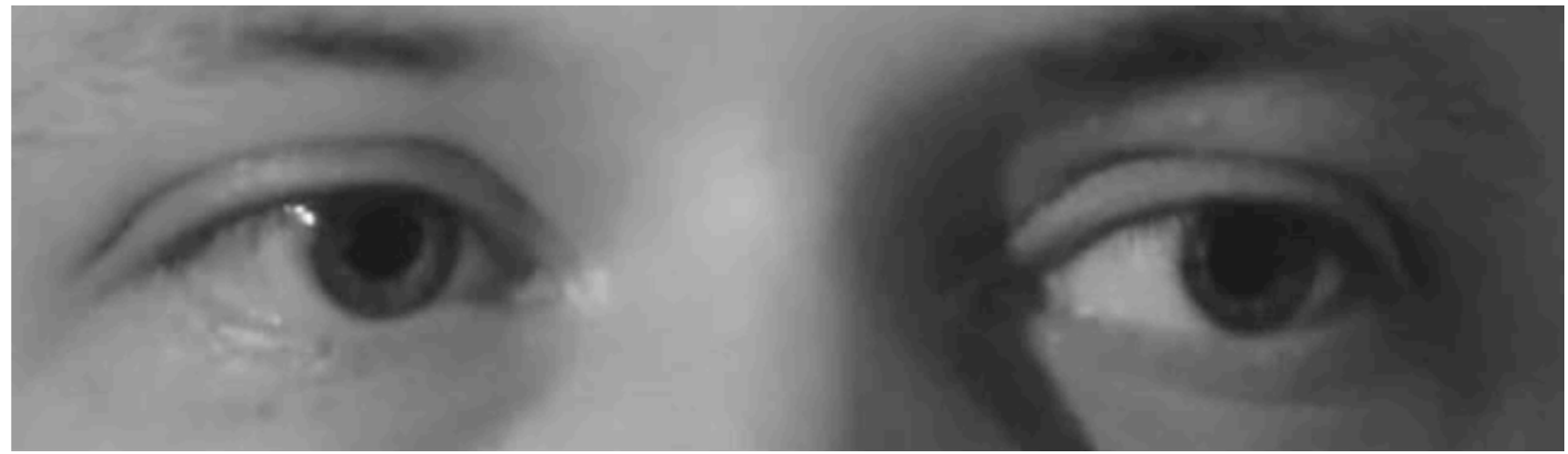


Color Blindness

- Frequent: red-green deficiency
- 8% of male population
- Simulation using Photoshop



Saccades



http://www.microsoft.com/typography/ctfonts/science_of_word_recognition_files/Figure5.gif

Reading Example:

This person is reading the text for understanding. So even though not every word is fixated, the amount of time spent on each word is indicative of the processing of the word.

Skimming Example:

This person is skimming the text. This is most obvious from the pattern of fixations that are more dispersed and shorter fixation durations that is typical for this type of reading. The main gist maybe understood, but poorer memory for the text usually results.

<http://images.scholarpedia.org/w/images/9/93/Readingskimming.jpg>

我们要尽可能弄清楚这个问题的原因和它同其他问题错综复杂的关系。

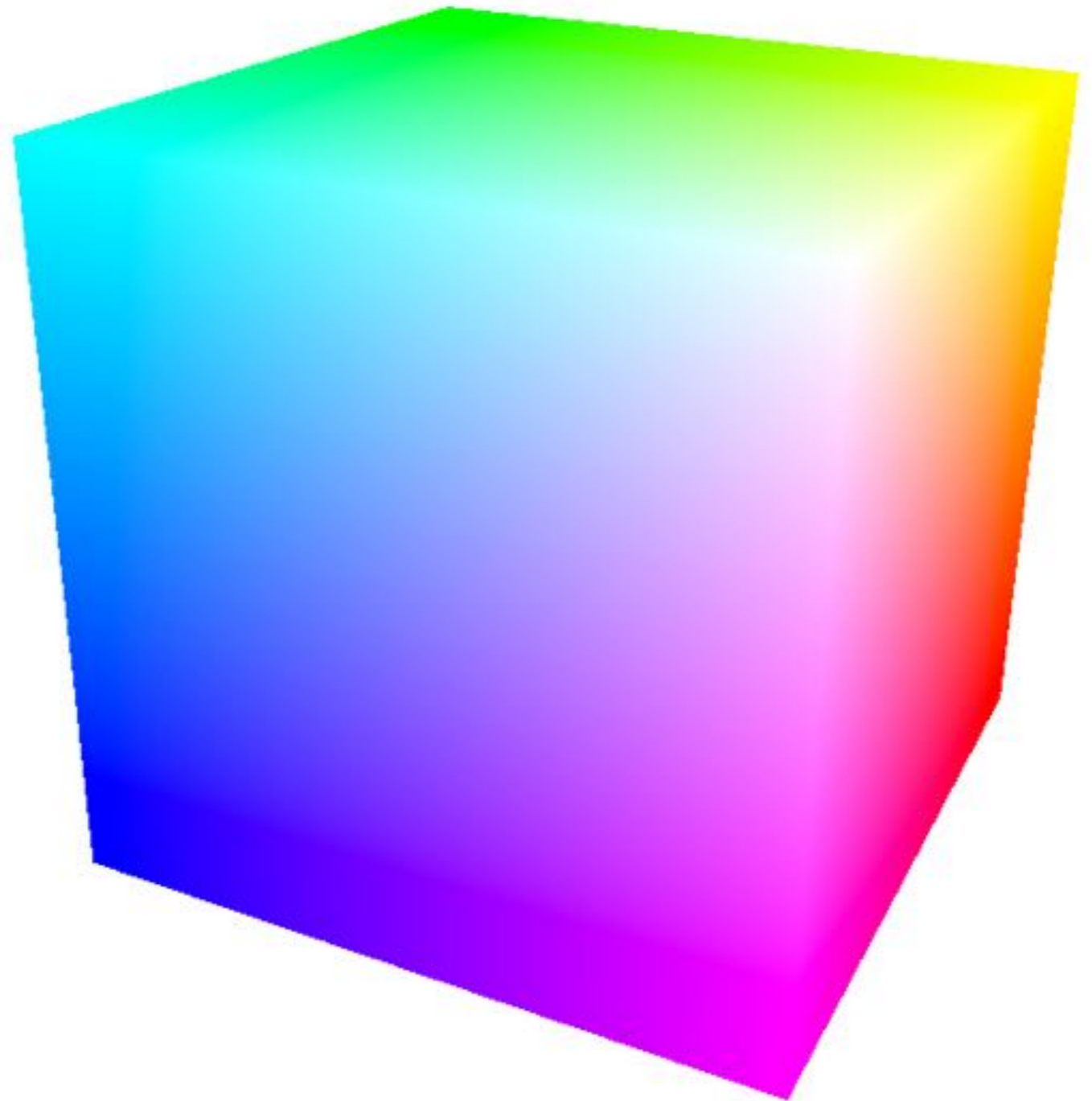
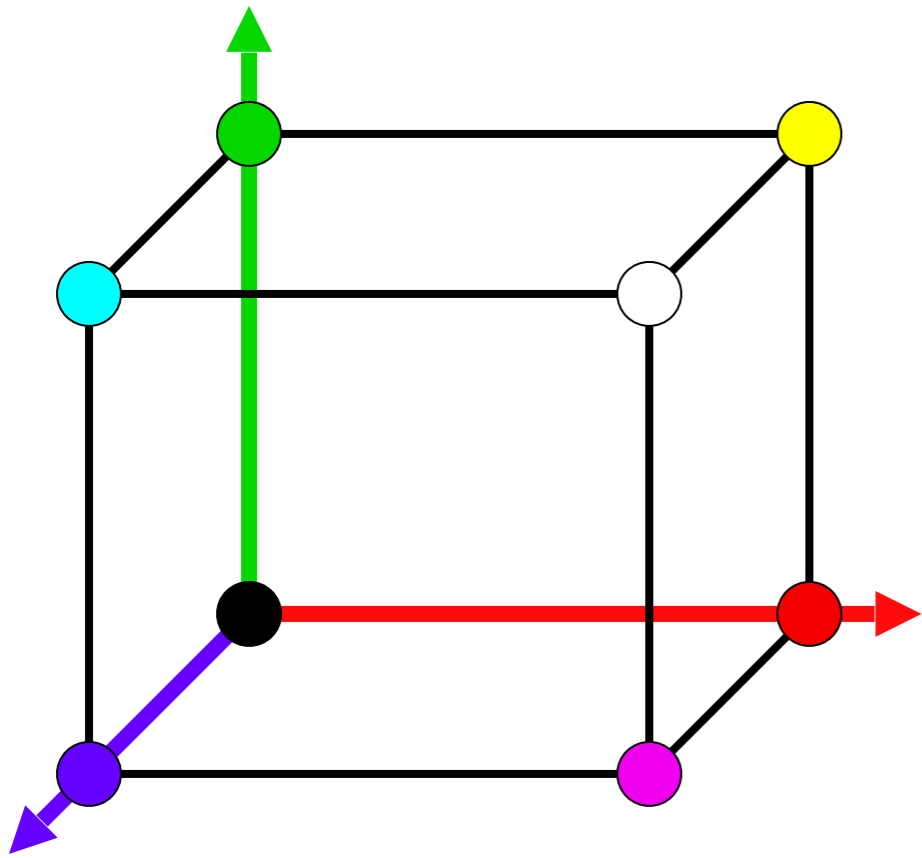
We have to try our best to understand the reason for the problem and its complex relation with other problems.

Xingshan Li, Pingping Liu, Keith Rayner: Eye movement guidance in Chinese reading: Is there a preferred viewing location? Vision Res. 2011 May 25; 51(10): 1146–1156.

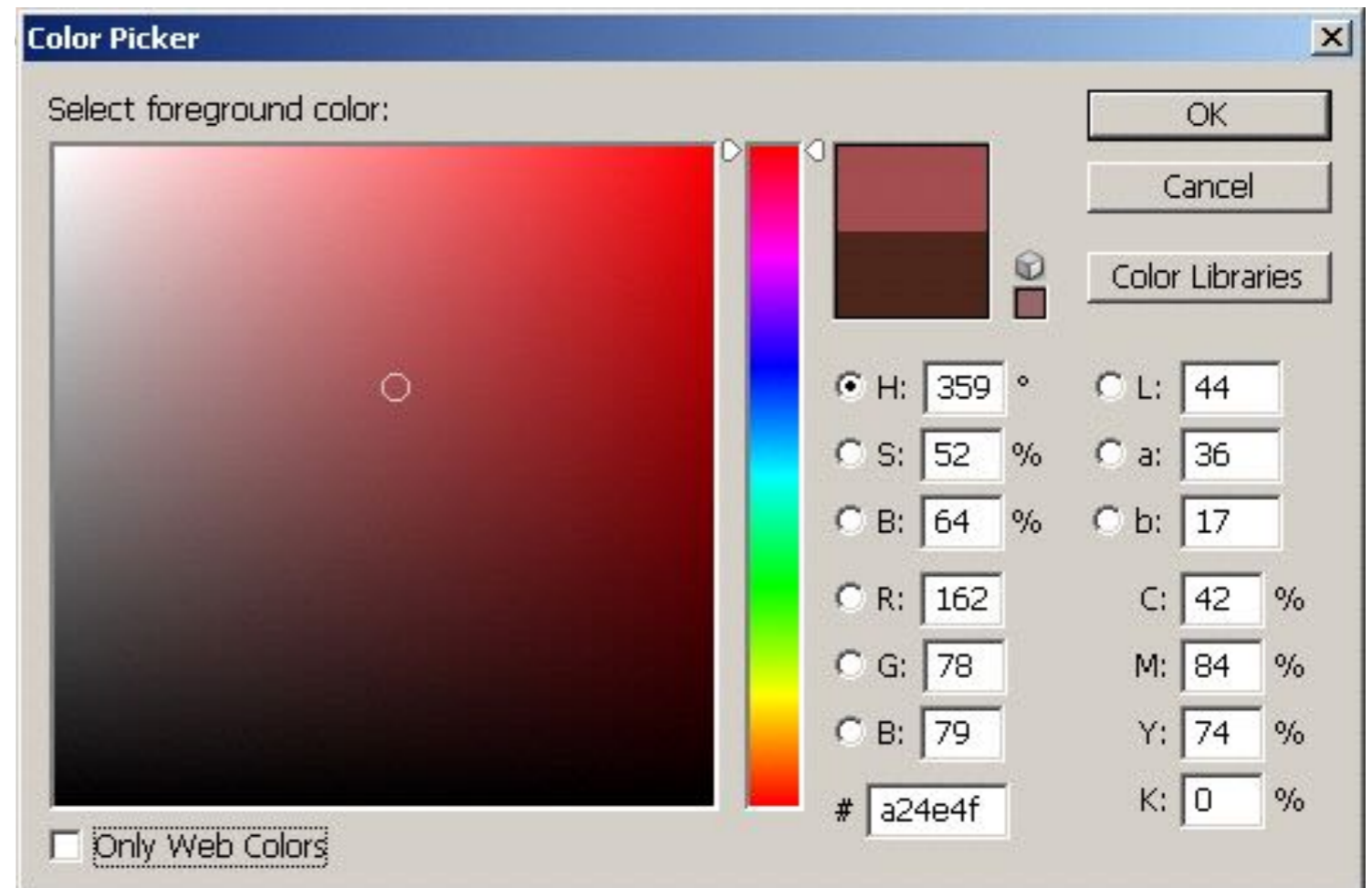
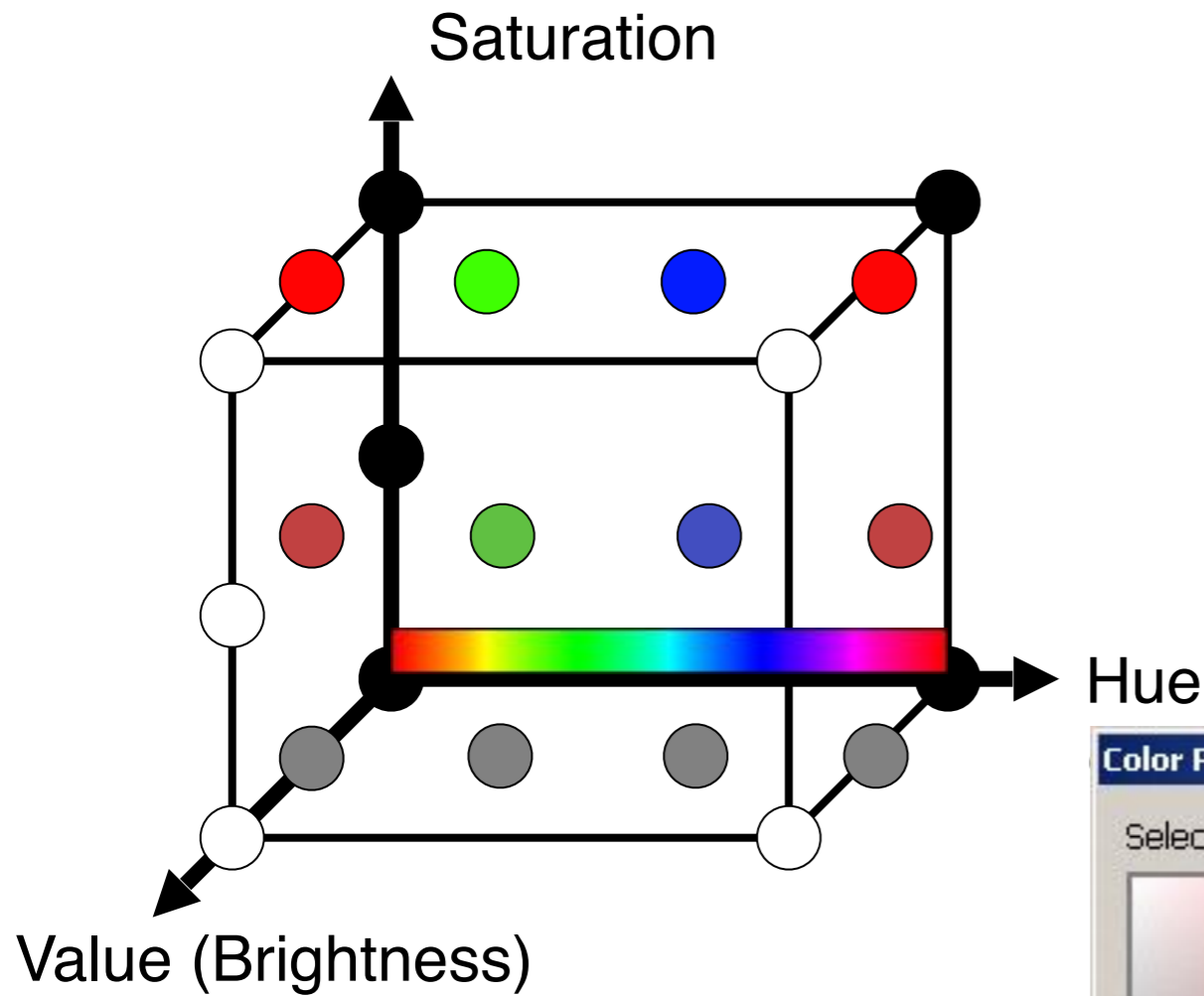
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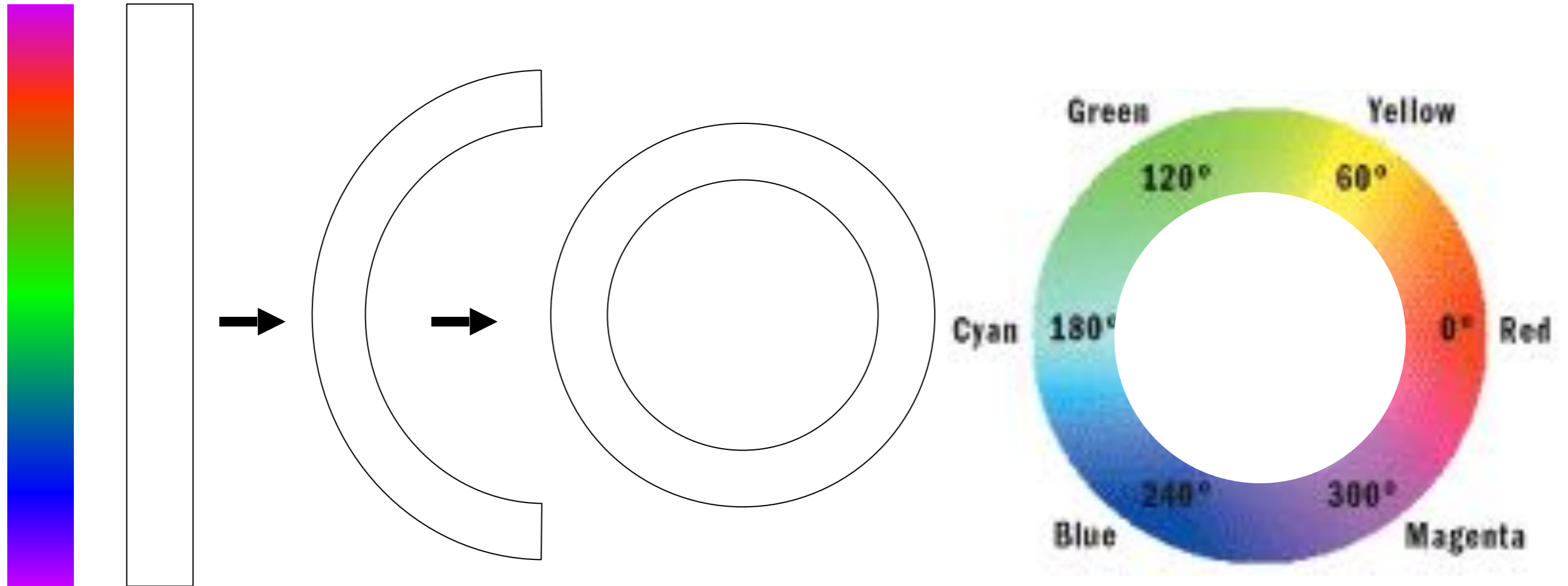
Color Space: RGB



Color Space: HSV



From Spectrum to Color Circle



Color Circle According to Johannes Itten (1961)



Effect of Colors: cold/warm, bright/dark



Pure und Non-Pure Colors



Color Contrasts

Color-only-Contrast

Bright-Dark- Contrast

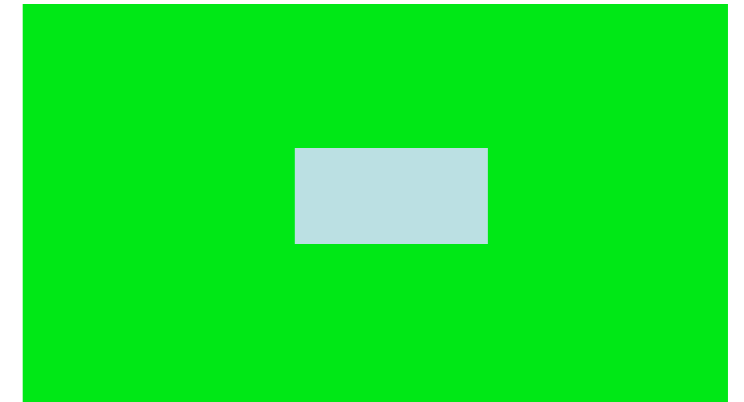
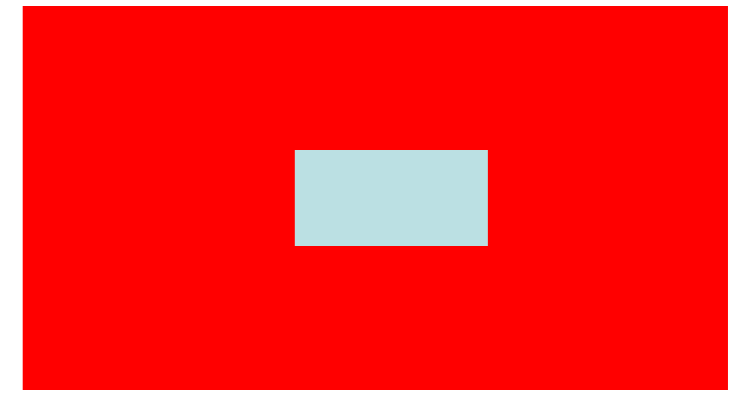
Cold-Warm-Contrast



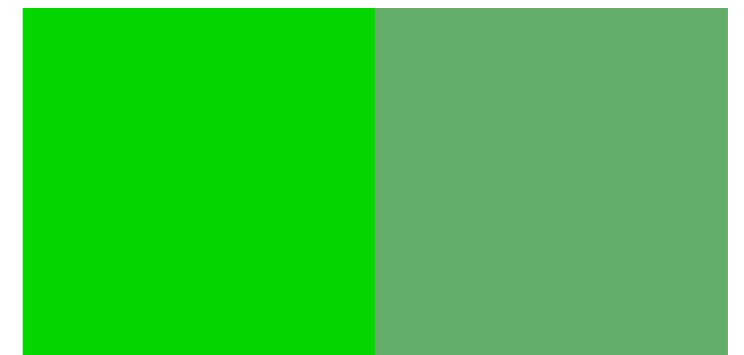
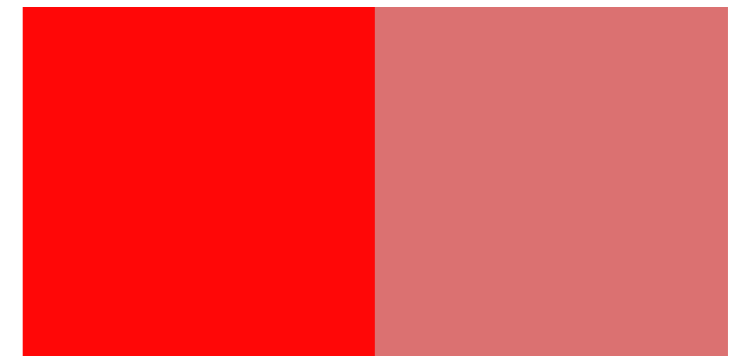
Complementary Contrast

Complementary Contrast

Simultaneous Contrast



Quality Contrast



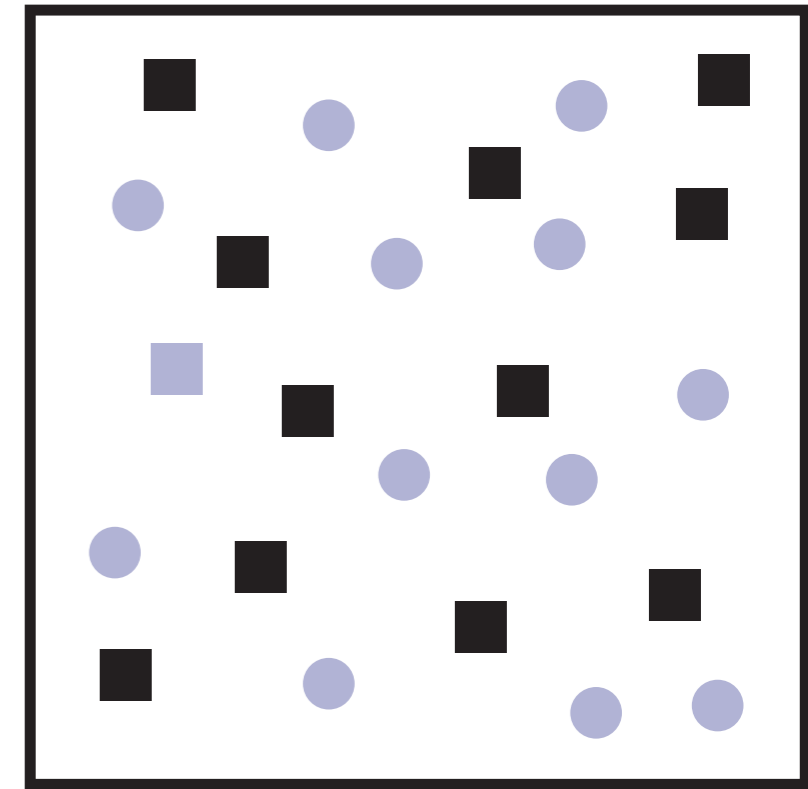
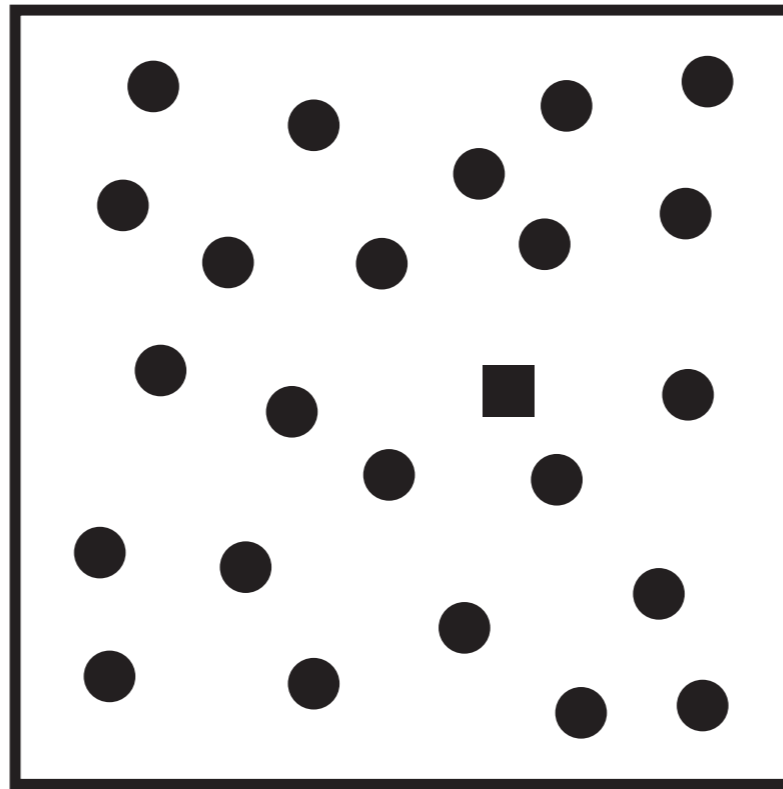
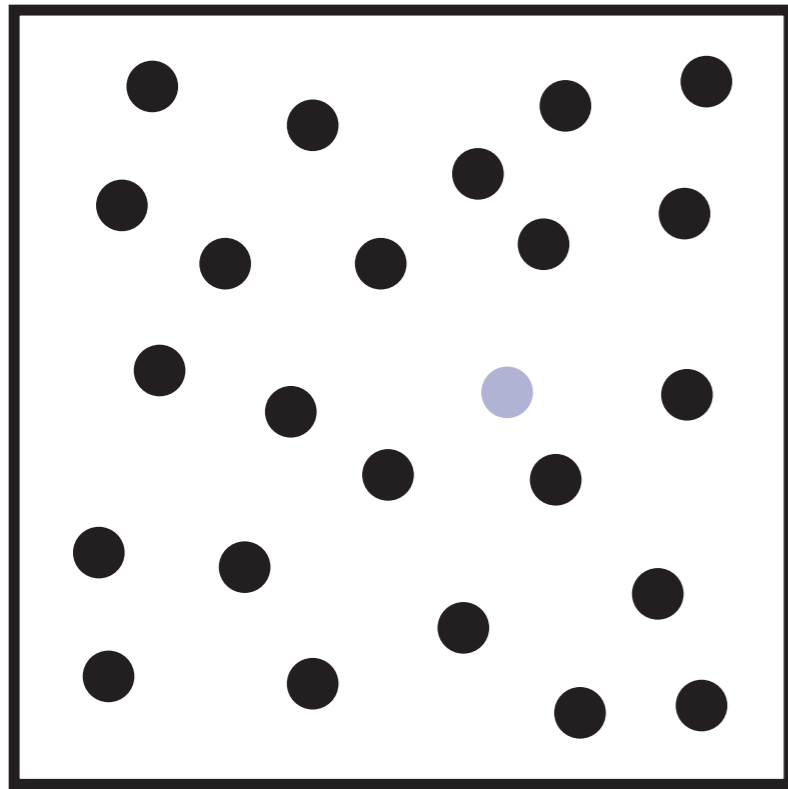
Example Simultaneous Contrast



Chapter 2 - Perception

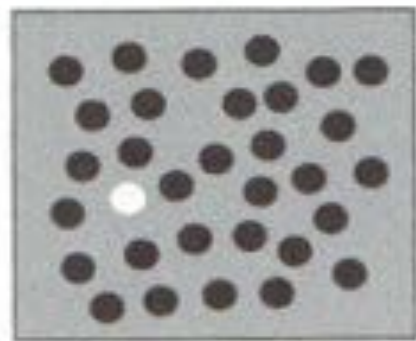
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Which Object is Different from the Others?

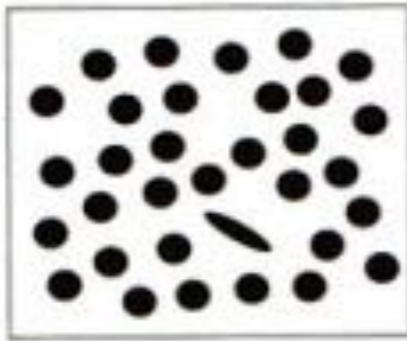


- Color alone is perceived *pre-attentively*.
- Shape alone is perceived *pre-attentively*.
- Combinations of two properties are perceived *attentively*.

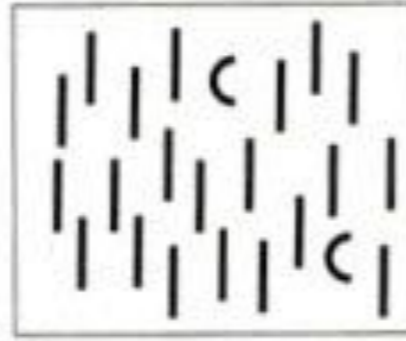
Further Pre-Attentively Perceived Properties



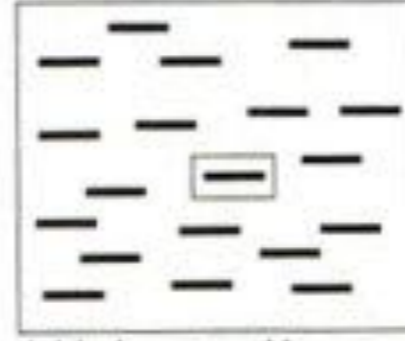
Grey value



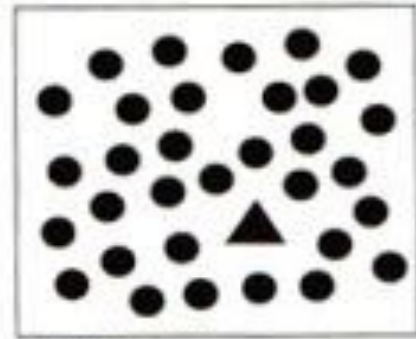
Elongation



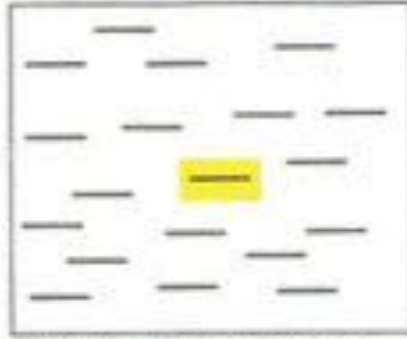
Curvature



Added surround box



Shape



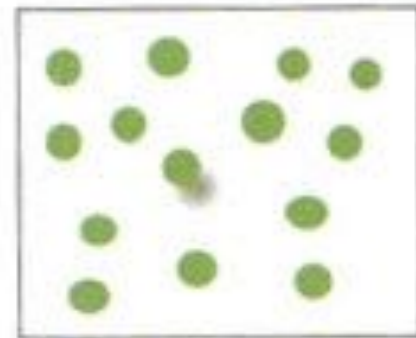
Added surround color



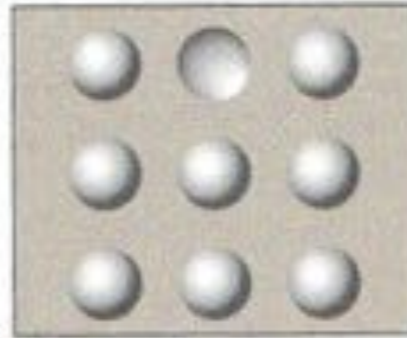
Filled



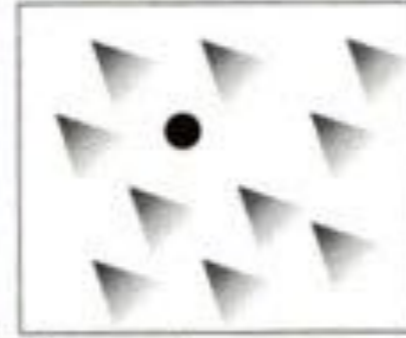
Sharpness



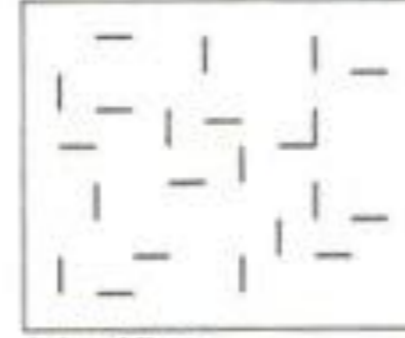
Cast shadow



Convex and concave



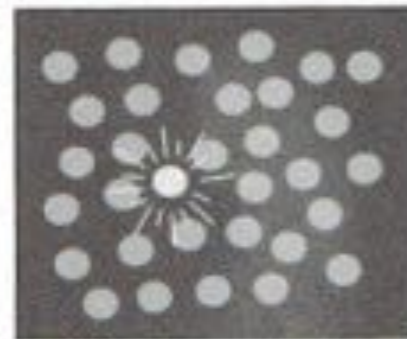
Sharp vertex



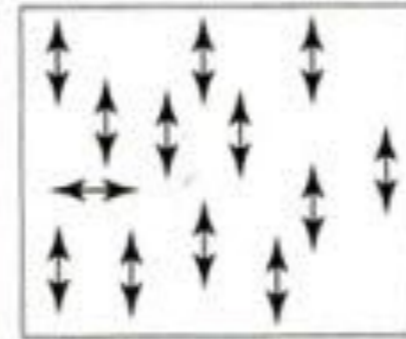
Joined lines



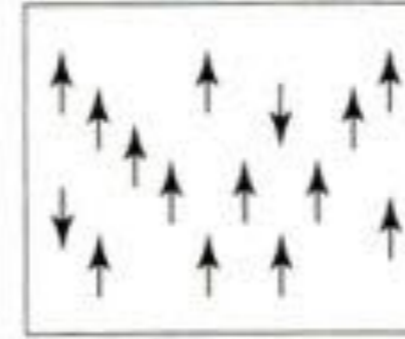
Misalignment



Blinking



Direction of motion



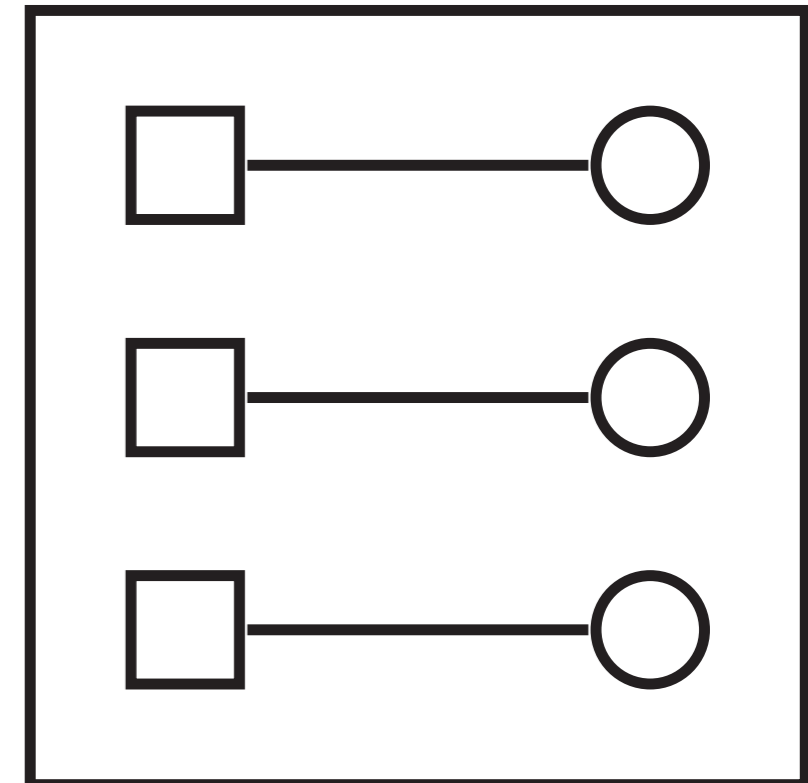
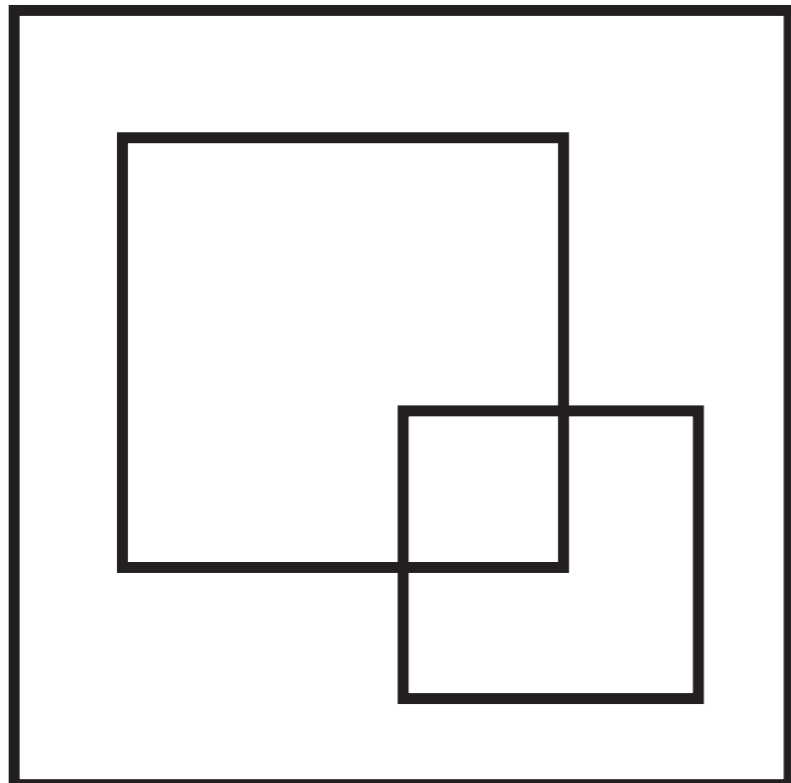
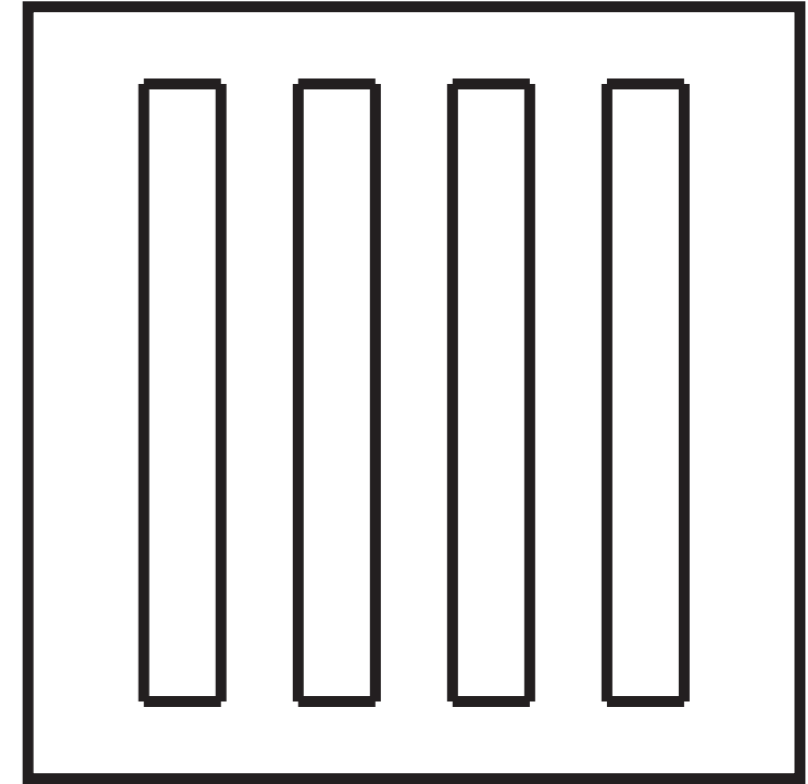
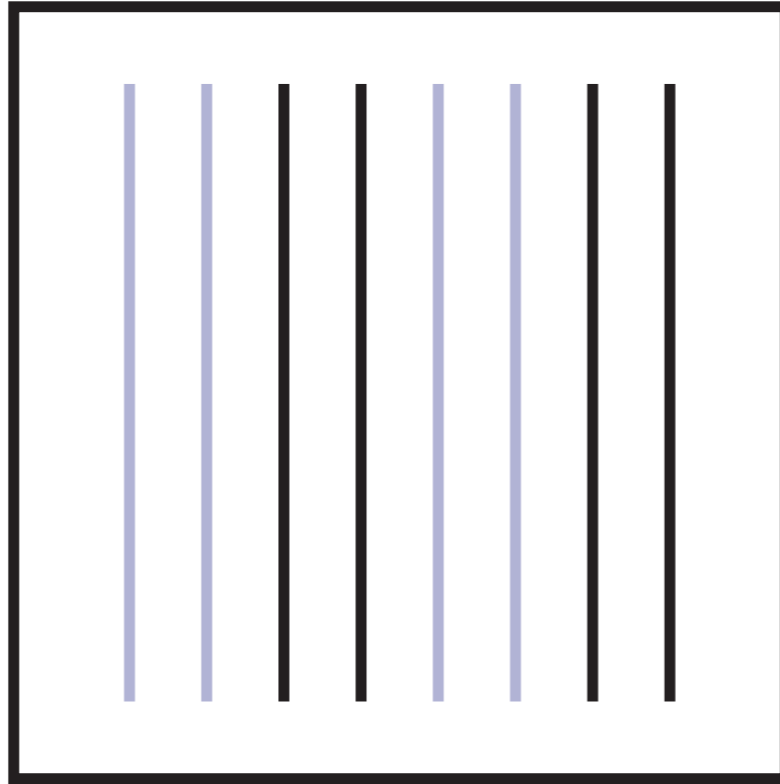
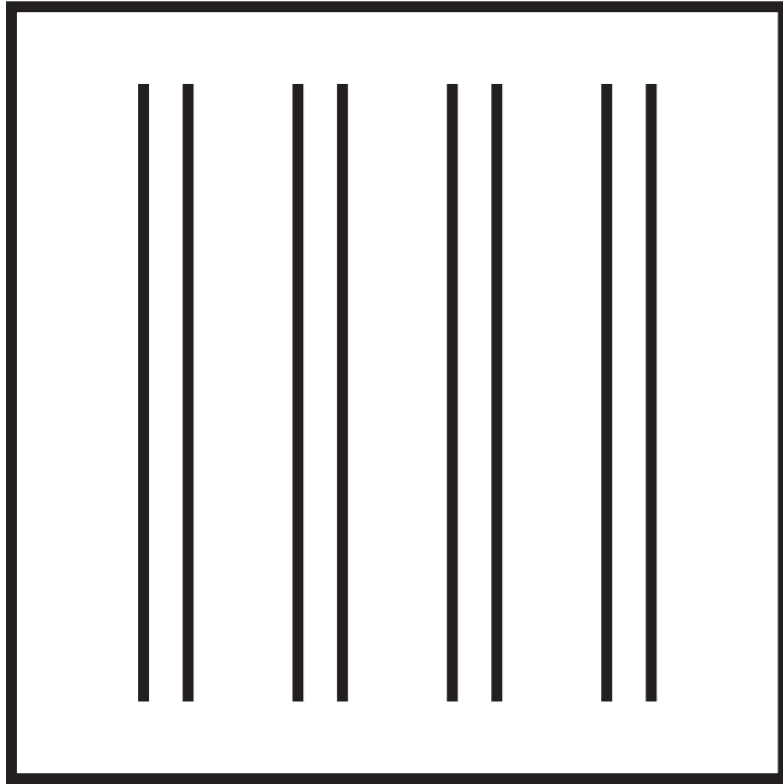
Phase of motion

<http://visualizedd.wordpress.com/process-paragraph/>

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Gestalt Laws



Gestalt Laws in Action ;-)



Gestalt Law Application in Design

1. Tell us about yourself...

My Name

Gender

Birthday

I live in

Postal Code

2. Select an ID and password

Yahoo! ID and Email @

Password Password Strength

Re-type Password

3. In case you forget your ID or password...

Alternate Email

1. Security Question

Your Answer

2. Security Question

Your Answer

http://sixrevisions.com/web_design/gestalt-principles-applied-in-design/

Gestalt Law Application in Design



US Presidential Campaign
2008

http://sixrevisions.com/web_design/gestalt-principles-applied-in-design/

Gestalt Law Application in Design



Hope for African Children Initiative

http://sixrevisions.com/web_design/gestalt-principles-applied-in-design/

The whole is other than the sum of its parts.

Kurt Koffka



http://sixrevisions.com/web_design/gestalt-principles-applied-in-design/

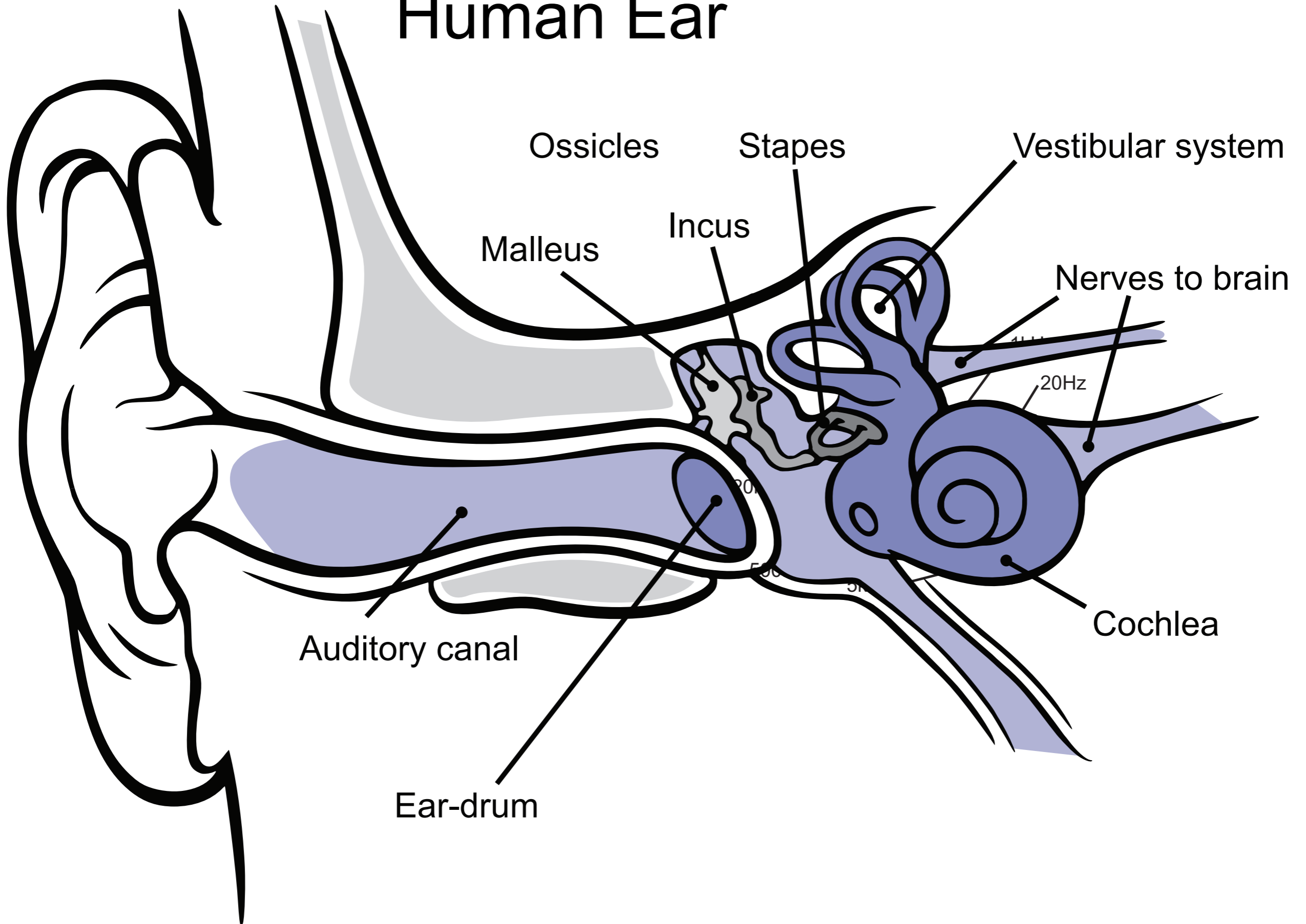
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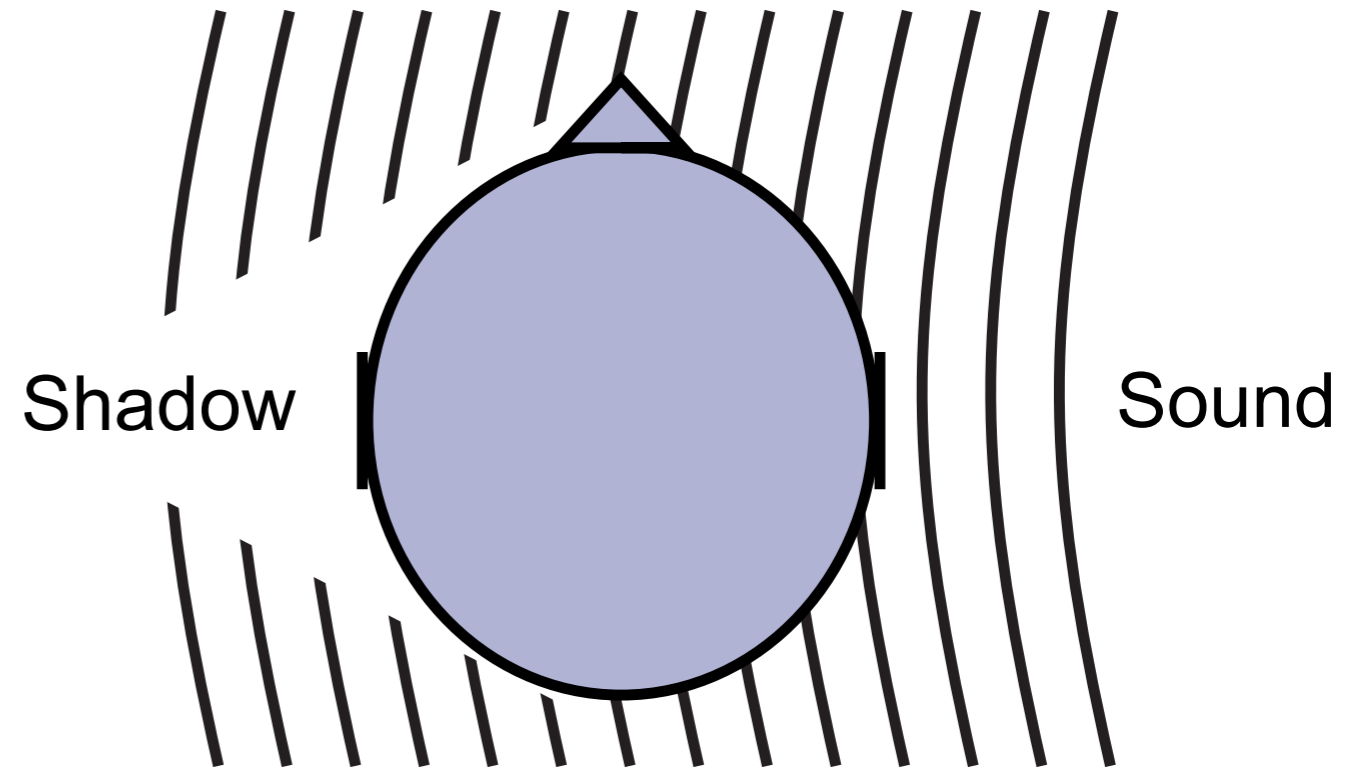
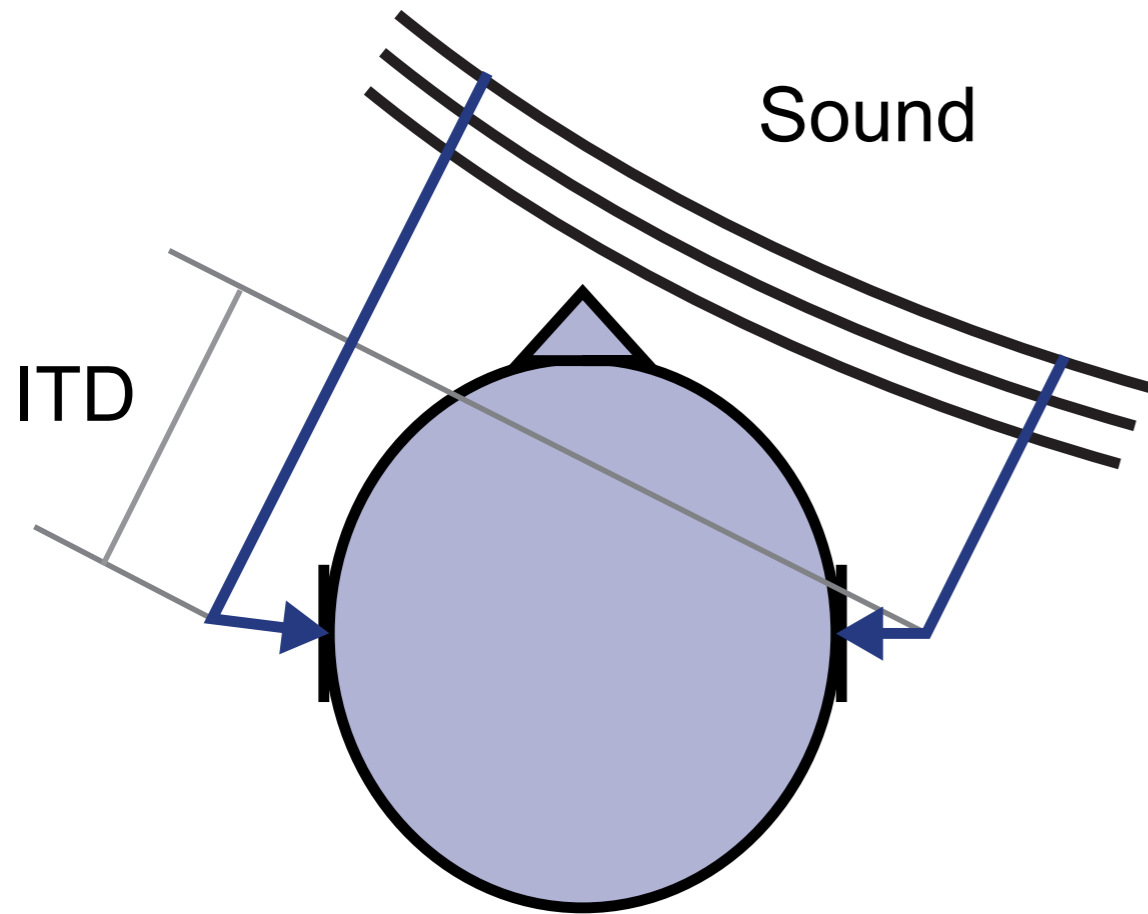
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Human Ear



Spatial Hearing through ITD and IID



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Phonological Loop

approx. 2 seconds



two one eight zero four six five zero

a_terribly_long_word_in_German

ei awei awwer dabba debei do owwe

Auditory Icons and Earcons

- Auditory Icons

- Like visual icons
- Represent an object or an operation
- Often natural sounds



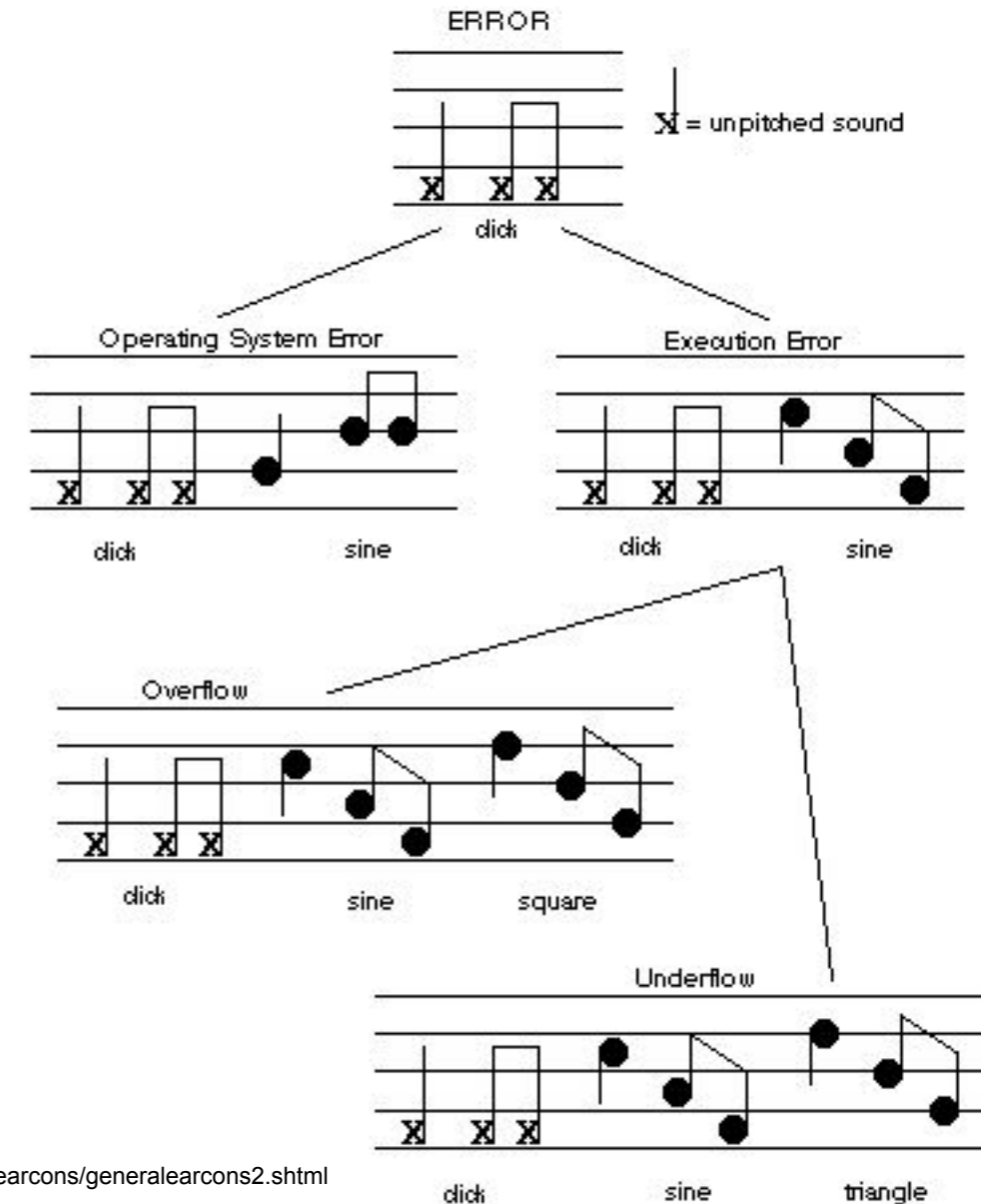
<http://airparktoastmaster.files.wordpress.com/2010/02/bell.jpg>



<http://creativebits.org/files/trash-osx.png>

- Earcons

- Abstract encoding of several values
- E.g. in a melody
- E.g. as speed-up of spoken language
- Meaning has to be trained



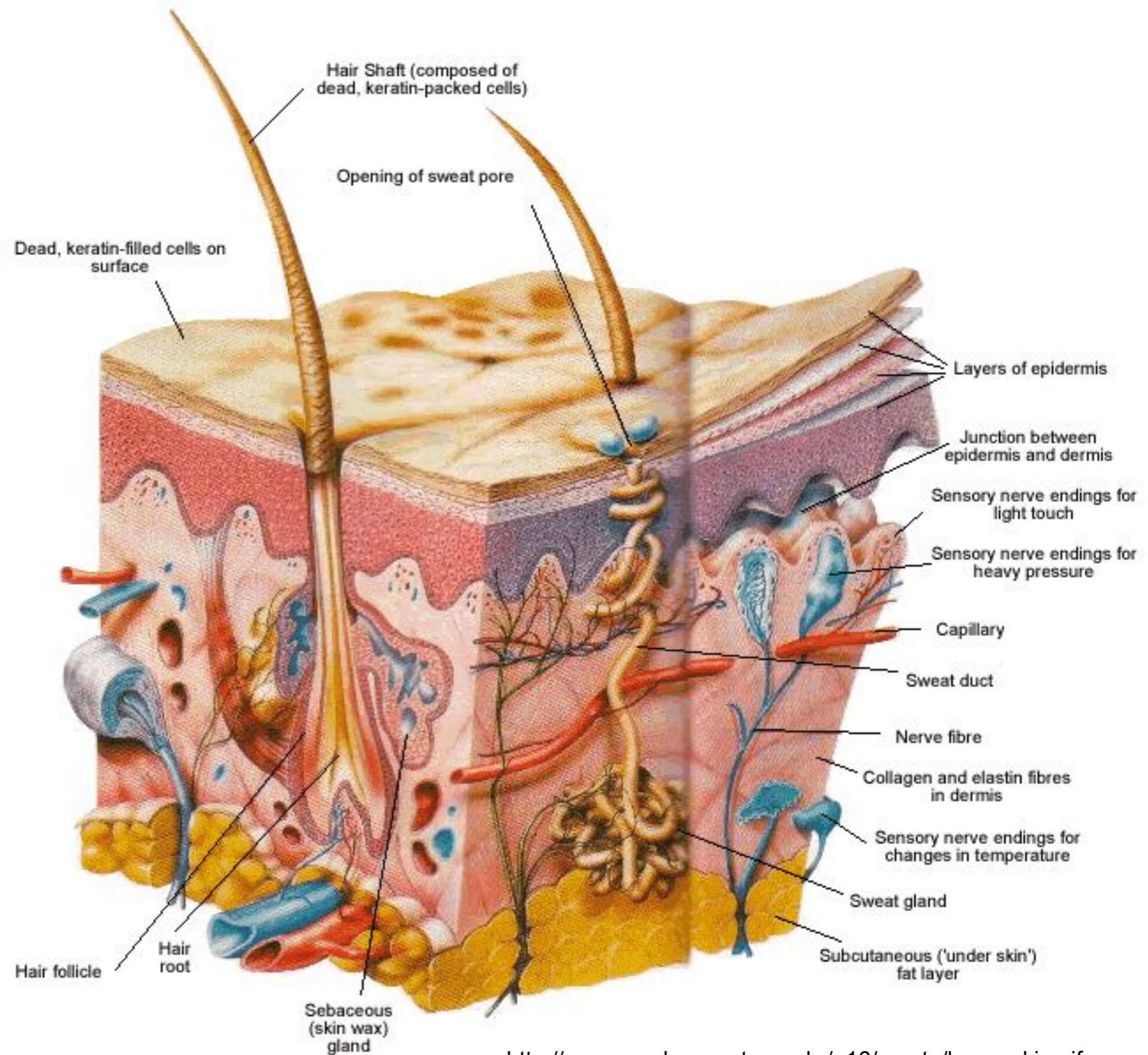
<http://www.dcs.gla.ac.uk/~stephen/generalearcons/generalearcons2.shtml>

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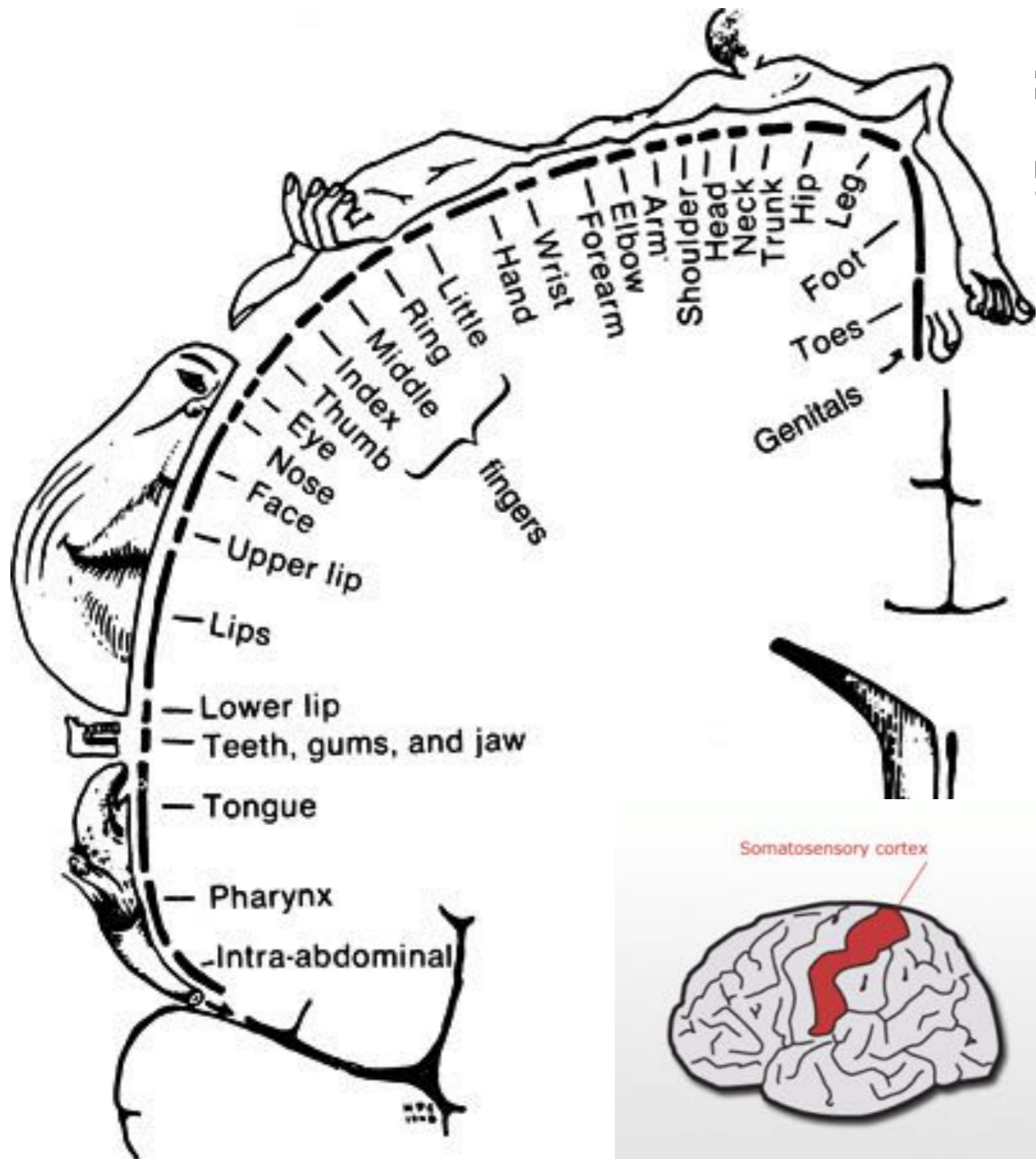
Physiology of Tactile Sense

- <http://www.gesundheit.de/sites/de/images/anatomie-lexikon/haut.jpg>



http://www.cerebromente.org.br/n16/mente/large_skin.gif

Weighted Processing of Sensory Information



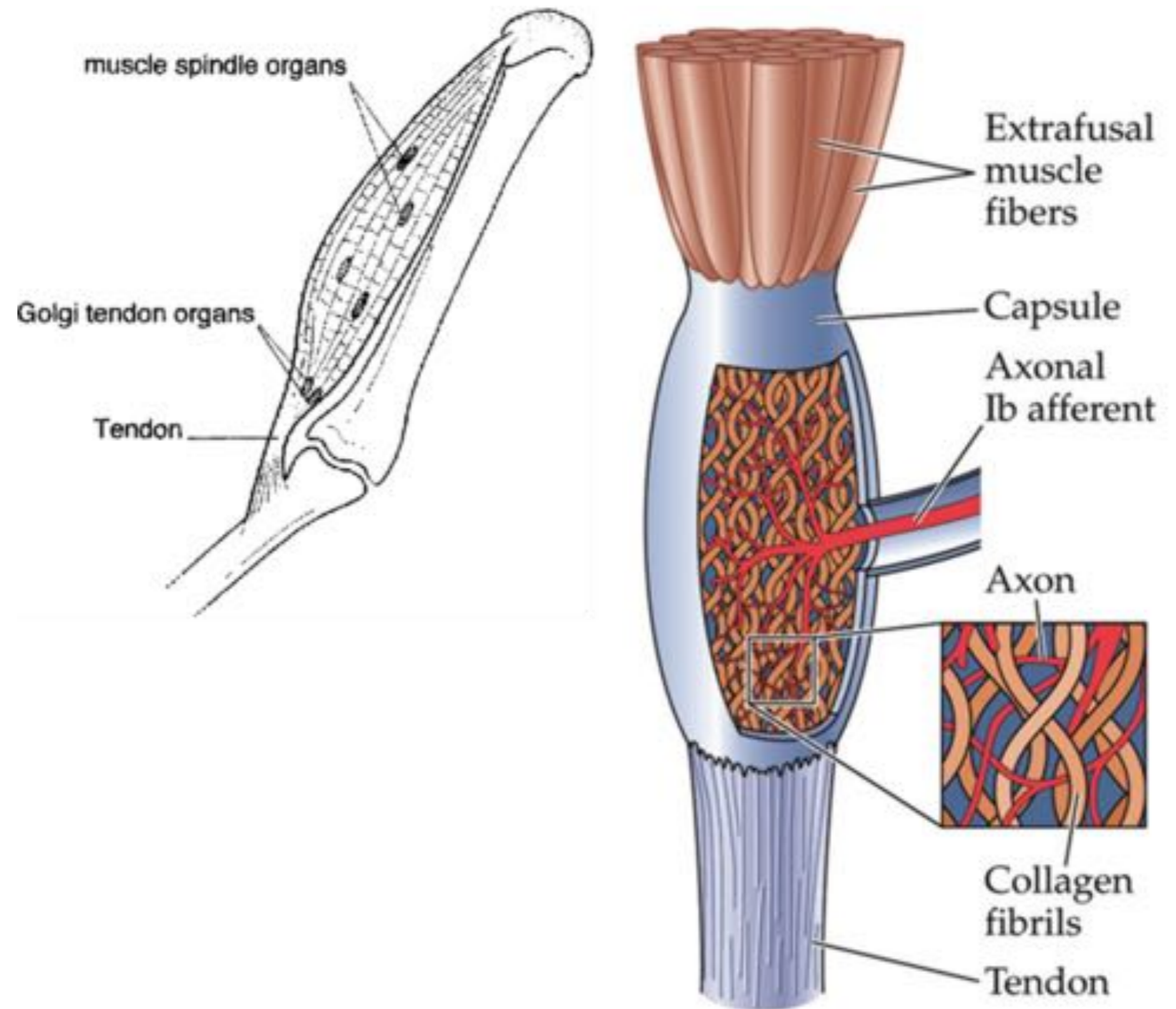
ikipedia/commons/thumb/
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<http://sciencedefined.wordpress.com/2012/01/31/the-skin-is-also-a-map/>

Proprioception

- Proprioception
- Kinesthesia



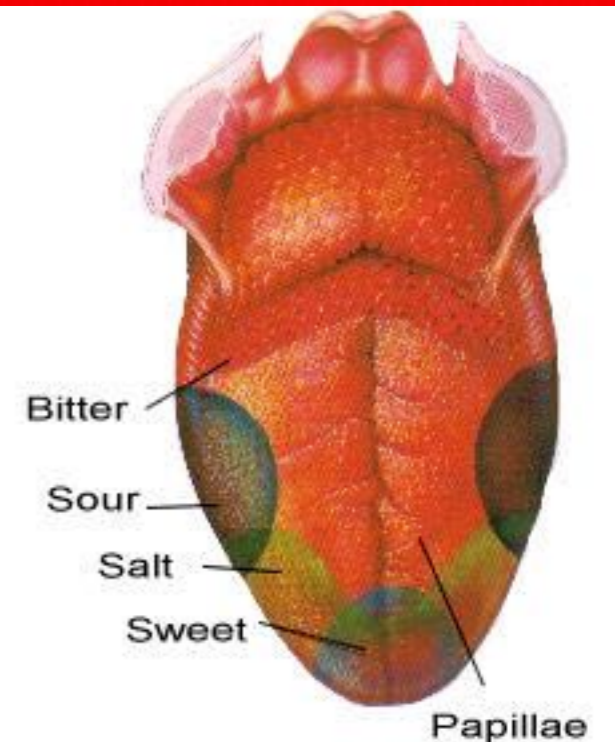
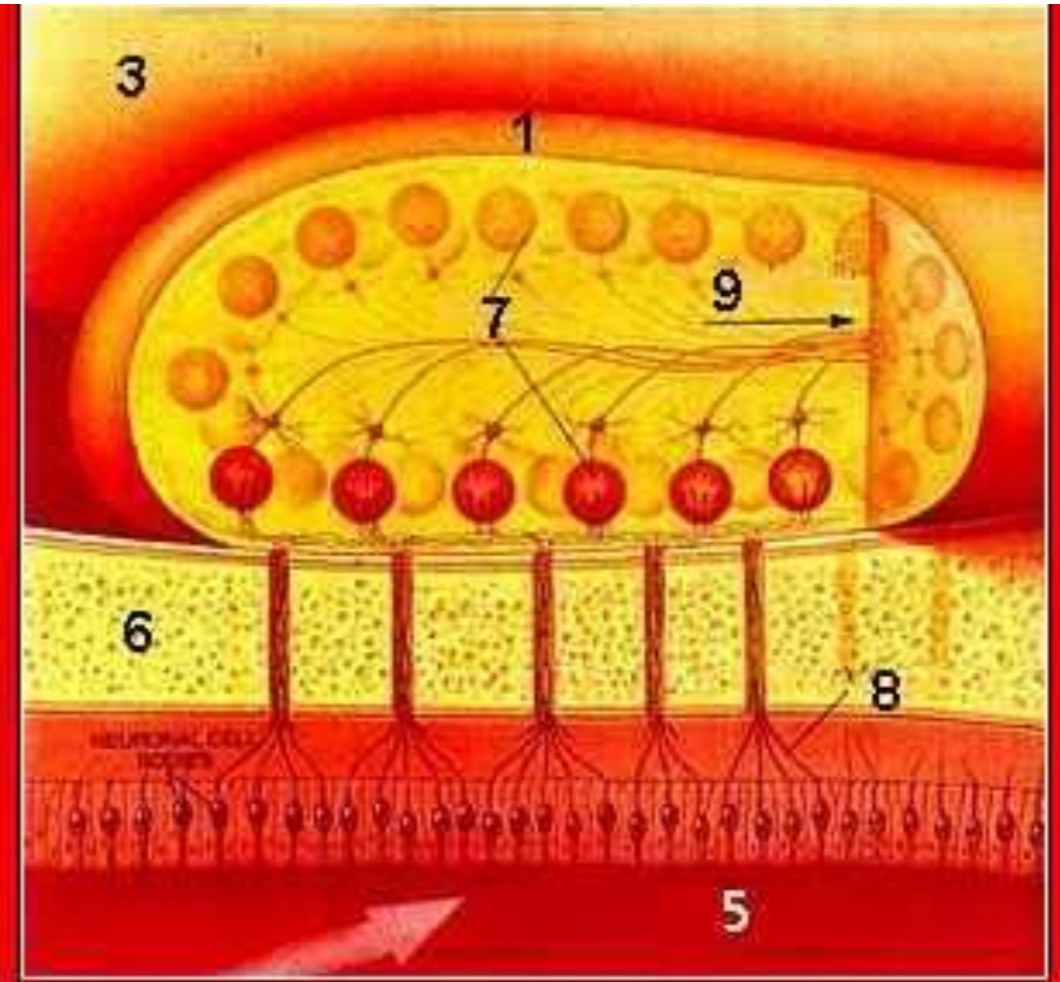
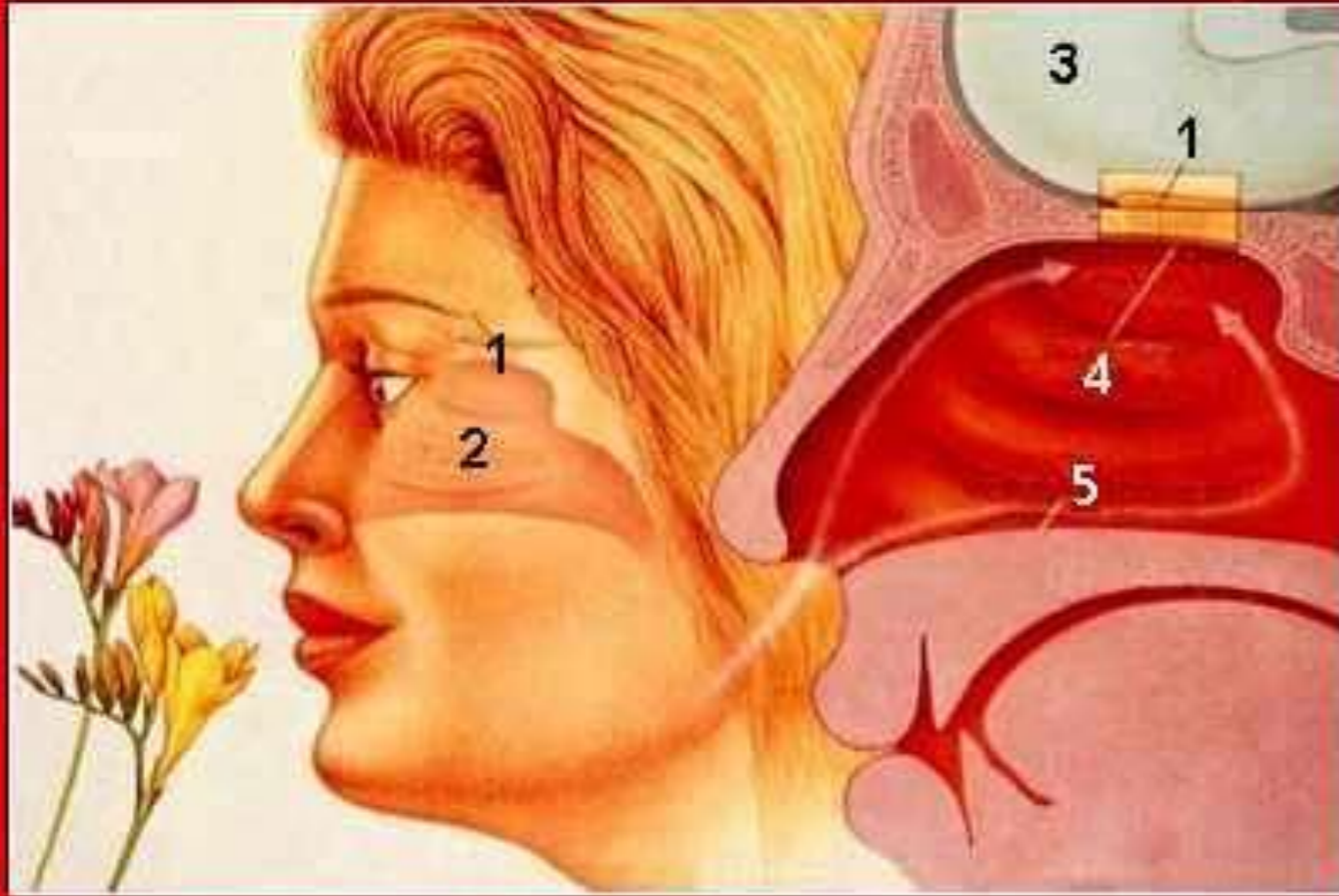
<http://quizlet.com/16208920/neurobiology-final01-somatosensory-system-flash-cards/>

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Senses of Smell and Taste

<http://www.cerebromente.org.br/n16/mente/senses1.html>



Discussion



<http://www.datex-perfekt.de/bewegungstalent.de/V1/uploads/Image/ampel.jpg>



http://cdn.crn.de/thumbs/fileadmin/images/NYC_Ampel1.jpg.480x0.jpg



<http://50jahreampelmann.de/wp-content/uploads/ampel-ost-deutschland.gif>



<http://www.gymnasium-kerpen.eu/ampel08.jpg>



<http://www.chinatraderonline.com/Files/Gifts-and-Crafts/Badge/LED-Traffic-Sign--Signal-Light-19442943470.jpg>



<http://50jahreampelmann.de/wp-content/uploads/ampel-usa-figur.gif>