

# Perception, fears, and phobias

# Perception fears & phobias: Outline

We have seen how perceptual and emotional mechanisms help us to:

1. Recognize and respond to the threat of disease
2. Recognize good foods and respond when exposed to bad ones

Perceptual and emotional mechanisms also protect us from dangerous situations.

This lecture:

1. Perception is shaped by experience and emotion
2. Easier to learn (and harder to unlearn) ancestral threats
3. Sex differences in fears and phobias

# You see what is useful, not what is there

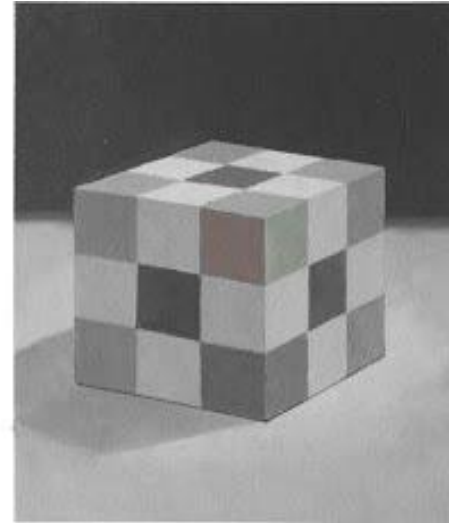
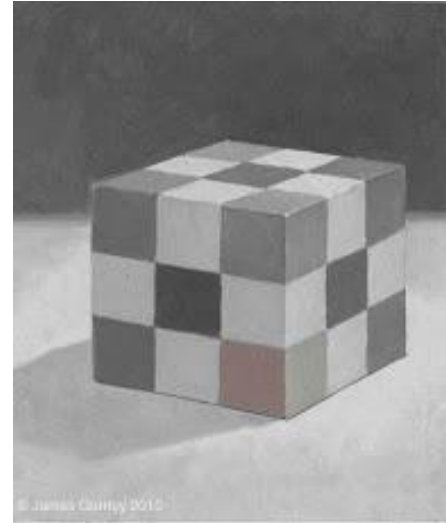
Light constancy:

The kimono is the same  
luminance



# You see what is useful, not what is there

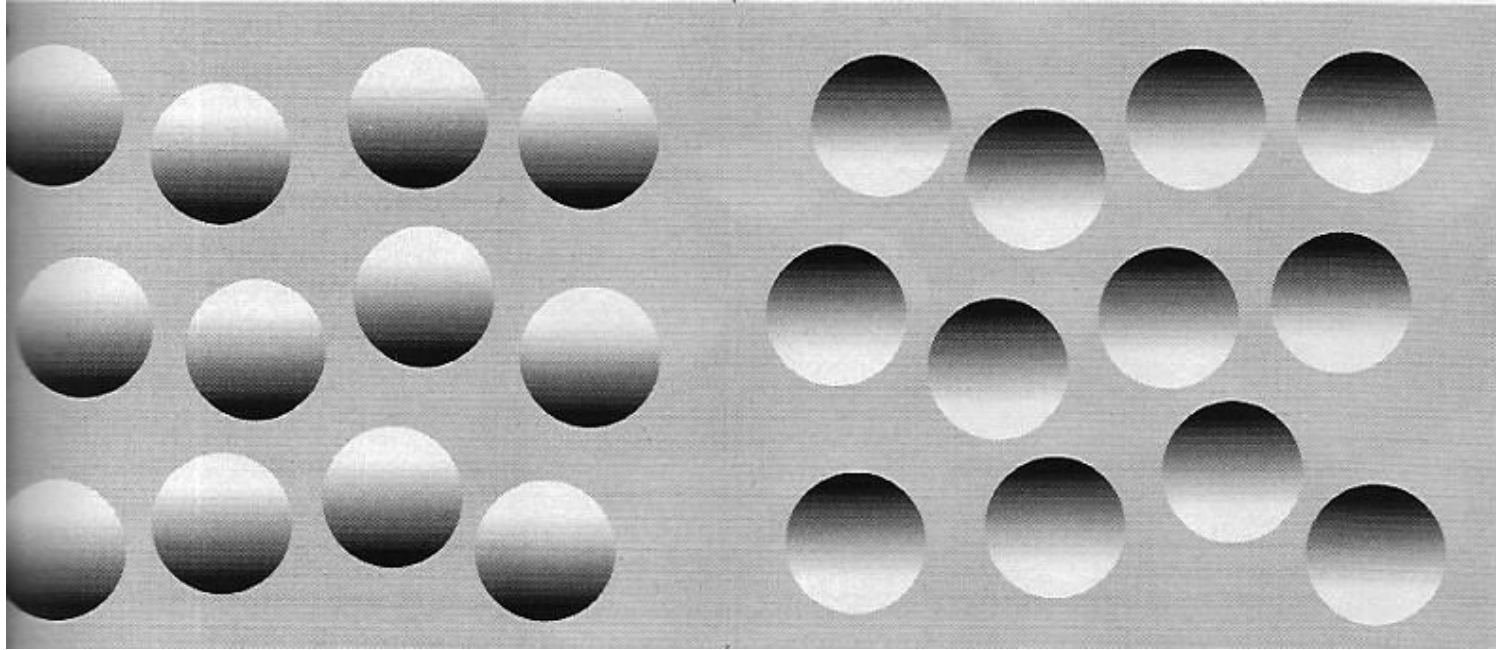
Color constancy:



Under red & green light: arrow points to square of same color

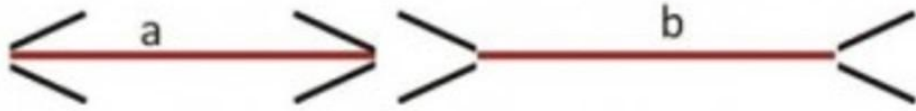
Everything but those two squares turned to gray tones

# Experience shapes perception

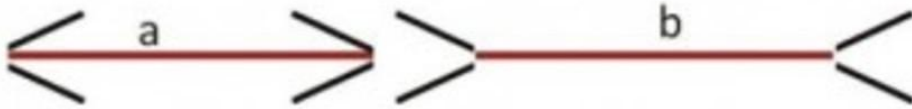


bumps & dents ? Light usually comes from above

# Experience shapes perception: Cultural variation

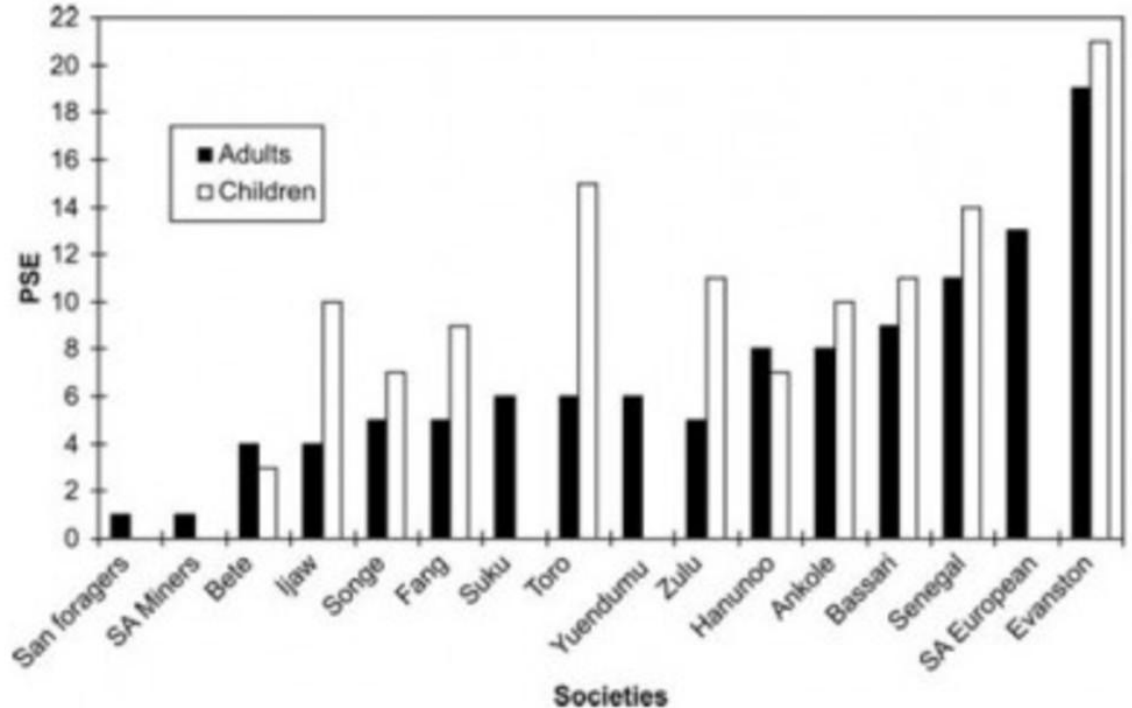


# Experience shapes perception: Cultural variation

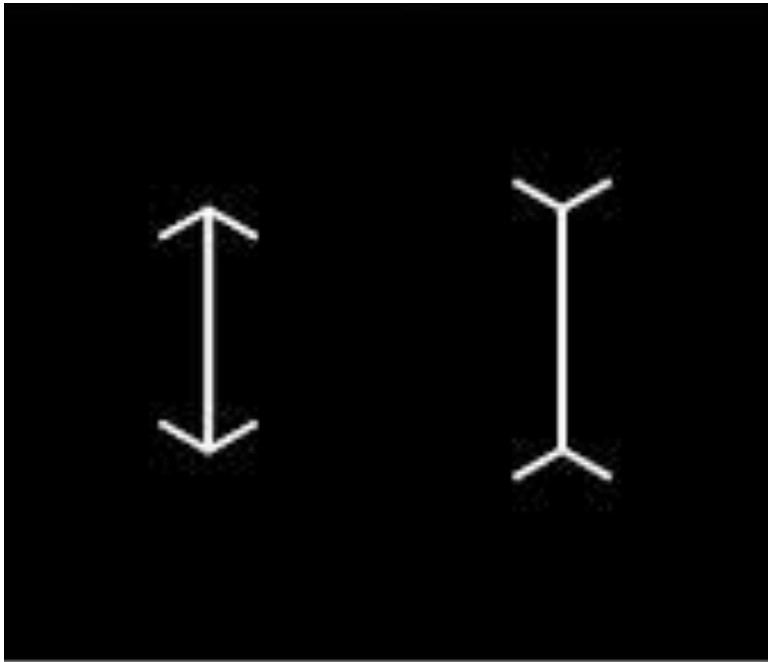


Perceived difference in line length (%).

San foragers & South African miners saw no difference. Biggest difference in U.S.



An adaptation to a carpentered world ?



(A)

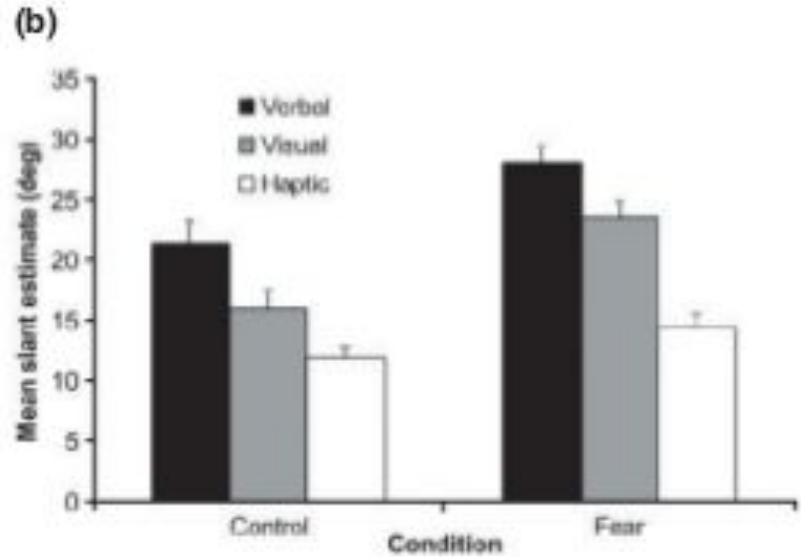
(B)



(C)



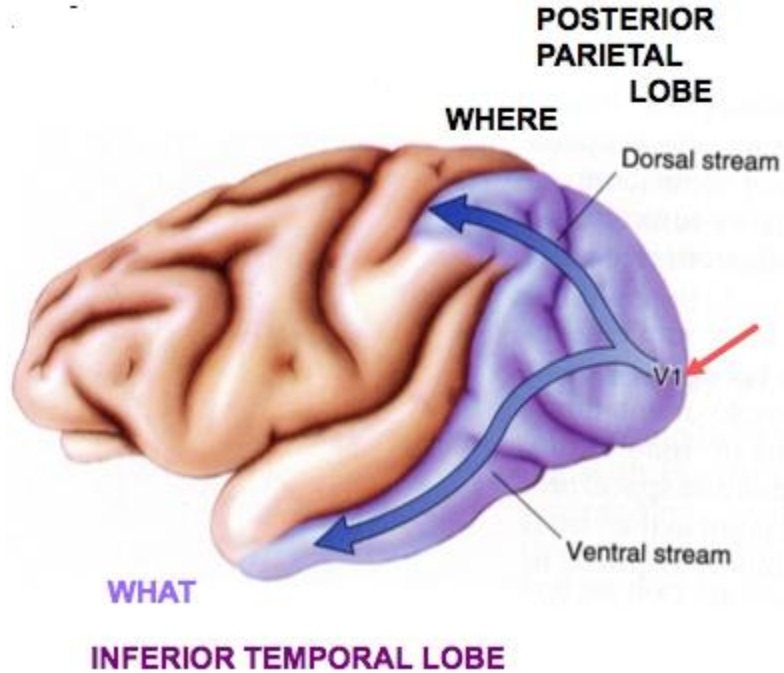
# Emotion also influences perception



- heights overestimated by 60% when viewed from above
- . . . especially when asked to imagine falling
- slants feel steeper on a skateboard than a box. . .

See assigned article  
(Stefanucci)

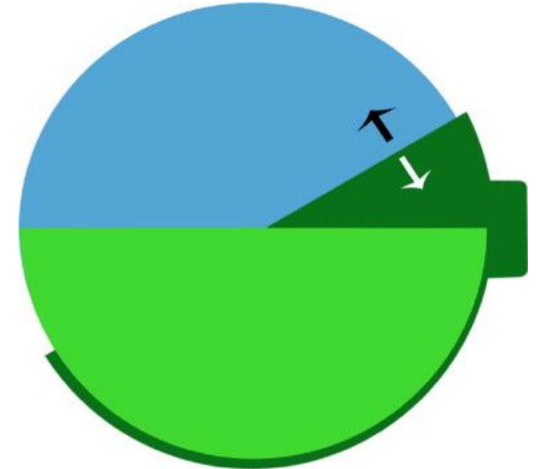
# Vision for action vs. perception



Haptic  
(where)



Visual  
(what)



“Snakes...Why'd it have to be snakes?”



# What is it about snakes?

The most common fear in U.S., and a real risk in the bush

Can condition response even with subliminal image

“Error management theory” (smoke detector principle) ?

Quick response before awareness?

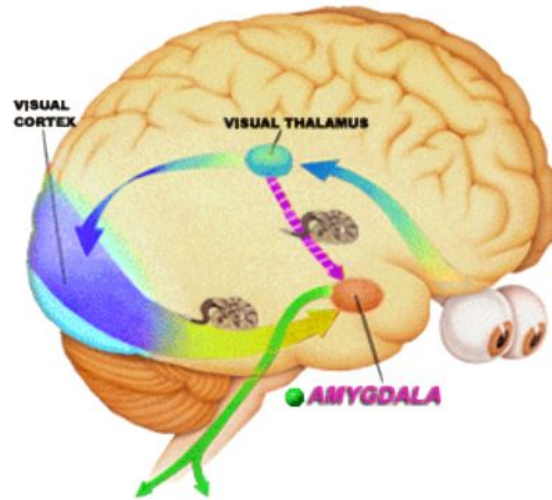


Illustration based on LeDoux JE (1994) Emotion, Memory, and the Brain. Scientific American.

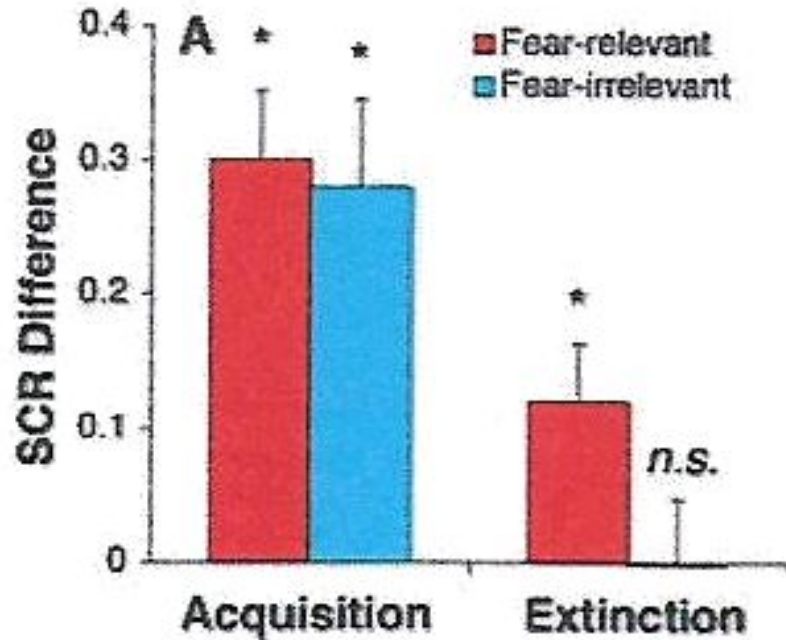
# Fears and phobias reflect ancestral threats

Snakes	390
Heights	307
Storms	211
Flying	198
Injury	182
Illness	165
Death	161
Enclosures	122

Common fears,  
cases per 1000 people

(Agras, Sylvester, and Olivean 1969)

# Fear conditioning



picture followed by mild electric shock

fear-relevant: snake, spider

fear-irrelevant: flower, butterfly

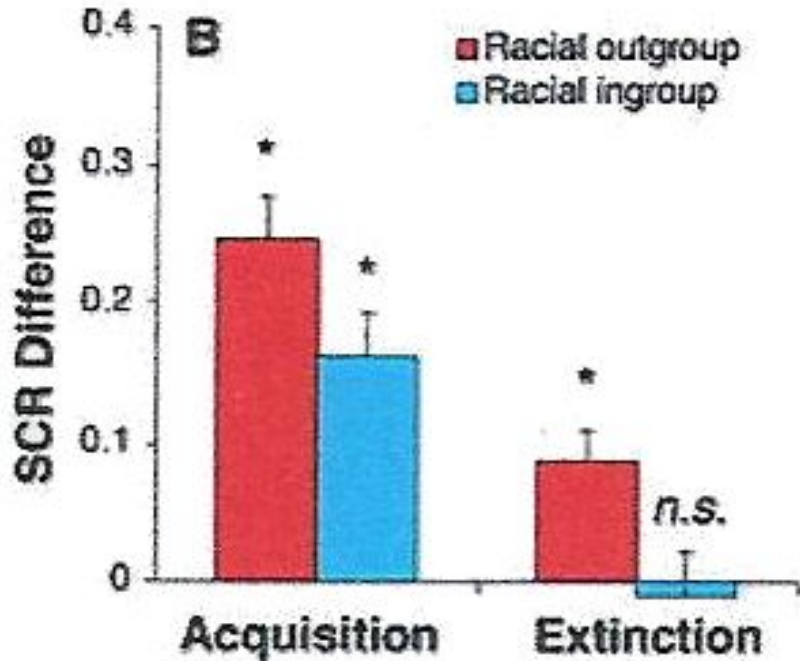
SCR = conditioned skin response (sweaty palms)

Fear response to scary stimuli resisted extinction

Olsson et al. *Science* 2005



# Fear conditioning: Out-groups



picture followed by mild electric shock

fear-relevant: other racial group

fear-irrelevant: own racial group

SCR = conditioned skin response (sweaty palms)

Fear response to outgroups resisted extinction

Also can condition people to subliminal angry faces, not happy faces

**AS THE FATHER  
SEES**



**AS THE CHILD  
SEES**



**AS THE MOTHER  
SEES**



WeKnowMemes

Are women more fearful?



		MEN	WOMEN
Animal fears	Snakes	22	38
	Spiders	13	27
Situational Fears	Lightning	8	25
	Closed spaces	22	38
	Darkness	13	29
	Heights	32	43
	Flying	14	23
Mutilation Fears	Injections	18	22
	Dentists	18	24
	Injuries	23	32

Self-ratings on fear: scale 0-100

Sex diff. in specific phobias smaller, but sig for animal & situational.

Fredrikson et al. *Behav. Res. Ther.* 1996

# Women are more fearful than men

Campbell's "Situating Fear" Questionnaire: Measures emotional response to risky or potentially dangerous real-world situations e.g.

You are walking down a poorly lit alleyway at night. You can hear footsteps behind you but you can't see anybody there

You are scuba diving and suddenly your oxygen tank starts to malfunction

You realise you have left the iron/gas on when you left for work this morning

You can feel a lump beneath your breast / prostate

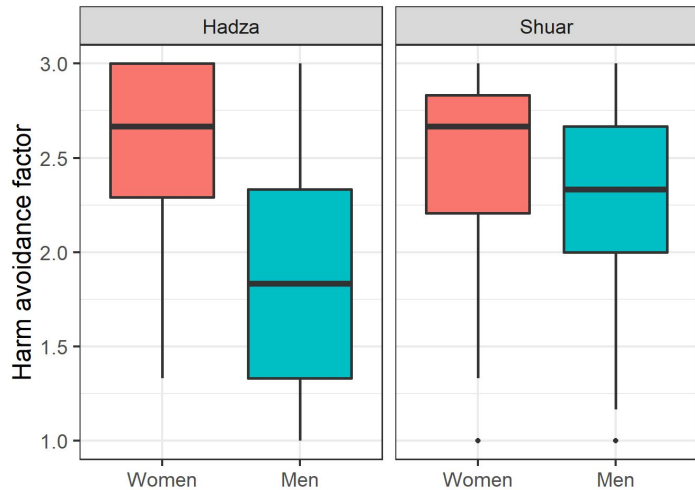
You are called to one side as you go through 'Customs'

# Women are more fearful than men

Women perceive the negative outcomes to be greater (Harris et al 2006)

Sex difference also found in 11-month old infants (Rakison, *Evol Hum Beh* 2009)

Sex difference also found in foragers & forager-horticulturalists (my data):



# Women are more fearful: Why?

Anne Campbell argues:

- Women do more parental care than men (this is true in all societies). So
- the consequences to a child are greater for losing a mother than a father.  
Therefore
- the *fitness* costs to a woman of getting hurt are greater than they are for a man

# Summary

- You see what is useful, not what is there
  - experience shapes perception (e.g., light from above)
  - emotion shapes perception (e.g., fear affects perception of height)
- Common phobias reflect ancestral threats
  - scary animals, scary situations, injury
- It is easier to learn (and harder to unlearn) ancestral threats
  - snakes and spiders
  - faces of out-groups
- Women are more fearful than men (a robust sex difference)