

A Model of Visual Imagery

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A Model of Visual Imagery

- What shape are a German Shepard's ears?
- Which is bigger – a tennis ball or a pear?
- Which is a darker shade of green – a Christmas tree or a frozen pea?



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Can you think of a penny without all of the attributes of a penny?

- size
- shape
- color
- Lincoln's head
- inscriptions



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- What did you do to answer the question?



Goals

- To introduce visualization concepts based on current understanding of neuroscientific principles
- To introduce therapeutic techniques that can be used as part of a vision therapy program



A Model of Visual Imagery

- What are we talking about?
 - Visualization
 - Visual imagery
 - Imagery



A Model of Visual Imagery

Webster's Definitions

- Visualize “to form a mental image of something not present to the sight, an abstraction”
- Image “a mental picture of something, a conception, idea, impression”



A Model of Visual Imagery

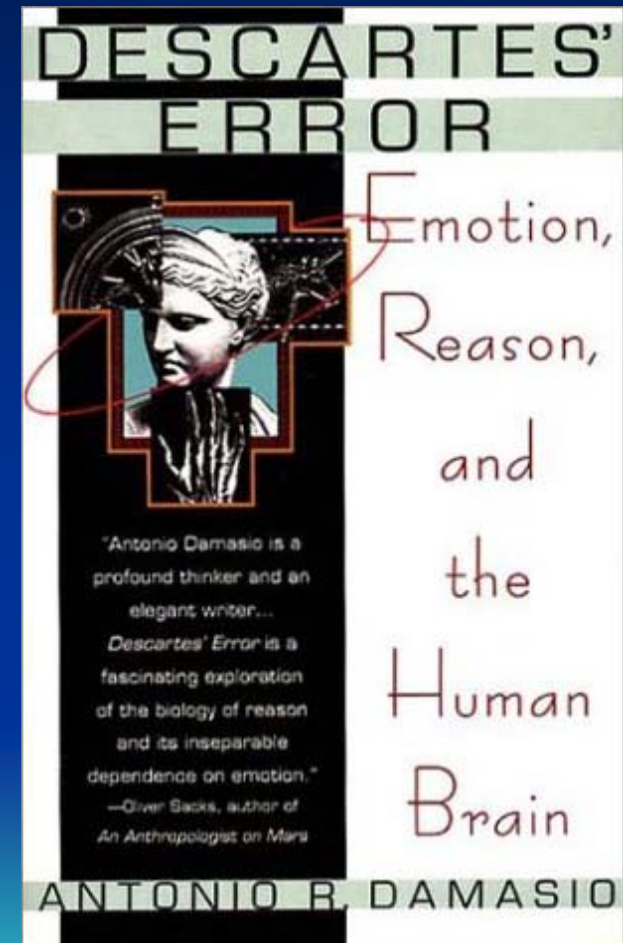
- For the Behavioral Optometrist

Visualization = The ability to create, maintain, manipulate, and recall visual images



A Model of Visual Imagery

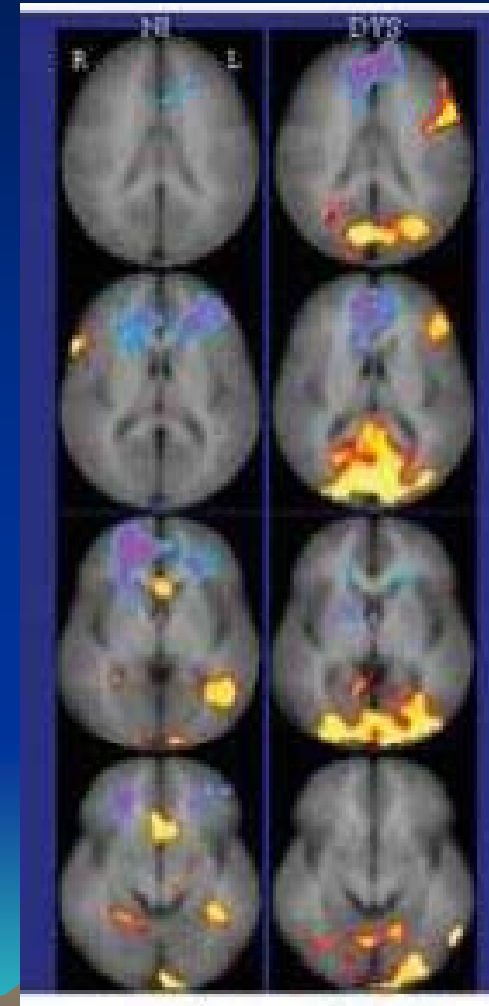
- Damasio
 - Images form the basis of mind
 - Brain creates images in sensory cortex

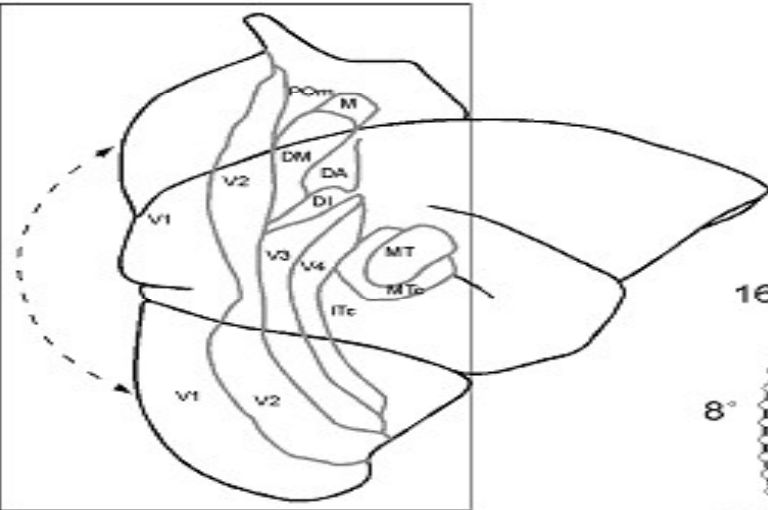
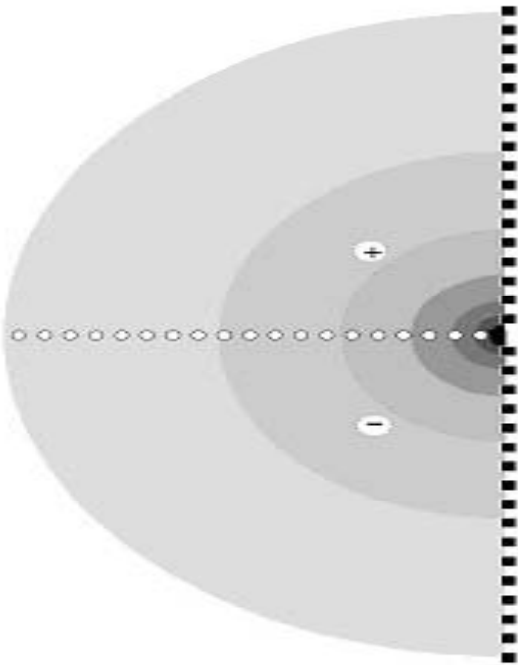
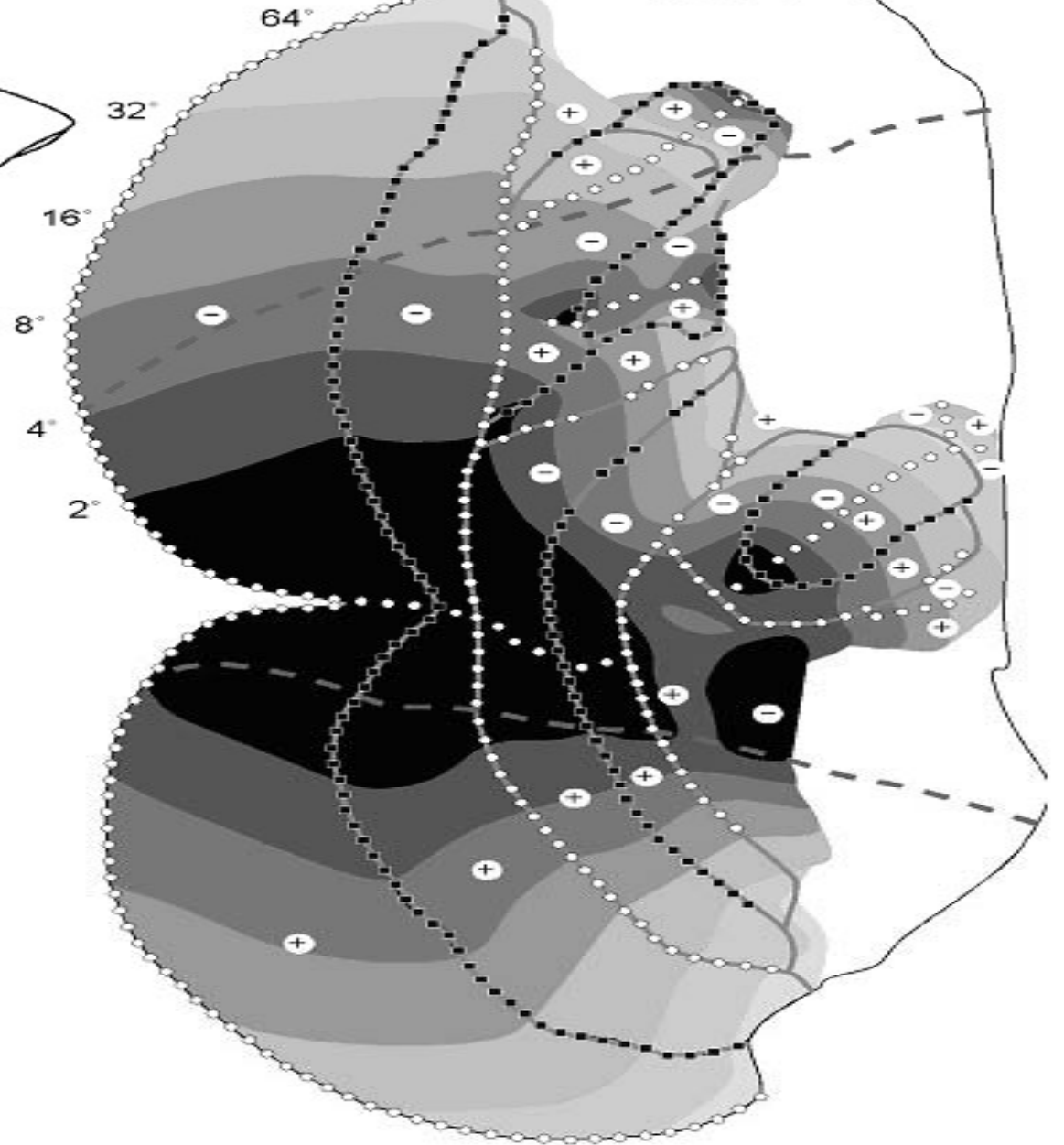


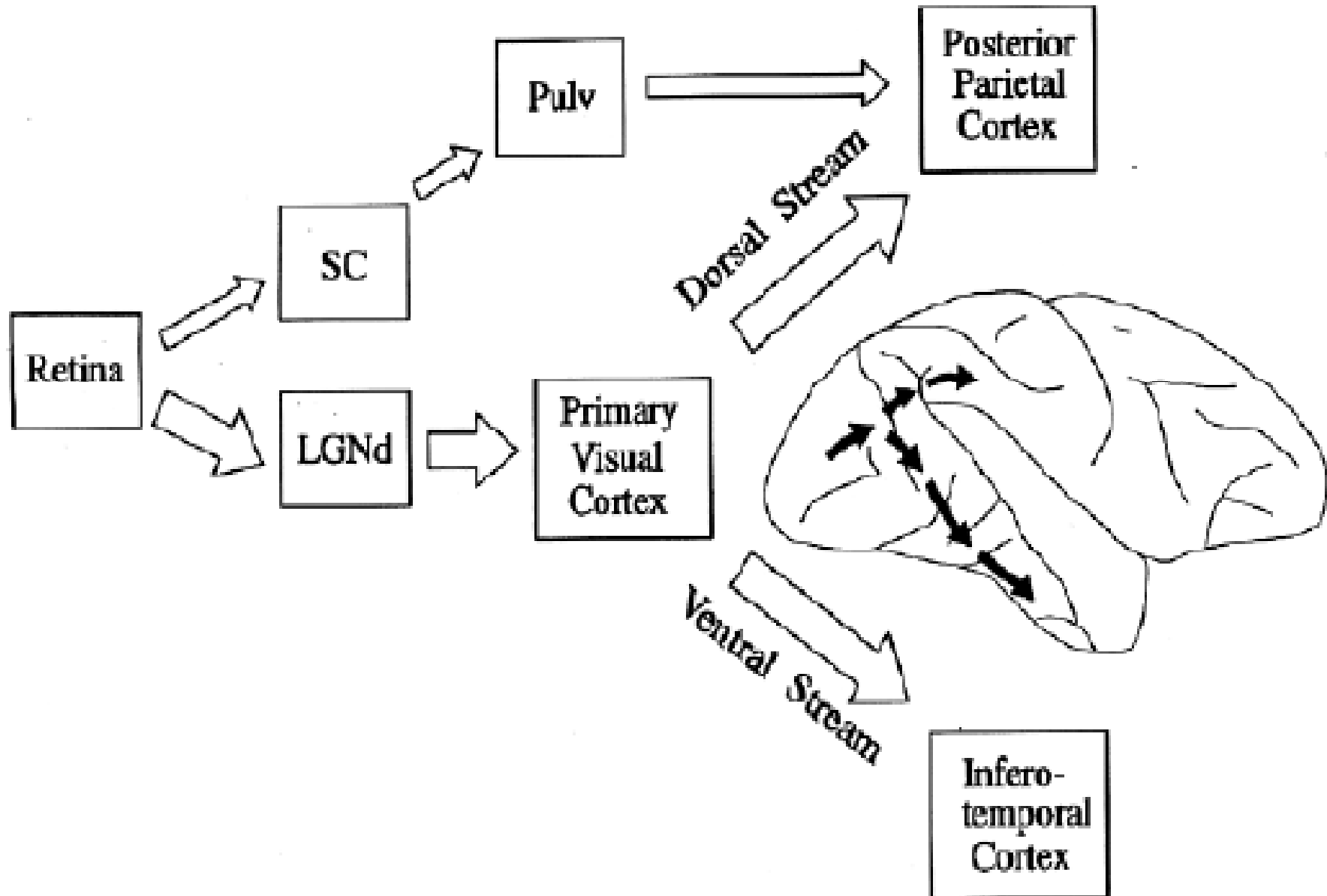
A Model of Visual Imagery

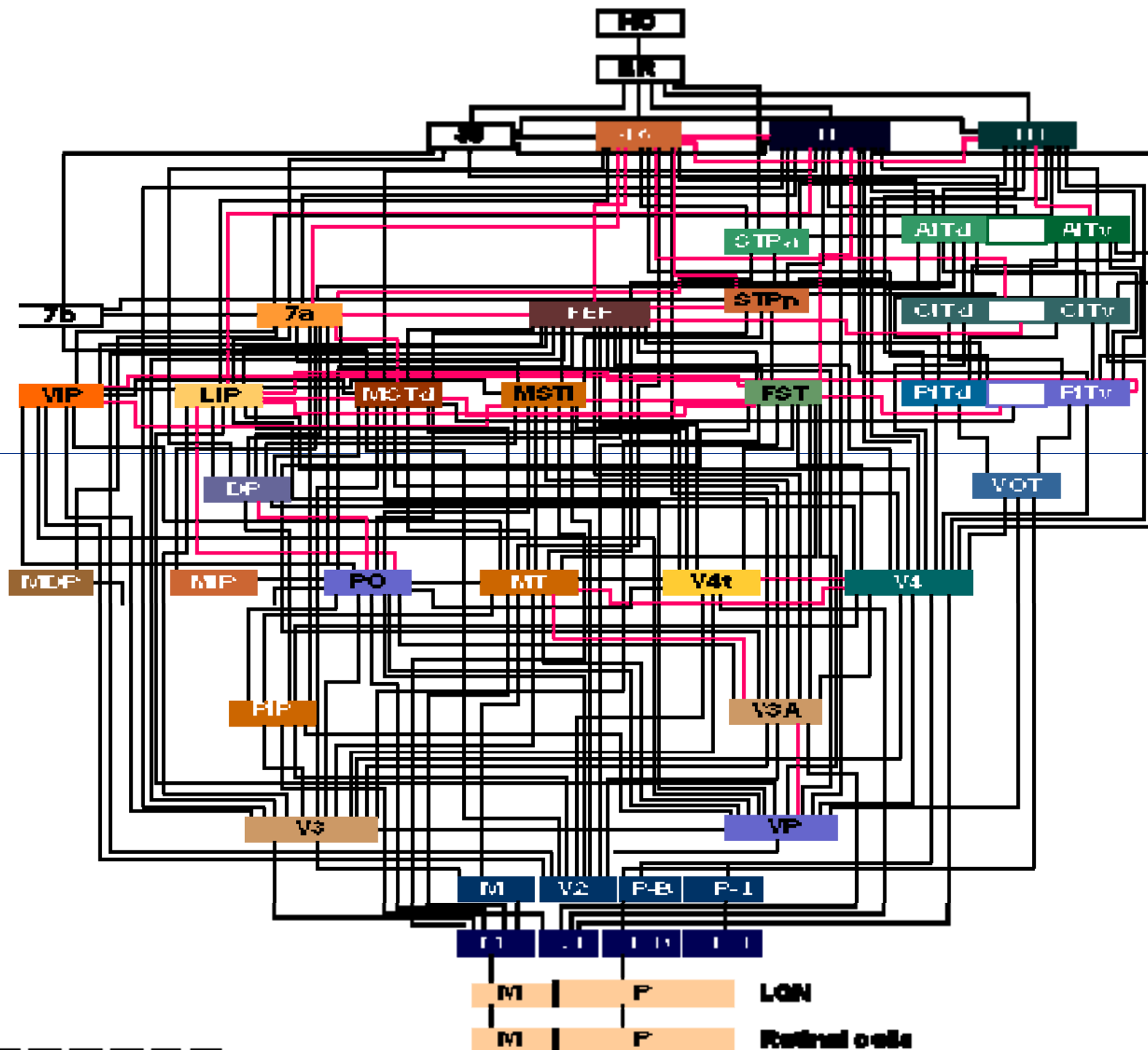
- Sensory cortex is active during imagery

Top down processing



A**B**





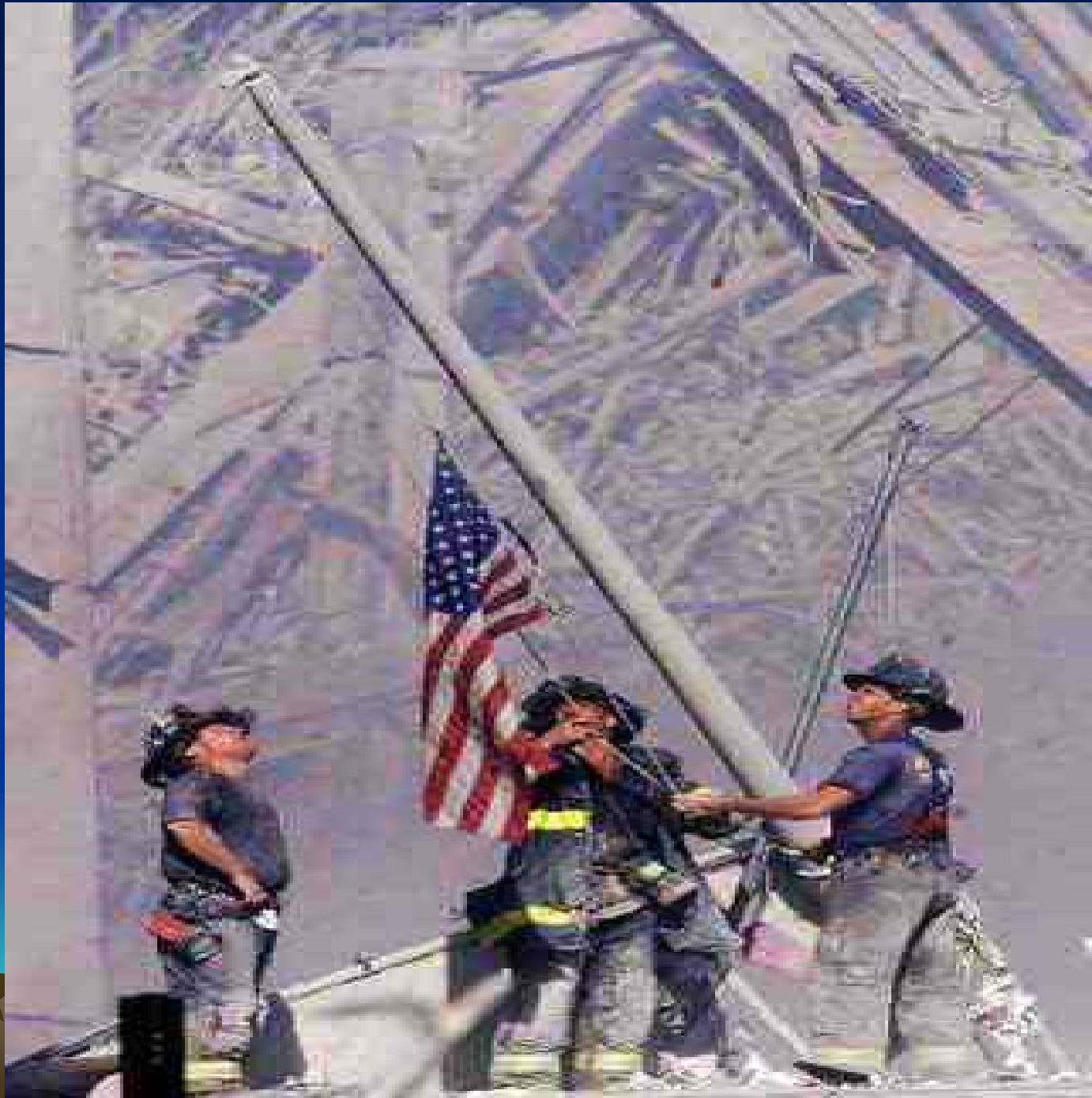
A Model of Visual Imagery

- Images (particularly visual images) provide a rapid entrance into the emotional system
- Can be used for arousal or relaxation
 - horror movies
 - meditation









A Model of Visual Imagery

- Arnheim – Visual Thinking
- The perception of shape contains the beginnings of concept formation
- Imagery as thought “offers the possibility of reducing a theme visually to a skeleton of essential dynamic features”.



Visual Image

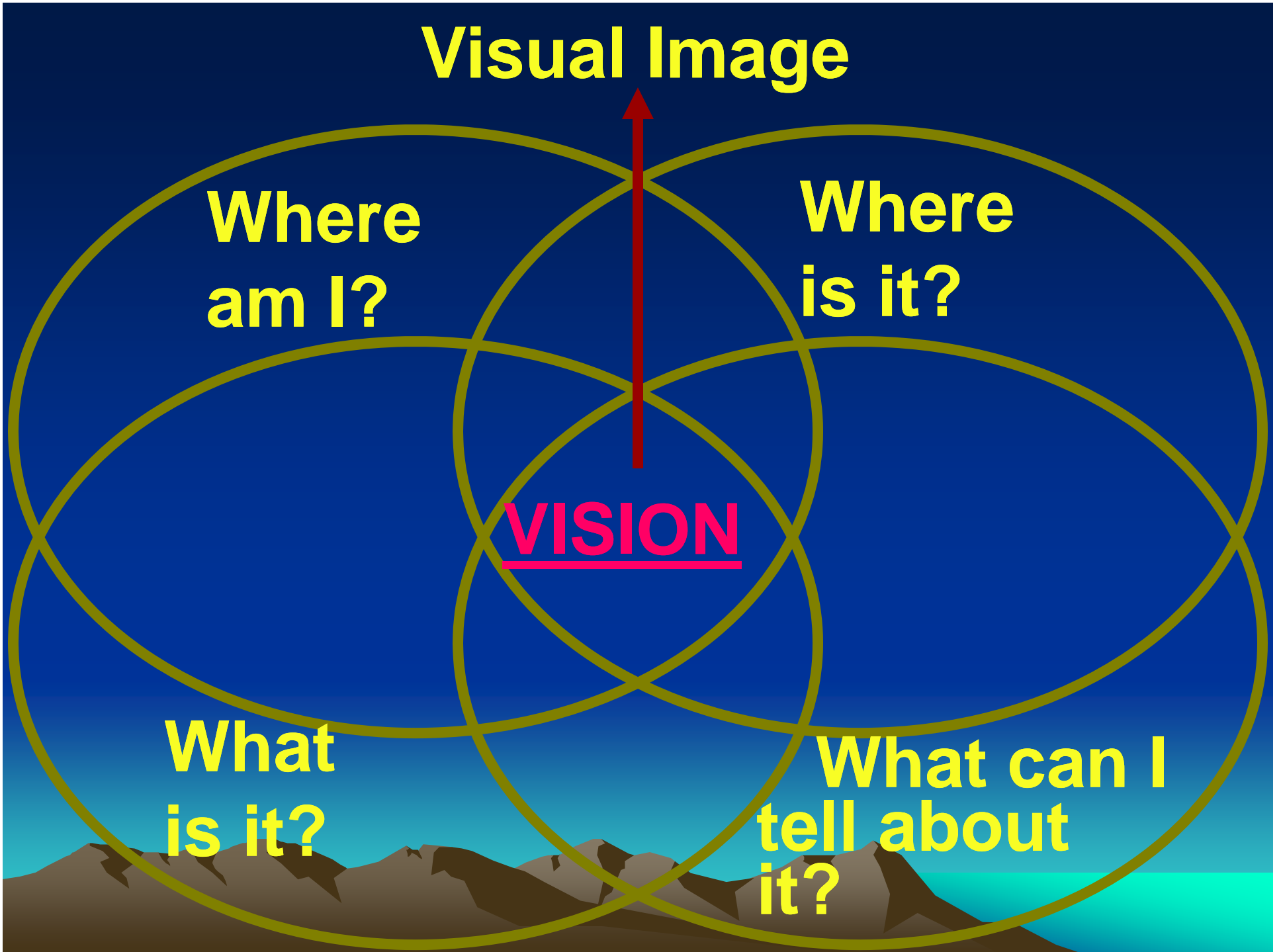
Where
am I?

Where
is it?

VISION

What
is it?

What can I
tell about
it?



A Model of Visual Imagery

- Damasio
- Mind requires the ability to display images internally and to order those images in a process called thought



Thought

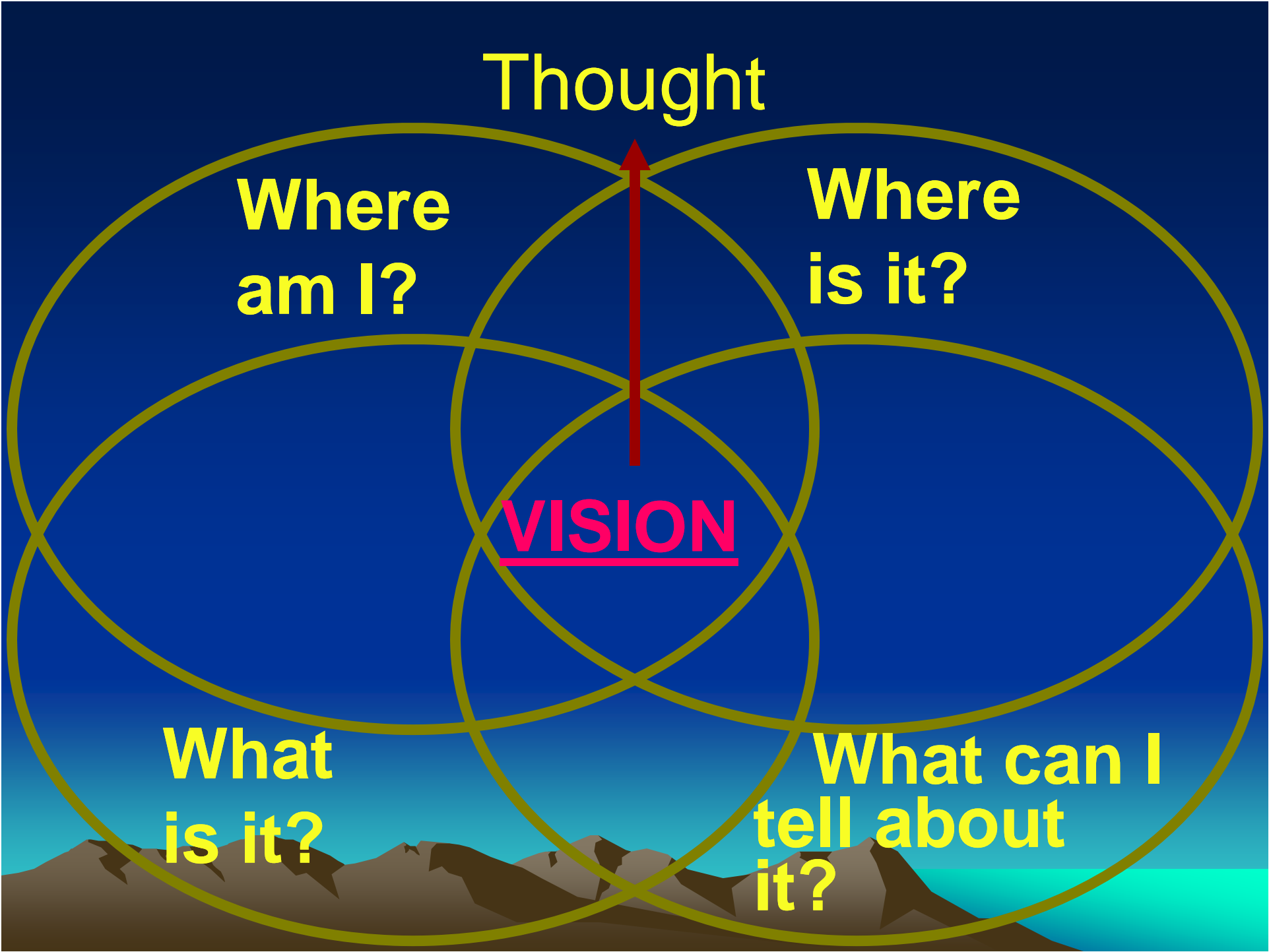
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A Model of Visual Imagery

- Images are used in reading, spelling, and in recall
- Let's look at the reading process in more detail



The Reading Process

- Step 1 - Where is the word on page (tracking)
- Step 2 – Both eyes have to point to it (binocularity)
- Step 3 – Focus (accommodation)
- All visual steps – no phonics or reading



The Reading Process

- Step 4 – Interpret what is on the page
 - decoding (what is the word)
 - semantics (what does it mean)

Do good readers typically use much phonics when reading?



The Reading Process

- Phonics is too slow
- What are good readers doing?
 - recognizing the words based on their look
 - that look is the image of the word
 - as if we have an icon in our head



The Reading Process

- Spelling is the flip side of the coin
 - How do you spell ?
 - What did you do to answer the question?



The Reading Process

- Reading
 - visual recognition
 - visual imagery
- Spelling
 - visual recall



The Reading Process

- So what happens to the child who has difficulty with binocular, accommodative, and oculomotor dysfunction, and has difficulty creating, maintaining, manipulating and recalling visual images?



An Optometric Approach to Reading Problems

- Evaluate oculomotor, accommodative, and binocular skills
- Rx appropriate lens – especially low plus for near, even if VA 20/20
- Vision therapy for oculomotor, accommodative, binocular dysfunction and to develop visual imagery



Visualization in Vision Therapy

- Patients can be taught to create, maintain, manipulate, and recall visual images
- Elliot Forrester – Visual Imagery
- Concrete – less concrete – abstract



Developing Visual Imagery

- two things interfere with imagery
 - verbalization (subvocalization)
 - stress
- Must control verbalization and reduce stress



Visualization Techniques

- Visualize themselves
- Object Visualization
- Pterodactyl Game (Steve Ingersoll)
- Math Facts Visualization
- Spelling visualization
- Reading Visualization
- Writing/study skills
- Resistant imagers
- Relaxation



Visualization for Planning Action

- Colin – impulsive 7 yr old (Dx ADHD)
 - difficulty with memory
 - problems organizing
 - What to do?
 - STOP!! - make a picture in your head
 - See yourself doing each component (make a movie in your head)



Relaxation Technique

- Sit in a quiet, comfortable place in low lighting and close your eyes
- Picture a beautiful, quiet, peaceful beach
- Slow, deep breath in through your nose and out slowly through pursed lips
- No one else around you



Relaxation Technique

- Safe and comfortable place
- See the crisp, clean water
- See the sun up in the cloudless sky
- Imagine yourself lying on a beach
- Feel the warmth of the sun on your skin
- Slow, deep breath in and out



A Model of Visual Imagery - Summary

- Visual imagery is a brain process that uses the visual input system to create top down images, which in turn can be manipulated to think, plan, and remember.
- The manipulation of those images is thought
- Imagery can be developed and used as part of a comprehensive vision therapy program
- Important to control stress and verbalization



References

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References

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- Forrest E. (1981) *Visual Imagery: An Optometric Approach*, Duncan, OK: OEP Foundation.



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