

# “Basic” Emotions/Facial Expression



## Psychology of Emotion Lecture 5 Prof. David Pizarro

# Quick lecture 4 wrap-up: The Evolution of Emotions

# Other “emotions” used as evidence for NS

- Disgust (demonstrates universality)
- (Sexual) Jealousy (differential adaptive pressures for male/female)
- Empathy/Sympathy (clear NS mechanism and adaptive function)

# Jealousy & Sex differences

- Since men and women are believed to face different adaptive challenges with respect to reproduction, their jealousy triggers should be different.
  - Men should be more jealous of sexual infidelity due to a fear of cuckoldry.
  - Females should be more jealous of emotional infidelity due to a fear of the absconding of the male.
- Sex-specific modular mechanisms should result in a greater sensitivity of males to instances of sexual infidelity and of females to instances of emotional infidelity – The ESD [evolutionary sex difference].

*Please think of a serious committed romantic relationship that you have had in the past, that you currently have, or that you would like to have. Imagine that you discover that the person with whom you've been seriously involved became interested in someone else. What would distress or upset you more:*

- A. Imagining you partner forming a deep emotional attachment to that person.
- B. Imagining you partner enjoying passionate sexual intercourse with that other person

# Findings supporting sex differences in jealousy

- David Buss (e.g., Buss, 1992) and colleagues have found repeatedly that
  - women report emotional infidelity more distressing than sexual infidelity.
  - and that opposite is true for men.

# Internet Survey: DeSteno & colleagues

	Sexual Infidelity	Emotional Infidelity
Men	3,603	2,123
Women	7,668	9,341

$\chi^2(1, N=22,735) = 545.49, p < .001,$   
Cramer's  $V = .16$

# Criticisms of evolutionary psychology

- Political criticisms
- Theoretical criticisms
- Empirical criticisms



# Political Criticisms

- Implies an uncomfortable “biological determinism”
- Emphasizes sex differences
- Often seen as “justifying” the ugly side of humanity.

# Theoretical criticisms

- the mind doesn't work that way (i.e., it is not as 'modular' as this account claims)
  - It may have evolved, but it evolved to be a general purpose machine/to give us more flexibility than a hyper-specialized mind
- EEA not the sole environment of human adaptation.
  - Natural selection can work in very few generations, casting doubts on the idea that we stopped evolving in the Pleistocene.

# Empirical criticisms

- Many findings used to bolster evolutionary accounts of human psychology have plausible alternative explanations.
- e.g., jealousy work on forced choice vs. continuous choice.

## Sexual Jealousy replication

Imagining you partner forming a deep emotional attachment to that person.

*How upset would this make you? 1-7*

Imagining you partner enjoying passionate sexual intercourse with that other person

*How upset would this make you? 1-7*

# Empirical criticisms

- Many of the main findings used to bolster evolutionary accounts of human psychology have plausible alternative explanations.
  - e.g., Jealousy work on forced choice vs. continuous choice.
- Accused of telling “just-so” stories in a *post-hoc* fashion.
  - claims seem unfalsifiable, so therefore not “real science”

# Evolutionary Psychology: distinguishing good from bad

- look for clear account that is consistent (and makes direct connection) with what we know about evolution
- look for firm predictions that are falsifiable (at least as falsifiable as other claims)
- keep an eye out for motivated reasoning (e.g., people with political commitments) and bias
- try to read both “sides” of the literature without accepting either too quickly

# So far...

- What is an emotion? (no single criterion accepted, but agreement on many)
- Broad sense of major approaches to emotion
- How are emotions studied?
- To what extent were emotions shaped by natural selection?

# Lecture 5:

## Are some emotions more “basic” than others?



# Emotions as Natural Kinds

- Categories of objects that reflect “real” distinctions in nature, a deep similarity, or “essence”.
- These are categories that “*carve nature at its joints*” (Socrates/Plato)
  - Chemical Elements (e.g., H<sub>2</sub>O)
  - Elementary particles
  - Species
- Something a set of things (objects, events, beings) has in common which distinguishes it from other things as a *real set* rather than as a group of things arbitrarily lumped together by a person or group of people.
- Not cultural “artifacts” (e.g., “things used for transportation” “Adult-Contemporary music”)

# Animal Spirits: Descartes' Emotions



“The function of all the passions consists solely in this, that they dispose our soul to want the things which nature deems useful for us, and to persist in this volition; and the same agitation of the spirits which normally causes the passions also disposes the body to make movements which help us to attain these things”

# Descartes' Six “Primitive” Passions

- Wonder
- Desire
- Love
- Hatred
- Joy
- Sadness
- “All the other [emotions] are either composed from some of these six or they are species of them”

# What “Basic” Means

- At least three ways in which researchers use the term “basic emotion”.
  - I. Discrete
  - II. Solved specific Functional problems in our ancestry.
  - III. “Building-Blocks” or “Primary Colors”

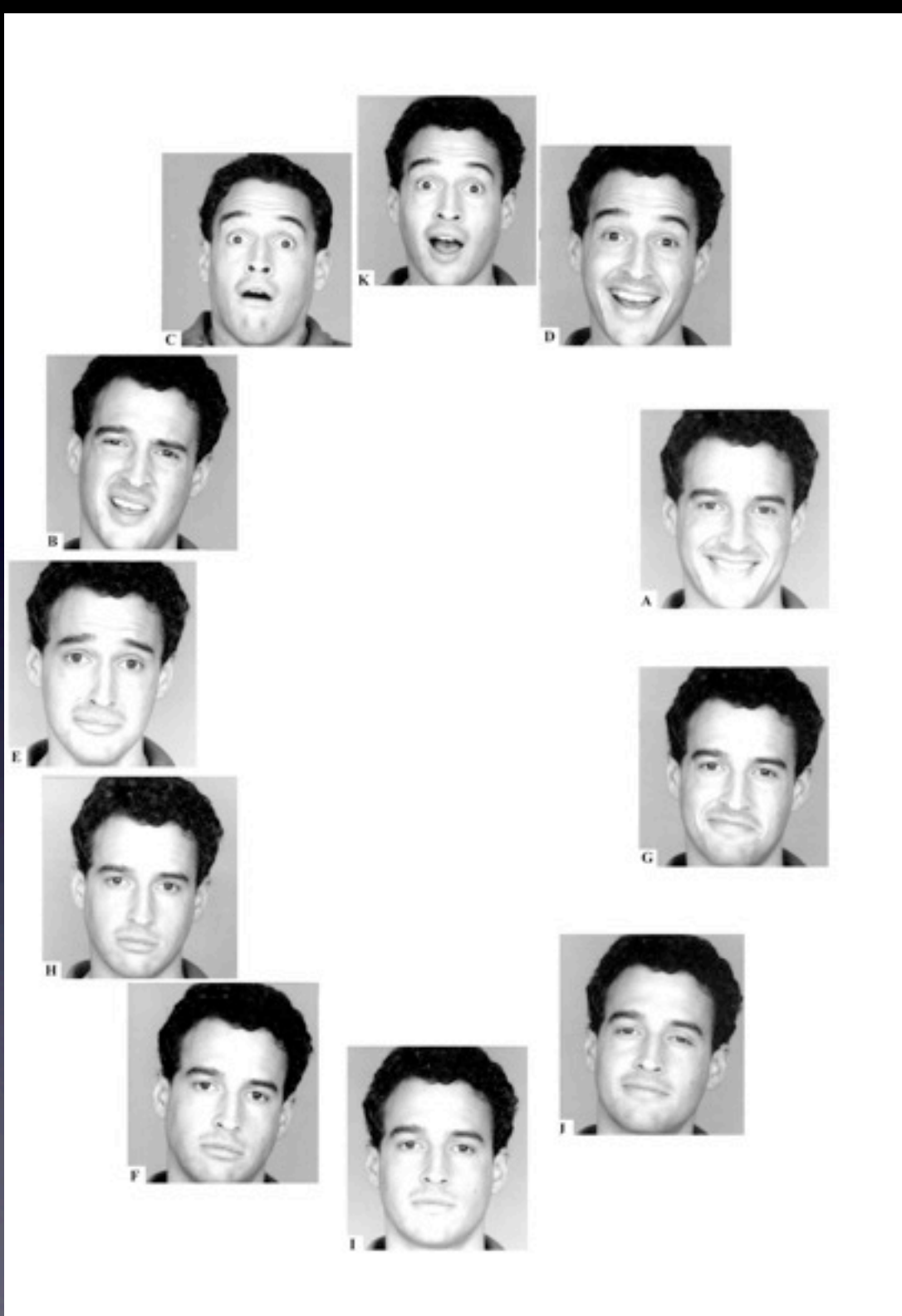
# “Basic” Claim I: Discrete

- Emotional experiences fall into natural categories
- Different emotions differ in their appraisals, elicitors, behavioral responses, physiology, etc.
- Lies in distinct contrast to *dimensional* approaches.

# Dimensional Approach

- Sees emotions as falling on a continuum of certain dimensions
- Arousal (high vs. low)
- Valence (positive vs. negative)





# “Basic” Claim 1:

## Discrete

- Different emotions differ in their appraisals, elicitors, behavioral responses, physiology, etc.
- Lies in distinct contrast to *dimensional* approaches.
- Valence and arousal dimensions don't capture the distinction between negative emotions such as anger and fear (both negative/high arousal emotions) or positive emotions such as contentment and relief.



# “Basic” Claim 2: Functional

- Emotions evolved to solve a specific kind of problem.
- Innate responses to common problems that plague all human beings across time and culture.
- Specifically tied to evolutionary approach
- Explicitly due to Phylogeny, not Ontogeny

# “Basic” Claim 3: Building Blocks

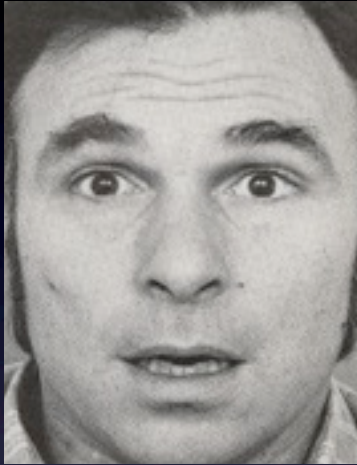
- Simple emotions exist that “combine” to form more complex emotions.
- “Smugness” for instance, might be a combination of happiness and contempt.
- Analogy to primary colors forming more subtle colors when combined.
- Not a common argument any more...  
Requires simultaneous presence of basic emotions, which is controversial

# Evidence for “Basic”:

1. Distinctive and Universal Signals (e.g., facial expression)
2. Emotion-specific physiology
3. Appraisals
4. Universal antecedents

<b>Researcher</b>	<b>Basic Emotions</b>	<b>Basis for Inclusion</b>
<b>Plutchik</b>	Acceptance, anger, anticipation, disgust, joy, fear, sadness, surprise	Relation to adaptive biological processes
<b>Ekman, Friesen, &amp; Ellsworth</b>	Anger, disgust, fear, joy, sadness, surprise, [contempt]	Universal facial expressions
<b>Gray</b>	Rage and terror, anxiety, joy	Hardwired
<b>Oatley and Johnson-Laird</b>	Anger, disgust, anxiety, happiness, sadness	Do not require propositional content

# Criteria I: Facial Expression of Emotions



**Surprise**



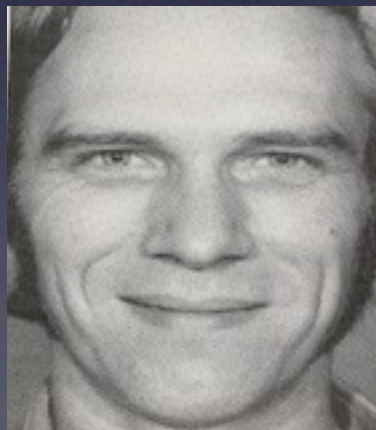
**Anger**



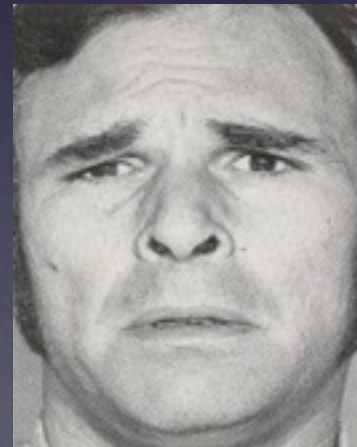
**Disgust**



**Fear**



**Happiness**



**Sadness**

# From a former student...

## David Pizarro's Basic Emotions



Anger



Joy



Surprise



Disgust



Sadness



Fear

# Value of Facial Expression Approach

If facial expressions can be consistently related to emotion...

1. Behavioral measurement of emotion makes research less subjective--provides an objective set of criteria to determine which emotion is present
2. Consistent with adaptiveness story- emotions (esp. signals) provide survival value.

# Value of Facial Expression Approach, pt. II

3. Argument against cultural relativism/social construction  
(Predominant in 1960s)
  - Culture determines emotions and emotion expressions
  - Expressions tell us about culture, but not about emotions of humanity
4. Universality: Continuities between humans of all cultures and other species



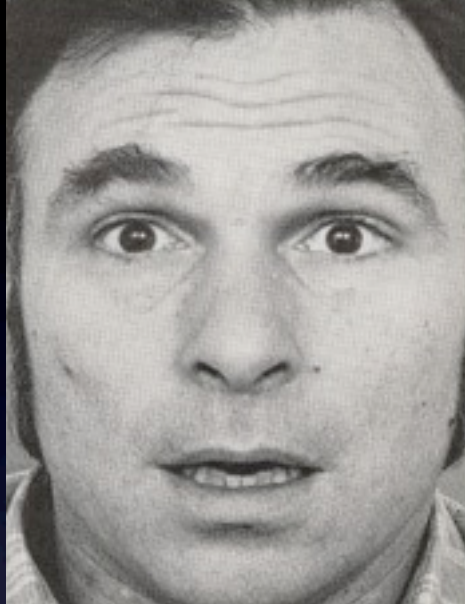
# Evidence for Universality from Research on Facial Expression

# Judgment Study: Carroll Izard (1968)



- Studies included people from:
  - -U.S., England, Germany, Sweden, France, Switzerland, Greece, Japan, Mexico
- Collect photos of emotion expressions
  - -Posed
  - -Natural
- Show photos to subjects
- Subjects asked to match photo to emotion term

# Forced-Choice Response Method



Choose the emotion below that best matches the emotion expressed by the person in the photo.

Circle ONE EMOTION only:

*Anger Disgust Fear Happiness Sadness Surprise*

# What level of agreement is acceptable?

100%?

- Unreasonable; errors always occur in research

How can we determine a cut-off?

- Make sure people are not just guessing (chance)
- Determine whether level of agreement (“recognition rate”) is significantly greater than chance
- Chance based on number of options
- With 6 options, chance =  $1/6 = .17 = 17\%$

# Izard's Research Findings Across Cultures

- Happiness: 93-97% (Best recognized)
- Surprise: 79-90%
- Anger: 57-92%
- Disgust: 56-83%
- Sadness: 54-74%
- Fear: 58-88%

\*at chance=17%, all these values are significant

Does this mean facial expressions of emotion  
are universal?

Cultural transmission?

-Expressions of other cultures seen on TV, movies,  
magazines, newspapers, direct contact

Solution: test a completely isolated culture

# Papua New Guinea



- “Stone-age” culture
  - -No electricity, running water, or reading/writing
- Isolated from Western culture
  - -No access to movies, television
  - -Illiterate
- Limited chance for cross-cultural transmission
- Evidence of recognition would imply universality

# Comparison of Izard and Ekman

Izard  
Ekman



Chance=17%



to be continued on  
wednesday...