

# **Guidelines for Accessible PPTs**

## **Accessible and Inclusive Learning**



**Prof. Konstantinos Priftis**  
**Department of General  
Psychology**  
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# **Guidelines**

**For the creation  
of Power Point Presentations,  
for Audiences that may  
Include  
Persons with Low Vision**

**Design for ALL = Include ALL**

# What Does **Accessibility** of Power Point Presentations Mean?

- ...it means that everyone, including the people with visual disabilities can read and enjoy the content of the slides.

# Accessibility of PPT

We can design or adapt an existing presentation, using some **essential guidelines** to help anyone use and enjoy the PowerPoint presentation.

# Accessibility of PPT

- In this tutorial, we'll talk and learn about how we can **develop** or **convert** an existing PowerPoint presentation into an **accessible** format, in such a way that:
  - The content becomes readable/accessible to **ALL**
  - The presentations can be easily converted into alternative print formats and retain readability.

**We are going to talk about ...**

**The UNIVERSAL DESIGN  
in Power Point presentations**



# **14 Important Points !**

## **To create an Accessible PPT**

- 1. Background color**
- 2. Font types**
- 3. Titles and headings size**
- 4. Font size of text**
- 5. Italic**
- 6. Use of colors for text**
- 7. Align text left**

# **14 Important Points !**

## **(Continue)**

- 8. Simple slides. Amount of information.**
- 9. Figures, graphs, etc.**
- 10. Shadows and Shades of gray (avoid)**
- 11. Pictures and corrections**
- 12. Grayscale (avoid) and color**
- 13. Color accessibility for Color Blindness**
- 14. Acceptable animations features**





**When you design the presentation for audiences that may include people with low vision, put yourself in their shoes by....**

- Viewing the lecture screen from 50 meters away...

- Or viewing the screen through a blurred window...



**BIG**

**BOLD**

**CONTRAST**

# **We can make choices/adjustments that will:**

- **Provide excellent contrast**
- **Be large enough**
- **Be comfortable to the reader**
- **Be friendly to people with visual impairments and/or color blindness**

# 1. Backgrounds

- **Background and Text should be of high contrast.**
- **Background should be simple, not graphical, and should be one color.**



Therefore, we use

**black letters on**

**white background**

# 1. Backgrounds (continued I)

- An off white, cream background is also allowed when we have to use a different background.
- The letters of the text **should be black.**

# 1. Backgrounds (continued II)

- **Two color gradients** are acceptable where one is white and the other is pastel.

One more info....

## About blue

**Blue**, should be avoided as a background color for the slides.

Blue makes the eyes work **2 trillion times harder per second** than red, pink, orange or yellow.



**Which is more comfortable to  
look at?**

**This?**

**This?**



**Or Perhaps This?**



## 2. Font Type

Use **Sans serif font** types such as **Verdana, Arial o Tahoma** which are simple and easily recognizable characters.

## 2. Font Type (continued)

Remember that different types with the same 'point size' have different appearing sizes.

(e.g. Calibri < Arial < Verdana)

**Verdana** offers optimal readability therefore it is advisable.

# Difficult Font types to read

Font types **with serifs** such as

‘**Times New Roman**’ or

‘**Garamond**’,

for low vision people are difficult to read.

Avoid complicated, decorative fonts:

**AVOID ME!!!**

# 3. Titles and headings

**Should be larger than the text of the document:**

- **Use size 40-44 where is possible**

## 4. Font size of text

- **Use 32 – 38 where is possible (minimum point size for letters: 28 – 30pt.).**
- **Bold letters/text is more visible.**
- **Smaller size for web pages (e.g. 20 pt. or larger)**



## 5. *Italic* font style

- ***Italics* should be avoided IF POSSIBLE.**
- **“Italics” style (for low vision people) are very difficult to read.**

# What can we use instead of *Italics*?

- Better Choices: **bold the quotation** or underlining, or use a different color (e.g. **dark brown** or **blue, purple**) instead of *Italics*.
- "Enclosing in quotation marks"

# Example

***We are born capable of learning.***

**—JEAN-JACQUES ROUSSEAU**

*Swiss-Born French Philosopher, 18th Century*

# Example

**"We are born capable of learning".**

**—JEAN-JACQUES ROUSSEAU**

Swiss-Born French Philosopher, 18th  
Century

## 6. Use of colors for text

- **Red/green and blue/yellow combinations should be avoided.** <http://www.color-blindness.com/coblis-color-blindness-simulator/>

- **Better choices are**

- **dark purple or**

- **dark brown or dark blue**



VISIONE NORMALE



PROTANOPIA



DEUTERANOPIA



TRITANOPIA

Text and background should be of high contrast.

If the text is dark, the background should be light.

If the text is light, the background should be dark.

Some good text/background color combinations are:

**Dark green and white**

**Yellow and violet**

**Dark blue and yellow**

**Black and yellow**

**Pink and black**

**Dark red and white**

**Violet and white**

**Black and white**

**Dark blue and white**



Because they provide poor contrast, certain colors should not be used together either as graphic features, background or text:

Red and green

Blue and black

Violet and black

Green and black

Dark blue and violet

Red and black

Two values of the same color

# 7. Align text left

- **Display the text in blocked paragraphs which are aligned left. Do not “justify” text.**

**Correct**



**Display the text in blocked paragraphs which are aligned left. Do not Not “justify” text.**

# **Also.....**

## **Avoid divided words at the ends of lines**

**We seek to enhance the student experience by creating a learning and teaching environment, and culture, that is dynamic, accessible and inclusive. What we do to make our presentation accessible for the persons with low vision will ultimately make it more readable for everyone.**

# **Also.....**

## **Avoid divided words at the ends of lines**

**We seek to enhance the student experience by creating a learning and teaching environment, and culture, that is dynamic, accessible and inclusive. What we do to make our presentation accessible for the persons with low vision will ultimately make it more readable for everyone.**

# 8. Simple slides

**Simple slides are much more readable.**

- **With no more than 3 different blocks of information**
- **Nor more than 6-7 individual lines of information per block, if possible.**
- **It is not advisable to use more than six bulleted lines**

## 8. Simple slides (continued)

- If we have a “heavy” slide with **long text**, which cannot be properly modified.... We can **create 2 or more slides: keep the title** and split the content into 2 or more slides.

**Attention: see the TITLE marked with “continued”**

# Example

- Adapt slide and text format to meet the needs of visually impaired readers

# Attitudes

- Two types of attitudes
  - Reasoned attitudes
  - Automatic evaluations
- Attitude change
  - Central route
  - Peripheral route
- Attitudes influence behavior:
  - Attitude measurement
  - Attitude strength
  - Motivation and ability for information processing
- Behavior influences attitudes:
  - Self-perception: 'cold' cognitive process
  - Dissonance: 'hot' motivational process
  - Attitude strength





# Attitudes

- Two types of attitudes
  - Reasoned attitudes
  - Automatic evaluations
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  - Central route
  - Peripheral route



# Attitudes (continued I)

- Attitudes influence behavior:
  - Attitude measurement
  - Attitude strength
  - Motivation and ability for information processing



# Attitudes (continued II)

- Behavior influences attitudes:
  - Self-perception: 'cold' cognitive process
  - Dissonance: 'hot' motivational process
  - Attitude strength



# **Another Example**

# EXECUTIVE FUNCTIONS

- Lezak defined **executive functions** as “those capacities that enable a person to engage successfully in independent, purposive, self-serving behavior” (Lezak, 1995, p. 42); executive functions consists of planning, purposive action, self-monitoring, self-regulation, and volition. Other terms commonly used include inhibition and flexibility.

- Lezak again:

The executive functions comprise those mental capacities necessary for formulating goals, planning how to achieve them, and carrying out the plans effectively. They are at the heart of all socially useful, personally enhancing, constructive, and creative activities.

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# EXECUTIVE FUNCTIONS

## (continued)

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The executive functions comprise those mental capacities necessary for formulating goals, planning how to achieve them, and carrying out the plans effectively. They are at the heart of all socially useful, personally enhancing, constructive, and creative activities.

# 9. Figures and graphs

- **Figures and graphs should be as simple as possible.**
- **Print across the illustrations should be avoided.**





***Complex or graphic backgrounds make text  
Difficult to read. Keep backgrounds simple  
so text will be visible.***





How does early and late maturation influence adolescent development?



# How does early and late maturation influence adolescent development?



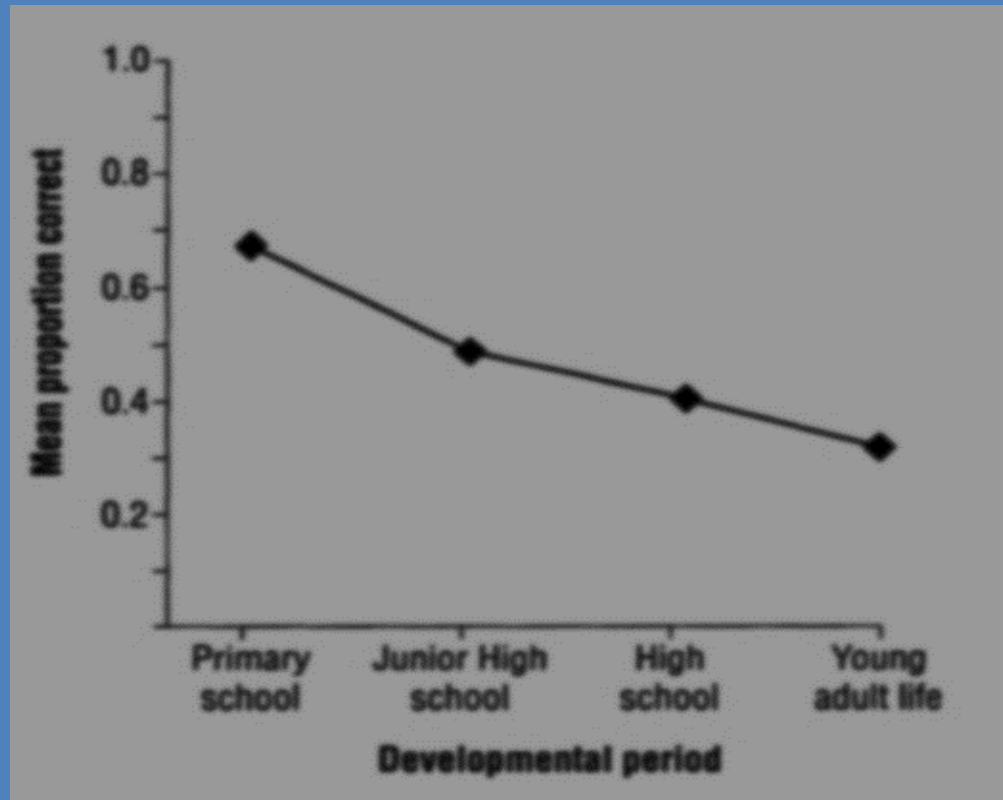
# About illustrations

Remember that:

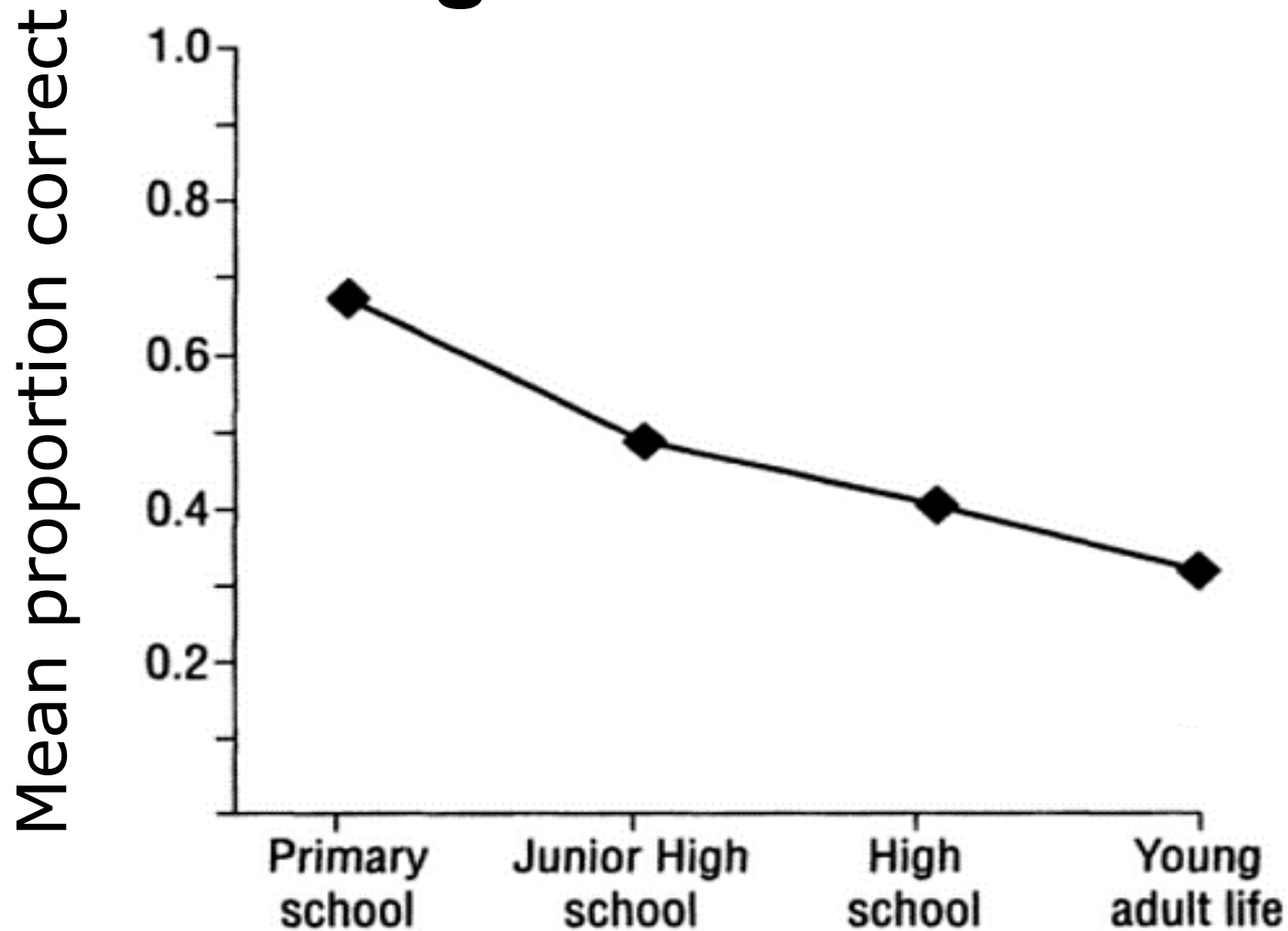
Readers with low vision have trouble with maps, diagrams, forms, tables, flow-charts, maps, etc.

**Illustrations** could be isolated and presented with strong contrast and in a larger scale. Use **good quality, not faded.**

# Ribot's law: retrograde amnesia gradient



# Ribot's law: retrograde amnesia gradient





# 10. Shadows and hades of gray

## In Text...

- **Shadowed text changes the shape of letters and makes the text less readable**

# 10. Shadows and shades of gray (continued)

- **Shadowed text and shades of gray limits the contrast between the letters and the background.**

- **ELIMINATE Shadows**

- **ELIMINATE Shades of gray**



- **Gray should be avoided in both text and background**

- **Gray should be avoided in both text and background**

**Shades of gray should not be used together either as graphic features, background or text**

Shades of gray should not be used together either as graphic features, background or text because there is almost no contrast

Avoid text with shadows.  
It changes the shape of  
the letters the reader  
has come to know.

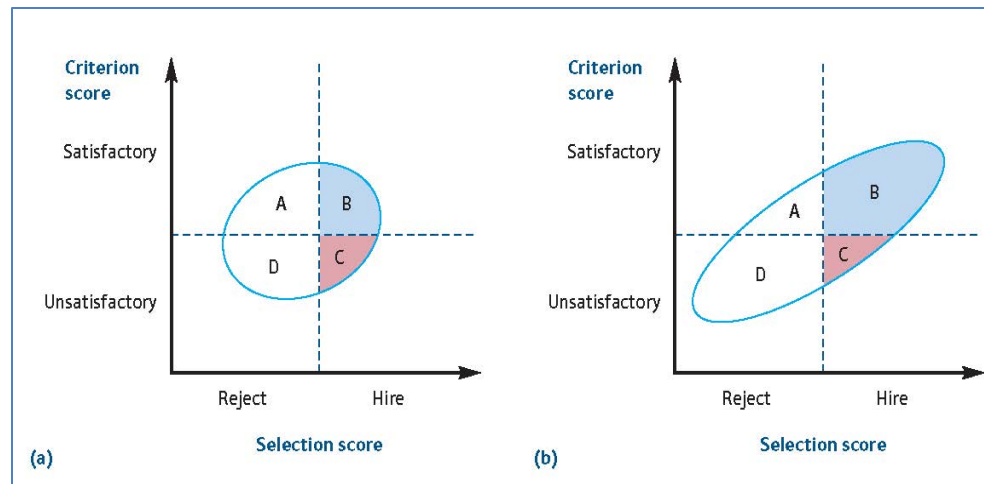
**Shadowed text also limits the contrast  
between the letters and the background.**

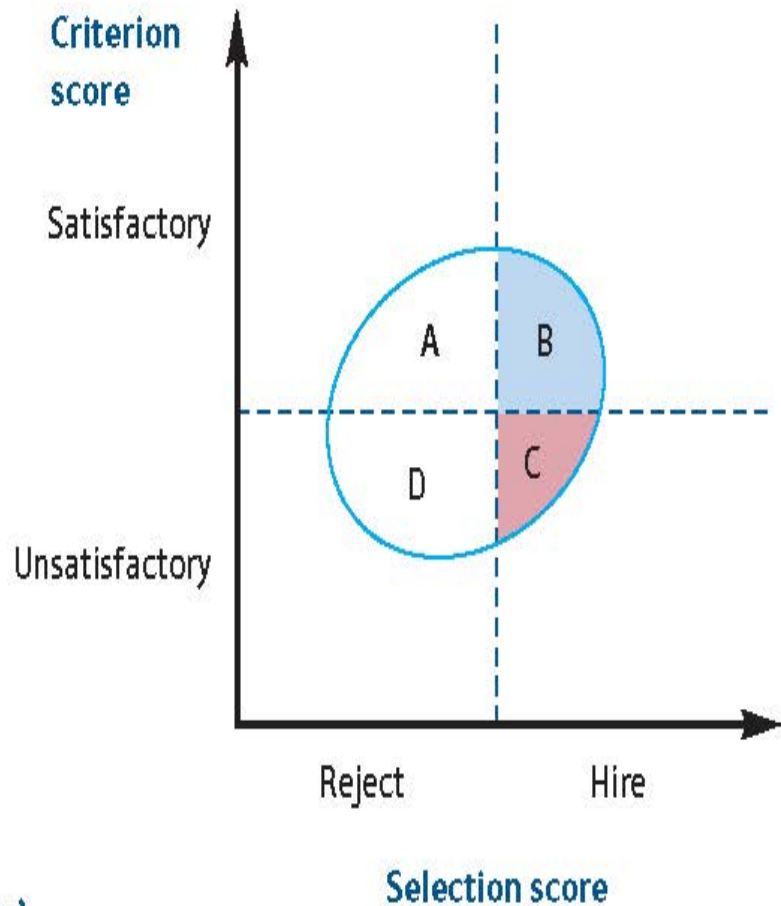
**Shades of gray should not be used together, either as graphic features, background or text**

**Remember: Background and Text should be of high contrast.**

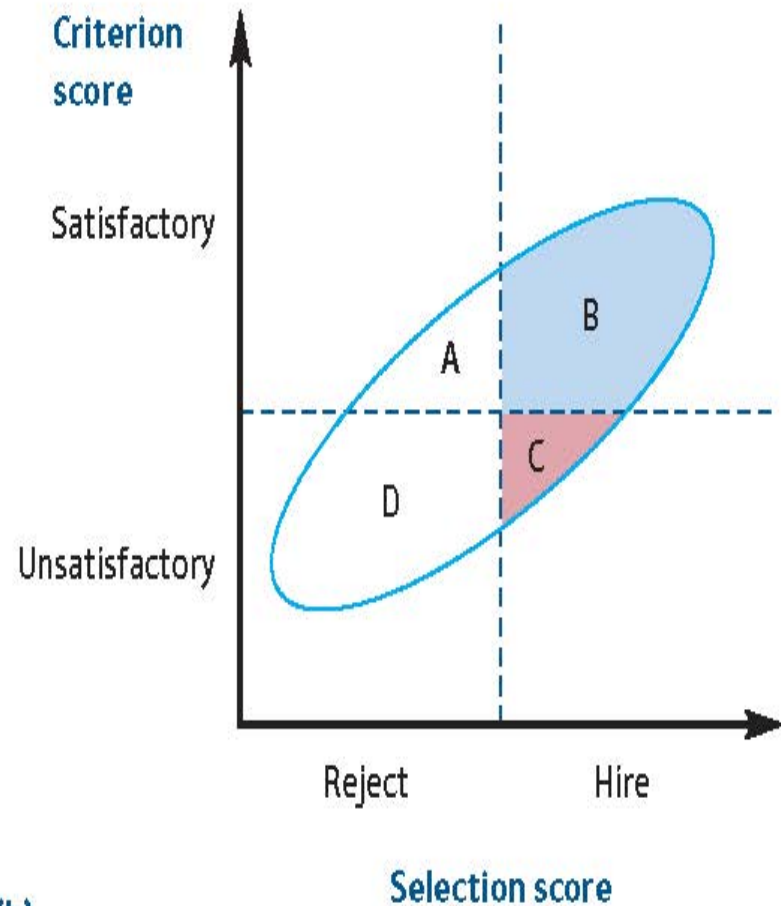
# 11. Pictures and corrections

- Improve the contrast, brightness, sharpness of pictures and present them in a larger scale. (edit text if it is necessary)



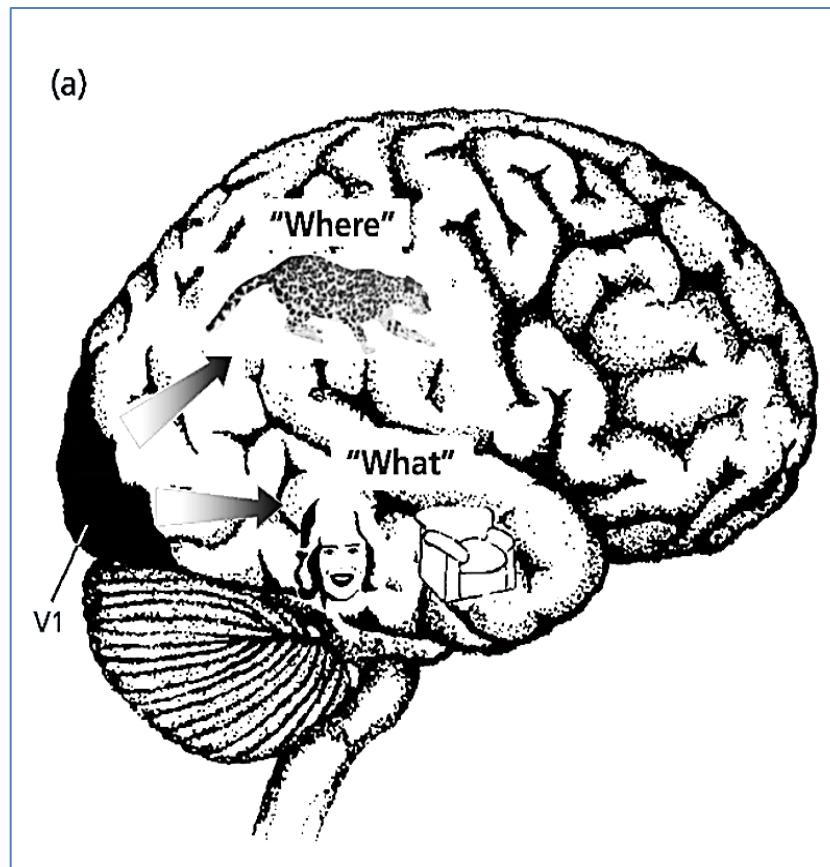
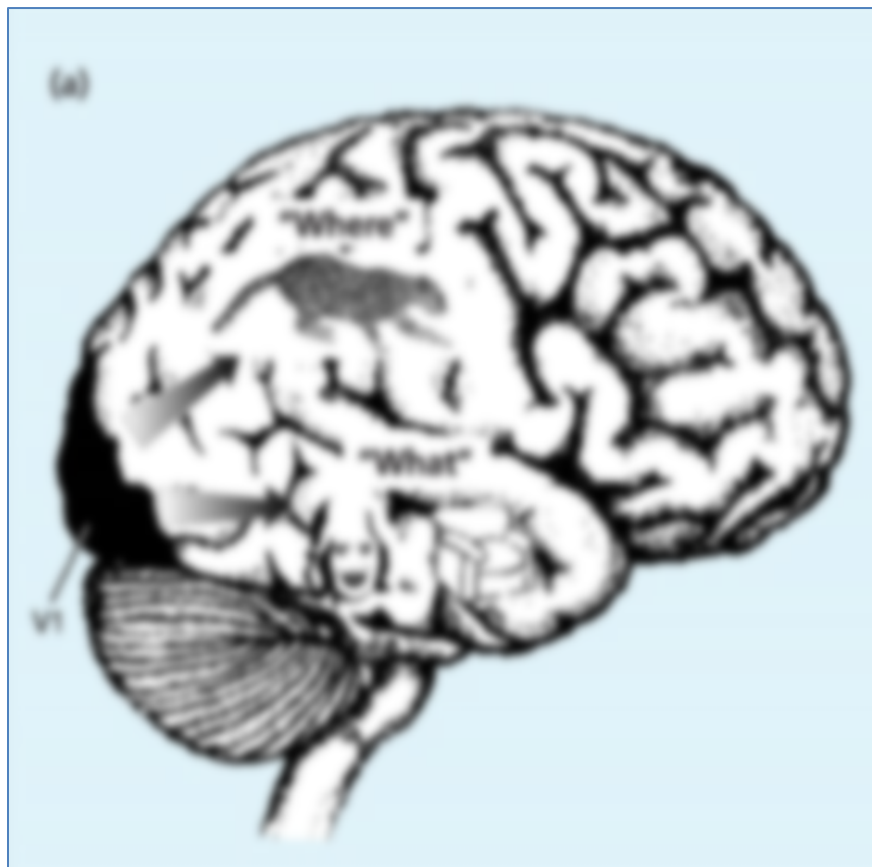


(a)



(b)

# 11 Pictures and corrections (continued)



# Grayscale

**Grayscale** is not a good option for:

- photos
- graphics
- graphs
- Maps, charts, etc.

It should be avoided, if possible, because it does not provide good contrast.



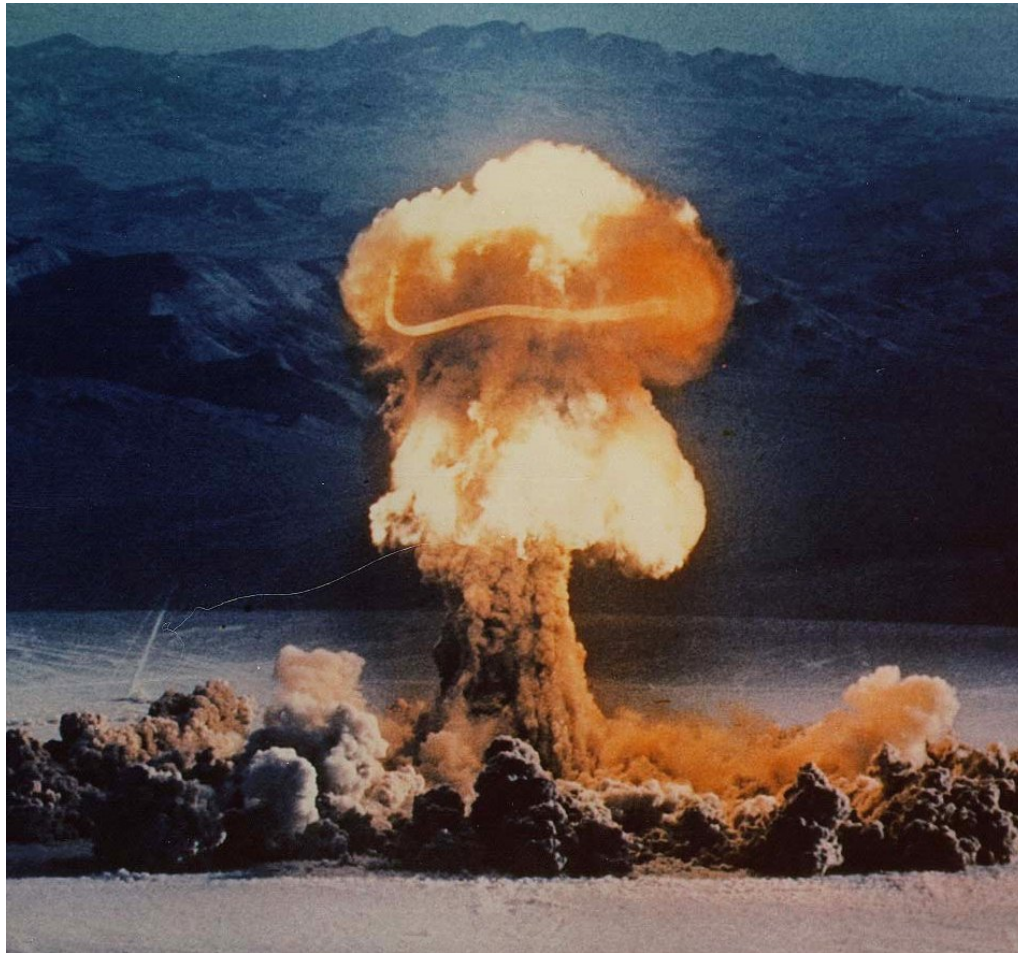
**Here is why Grayscale is not useful for persons with low vision**



**Grayscale**



# Color provides **much better contrast**



<https://www.aph.org/accessible-media-guidelines/>

# 13. Color accessibility for Color Blindness

- **Few color combinations to avoid:**
  - Green & Red
  - Green & Brown
  - Blue & Purple
  - Green & Blue
  - Blue & Yellow
  - Blue & Grey
  - Green & Grey
  - Green & Black

# 14. ANIMATION FEATURES

- Avoid animations and sounds if not crucial to content of presentation.
- Animations may cause screen readers to read the slide twice.
- Animations may cause further eye strain and reading difficulties.

# 14. ANIMATION FEATURES

(continued)

If animations are necessary to the content, the following might be more acceptable:

**Fly in from left**

**Wipe right**

**Typewriter**

**Appear**

# References (main sources)

- American Printing House for the Blind. Power point presentation, developed by Elaine Kitchel, M.Ed. Low Vision Project Leader, available at

<https://www.aph.org/accessible-media-guidelines/>

- Best Practices and Guidelines for Large Print Documents used by the Low Vision Community authored by the Council of Citizens with Low Vision International available at

<http://www.acb.org/large-print-guidelines>

# Further guidance/ useful link for technical matters

The WebAIM (Web Accessibility In Mind) organisation has a technical guide to creating accessible PowerPoint presentations. Available at:

<https://webaim.org/techniques/powerpoint/>

CLEAR  
*and to*  
THE POINT



8 Psychological Principles  
for Compelling  
PowerPoint® Presentations

STEPHEN M. KOSSLYN





**Let's see together  
some examples**

- Good and less good practices

Let's keep in mind that:

**Designing for accessibility doesn't mean that the aesthetic integrity of our design needs to suffer.**

There are many ways to obtain an accessible presentation and an excellent result in terms of aesthetic.

# INFANT DEPTH PERCEPTION

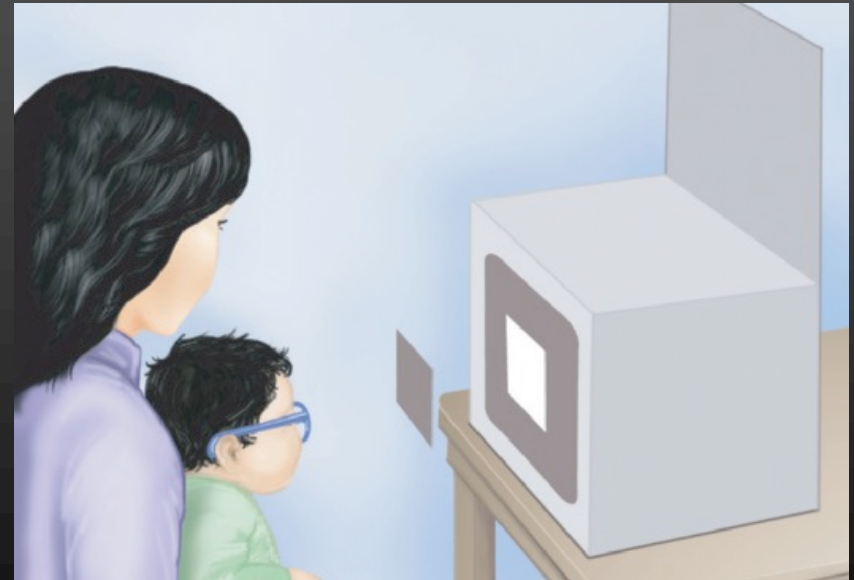
## At what age are infants able to use different kinds of depth information?

The answer to this question is that different types of information become operative at different times.

Binocular disparity becomes functional early, and pictorial depth cues become functional later.

### FOXÉ'S EXPERIMENT:

an infant wearing special viewing glasses was seated in his mother's lap in front of a television screen

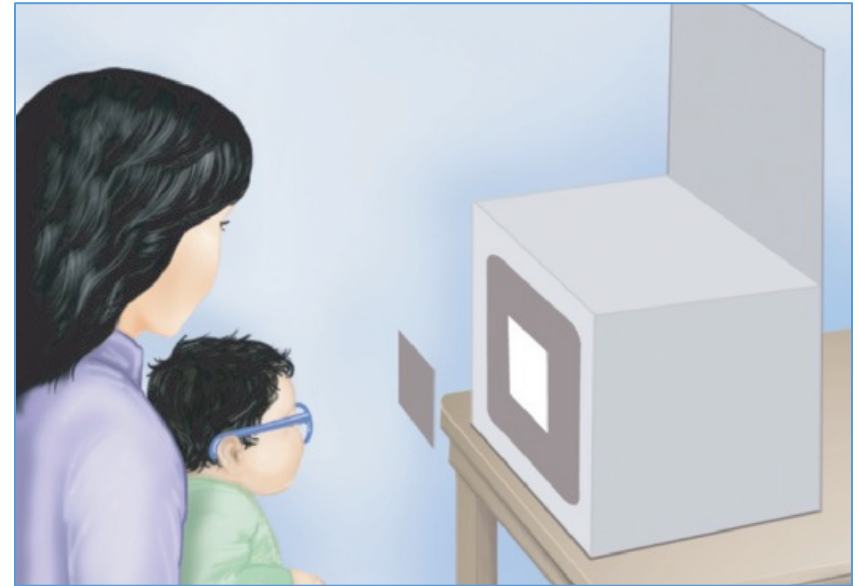


# INFANT DEPTH PERCEPTION

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### FOXES' EXPERIMENT:

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Phonemic analysis

Graphemic analysis

Phonological input lexicon

Orthographic input lexicon

Semantic memory

Phonological output lexicon

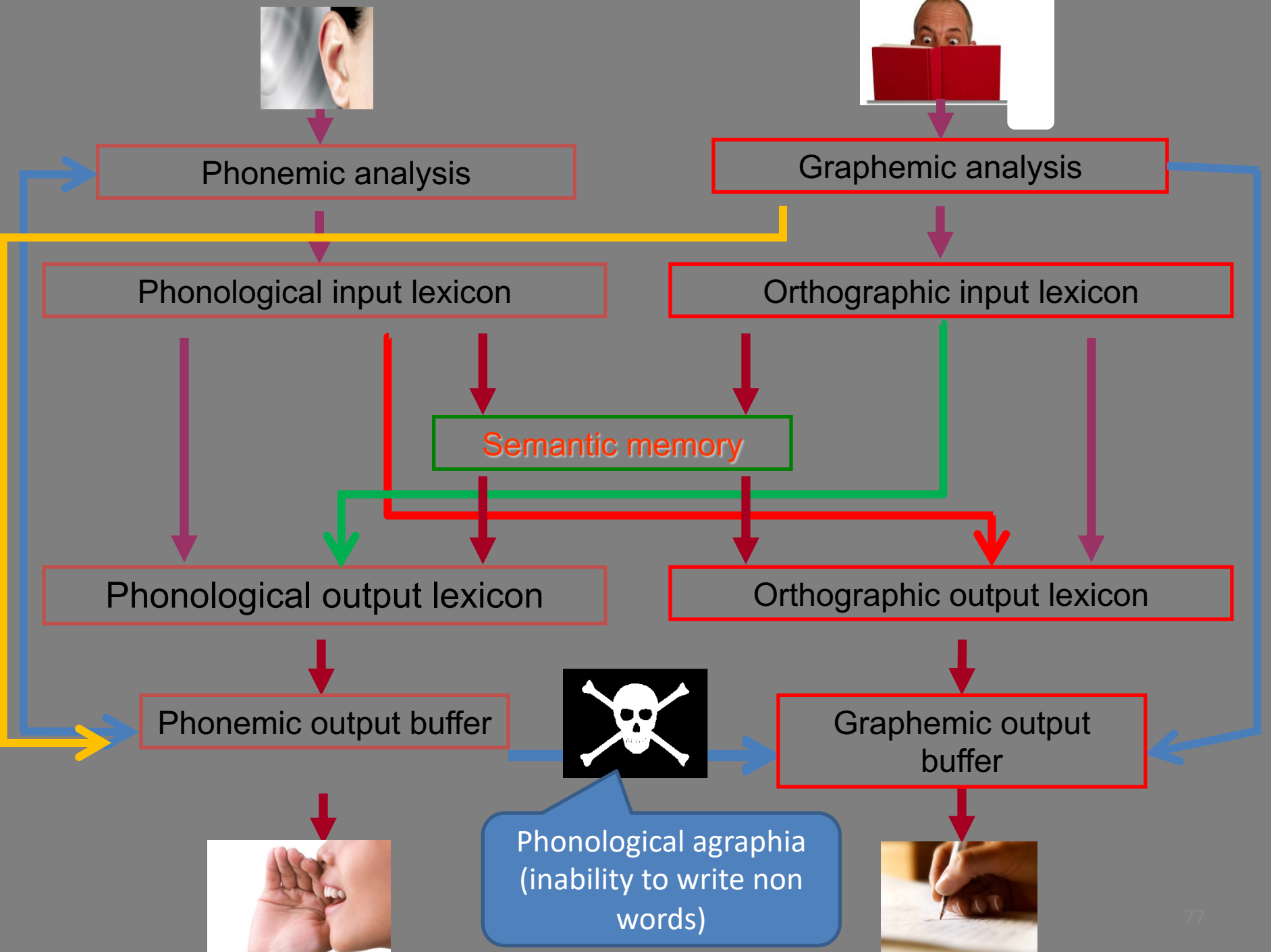
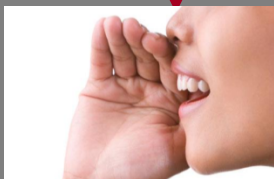
Orthographic output lexicon

Phonemic output buffer

Graphemic output buffer



Phonological agraphia  
(inability to write non words)



# Some corrections to obtain a better result/accessible **could be....**

- Improve the CONTRAST
- Enlarge the font size of the text in the cells (24-28 pt. instead of 18 which was on the initial slide)



Phonemic analysis

Graphemic analysis

Phonological input lexicon

Orthographic input lexicon

Semantic memory

Phonological output lexicon

Orthographic output lexicon

Phonemic output buffer

Graphemic output buffer



Phonological  
agraphia (inability  
to write non words)

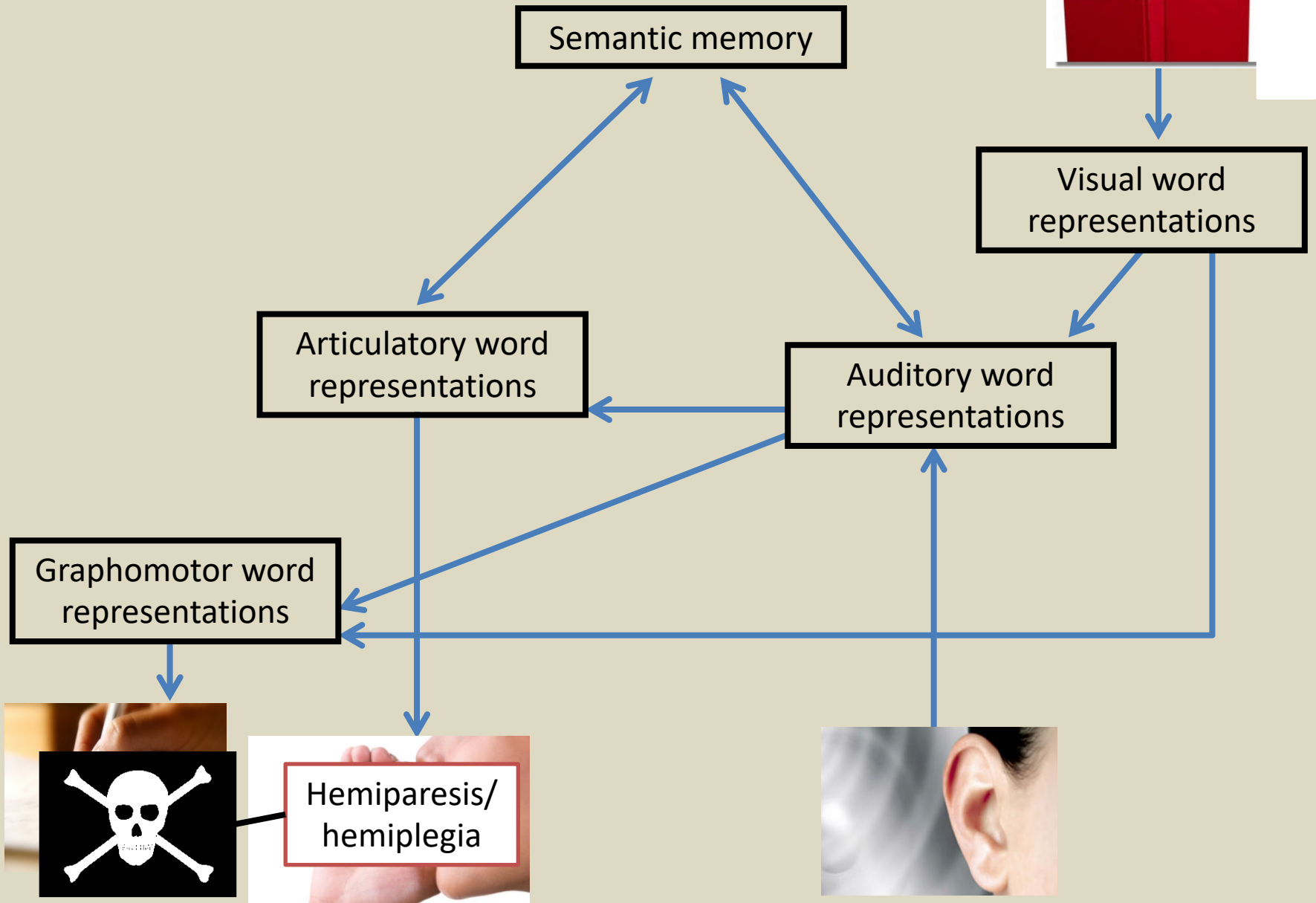


# Another example...

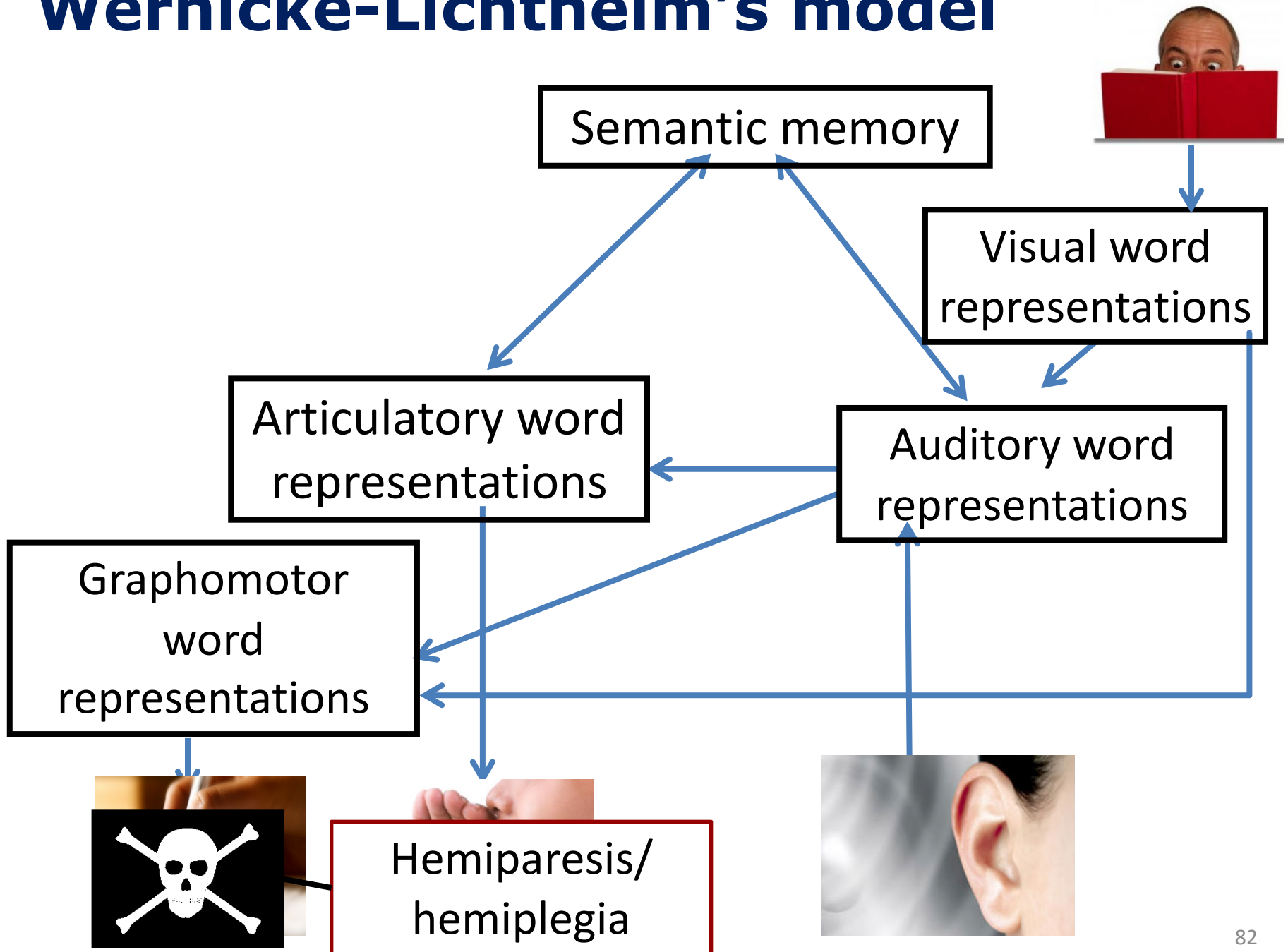
- Eliminate shadow from the title and change color
- Improve the CONTRAST
- Enlarged the font size of the text



# Wernicke-Lichtheim's model



# Wernicke-Lichtheim's model



# CORTICAL ACHROMATOPSIA

## *LESION SITE: AREA V4*

*Definition:* acquired neuropsychological deficit of color vision



- Bilateral lesions of V4 affect the whole visual field
- Unilateral lesions of V4 affect only the contralesional visual hemifield

# CORTICAL ACHROMATOPSIA

## LESION SITE: AREA V4

**Definition:** acquired neuropsychological deficit of color vision



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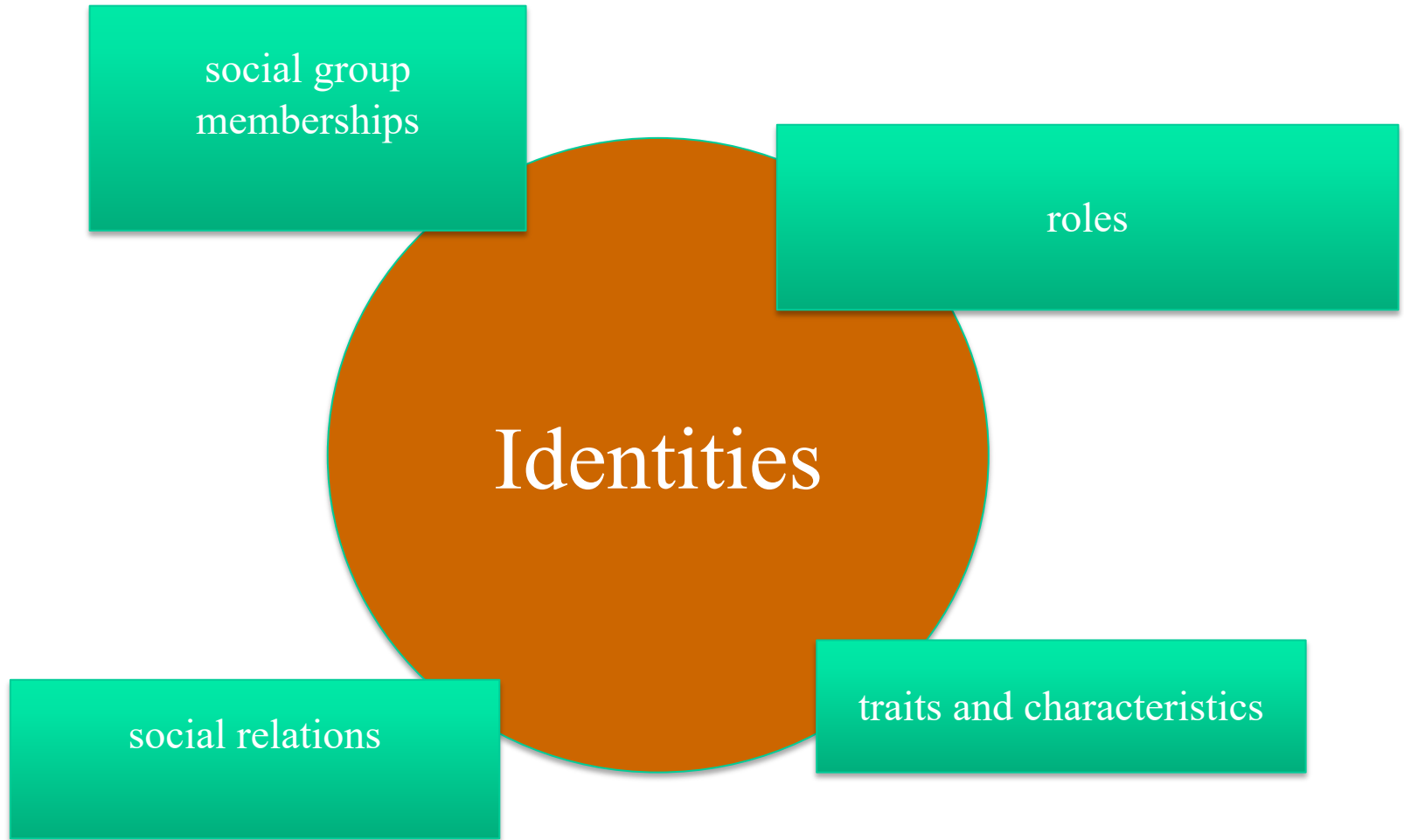
social group  
memberships

roles

Identities

social relations

traits and characteristics



Social group memberships

Roles

**Identities**

Social relations

Traits and characteristics

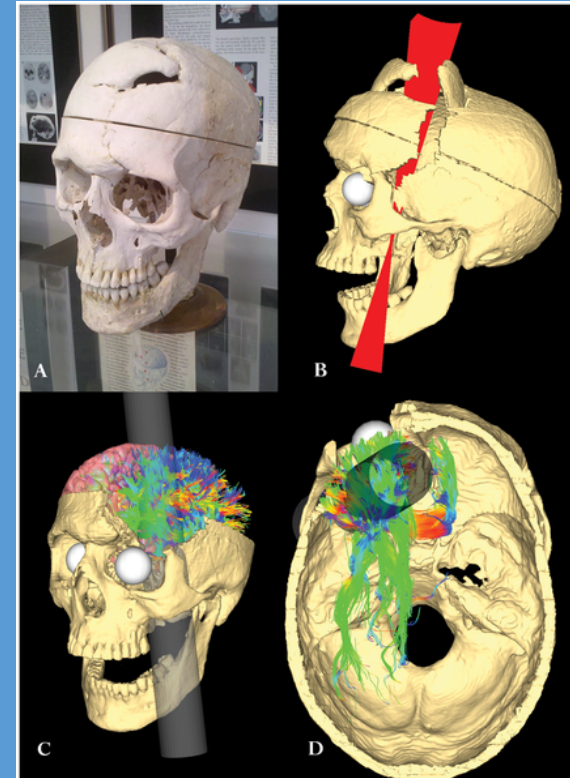
# Splitting the text of 1 slide into 2 or more slides...

- Try to keep the image in both slides in order to keep the relation between them.
- It is easier to understand that the slides are connected / related.

**EXAMPLE of a “heavy” slide**

# Harlow described Gage's changes:

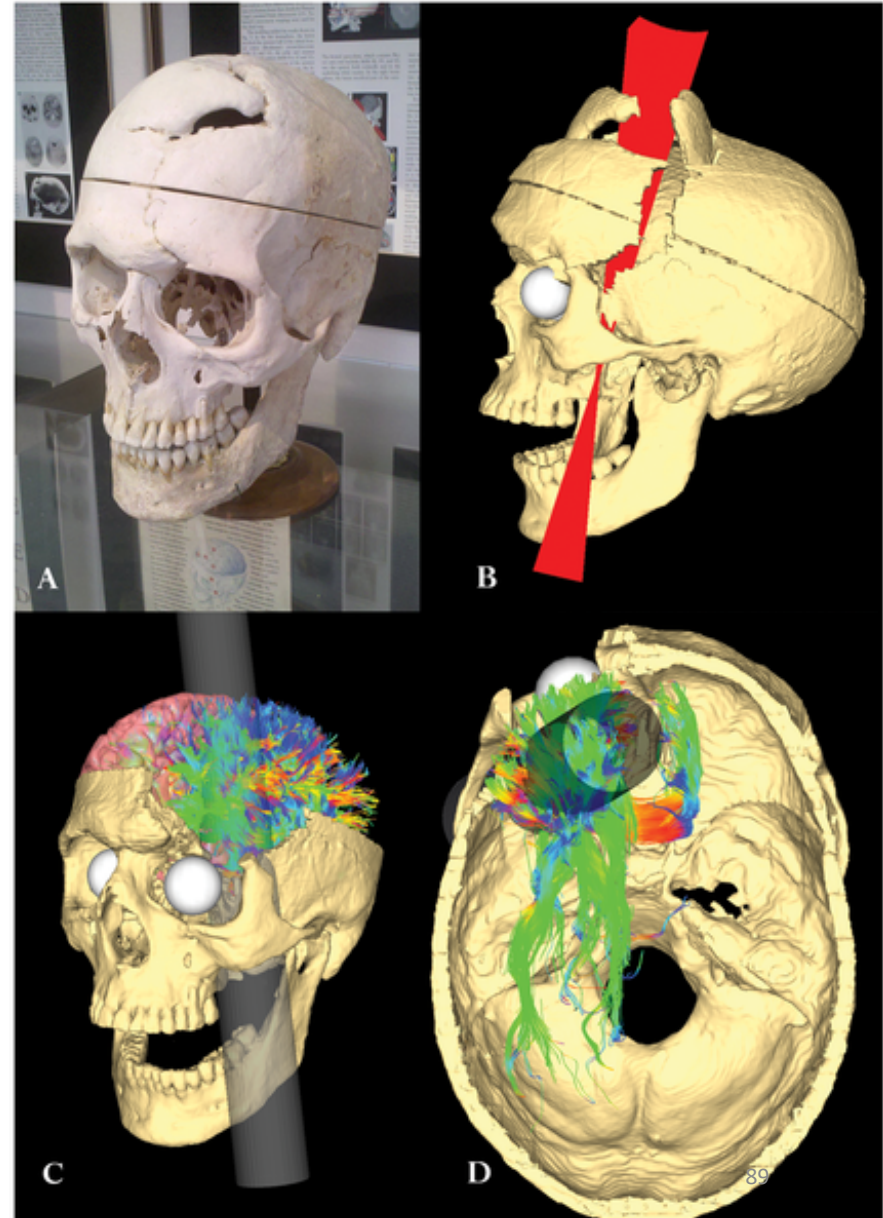
“His contractors, who regarded him as the most efficient and capable foreman in their employ previous to his injury, considered the change in his mind so marked that they could not give him his place again. He is fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint of advice when it conflicts with his desires, at times pertinaciously abstinent, yet capricious and vacillating, devising many plans of future operation, which are no sooner arranged than they are abandoned in turn for others appearing more feasible. In this regard, his mind was radically changed, so decidedly that his friends and acquaintances said he was "no longer Gage".





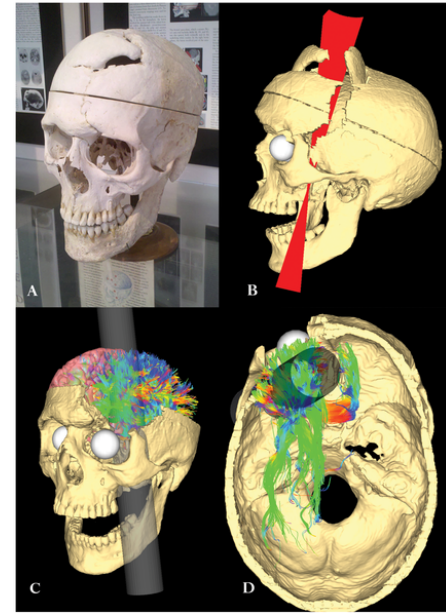
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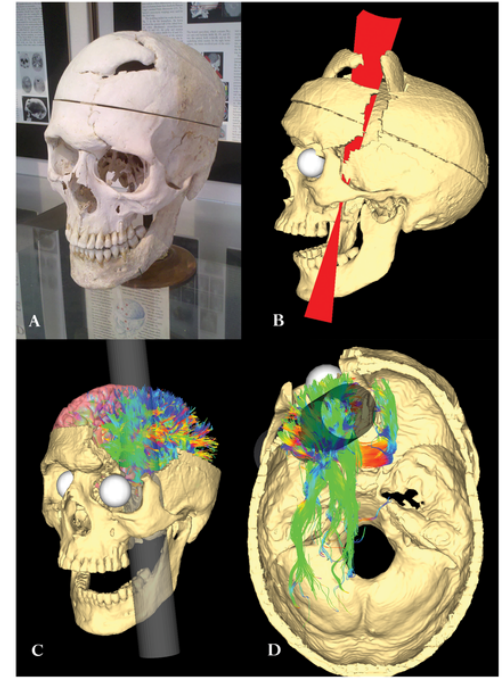
# Harlow described Gage's changes: (continued I)

"...He is fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint of advice when it conflicts with his desires, at times pertinaciously abstinent, yet capricious and vacillating, devising many plans of future operation, which are no sooner arranged than they are abandoned in turn for others appearing more feasible...."



# Harlow described Gage's changes: (continued II)

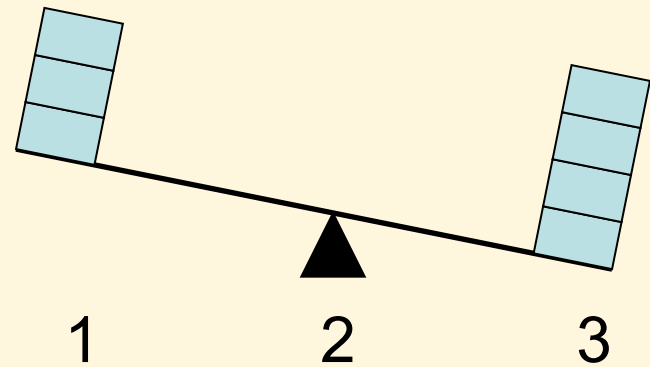
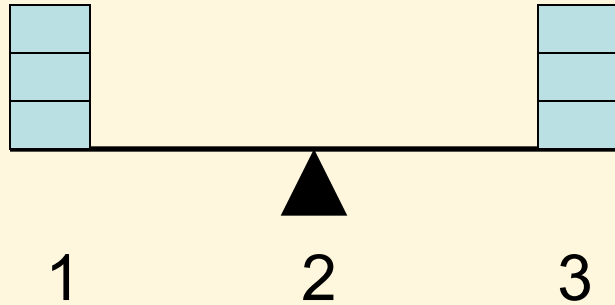
"...In this regard, his mind was radically changed, so decidedly that his friends and acquaintances said he was "no longer Gage".



more examples/solutions...

## Arithmetic mean ( $\bar{X}$ )

- centre of gravity of distribution (scores as cubes on a balance scale)



- e.g., {6, 8, 3, 4, 8}

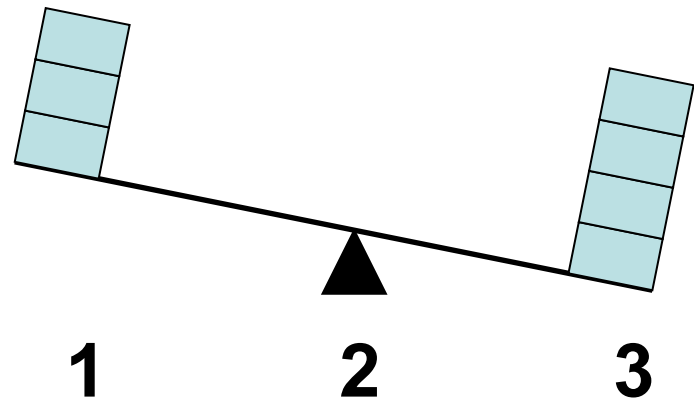
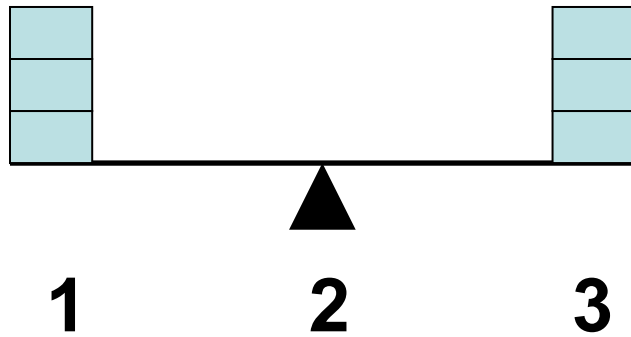
- $(6 + 8 + 3 + 4 + 8) / 5 = 5.8$

- in general:

$$\bar{X} = \frac{\sum X_i}{N}$$

# Arithmetic mean ( $\bar{X}$ )

- centre of gravity of distribution (scores as cubes on a balance scale)



- e.g., {6, 8, 3, 4, 8}

- $(6 + 8 + 3 + 4 + 8) / 5 = 5.8$

- **in general:**  $\bar{X} = \frac{\sum X_i}{N}$

# More examples/solutions...

- Redesign a table to obtain an accessible slide ....

**Table 4.7**

**A summary of studies on the validity of selection procedures**

Selection method	Evidence for criterion-related validity	Applicant reactions	Extent of use*
Structured interviews	High	Moderate to positive	High
Cognitive ability tests	High	Negative to moderate	Moderate
Personality measures	Moderate	Negative to moderate	Moderate
Situational judgement tests	High	Moderate to positive	Low to moderate
Biodata	Can be high	Moderate	Moderate
Work-sample tests	High	Positive	Low
Assessment centres	Can be high	Positive	Moderate
Handwriting	Low	Negative to moderate	Low
References	Low	Positive	High



**Table 4.7. A summary of studies on the validity of selection procedures**

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# Disability: Theoretical Perspectives...

## Medical Model

### View of disability

A deficiency or abnormality

**Cause of:** a disability rooted in physical or psychological deficiency

**Goal of change effort:**  
To diagnose, diminish, correct, and or accommodate perceived deficits

## Social Model

### View of disability

A difference

**Cause of:** Ableism, lack of accessibility

**Goal of change efforts:**  
To increase accessibility in all aspects of society and remove barriers that restrict life choices

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**Cause of:** Ableism, **lack of accessibility**

**Goal** of change efforts: To increase accessibility in all aspects of society and remove barriers that restrict life choices

# **2 more slides and adaptations**

Remedying problems caused by  
the lack of 'born accessible' ....

# Neglect definition

- Acquired neuropsychological disorder of contralesional space awareness. Neglect is probably due to defective spatial attention orienting
- Neglect patients are unable to detect, describe verbally, or act towards contralesional spatial stimuli
- **Neglect** is not due to elementary sensori-motor deficits (e.g., hemianopia, hemianesthesia, hemiplegia, etc.) or generalized mental confusion

# Interhemispheric asymmetries in neglect

- Neglect is more:
  - frequent
  - long-lasting
  - severe
  - disabling......following lesions in the right hemisphere



Left neglect after right-hemisphere damage

# Adaptations /corrections

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    - frequent
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    - disabling...
- ...following lesions in the right hemisphere



Left neglect after right-hemisphere damage

**Here is the END**

**Let's Remember that:**

**Creating Accessible Learning  
Environments = Inclusive teaching**

We have an **essential role** to play in  
making

## **Courses Accessible**

and creating a climate of equity and  
inclusion where all learners can  
participate successfully and develop.

Thank you for your participation!