



Building blocks of emotion

+

Emotions as universal units?

Psychology 1702
The Emotional Mind

Today's agenda

- (Finish up) How do the building blocks of emotion fit together?
- Do all of our minds have the same set of basic emotions?

Announcements

- Complete the emotion intuitions survey by 11:59PM Eastern time Wednesday 1/31
- NO section this week but instead, watch *Inside Out!*

What are emotions?



.....

Subjective
feeling state

Expressive
behavior

Autonomic
nervous system
activation

Cognitive
appraisal



Stanley Schachter and Jerome Singer

1962

Two-factor hypothesis



“... the variety of emotion, mood and feeling states are by no means matched by an equal variety of visceral patterns (p. 380).”

1. Emotional responses involve experiencing nonspecific arousal



Stanley Schachter and Jerome Singer

1962

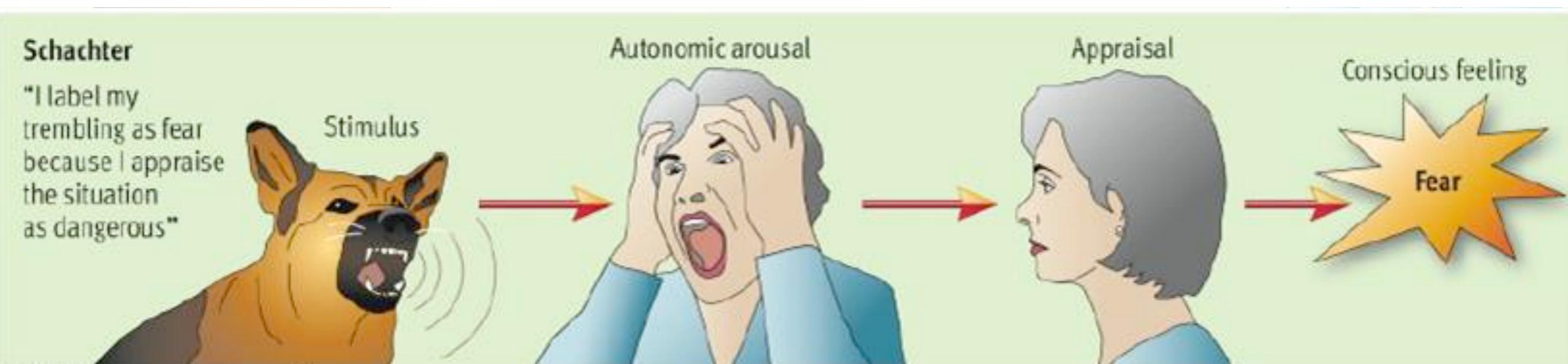
Two-factor hypothesis



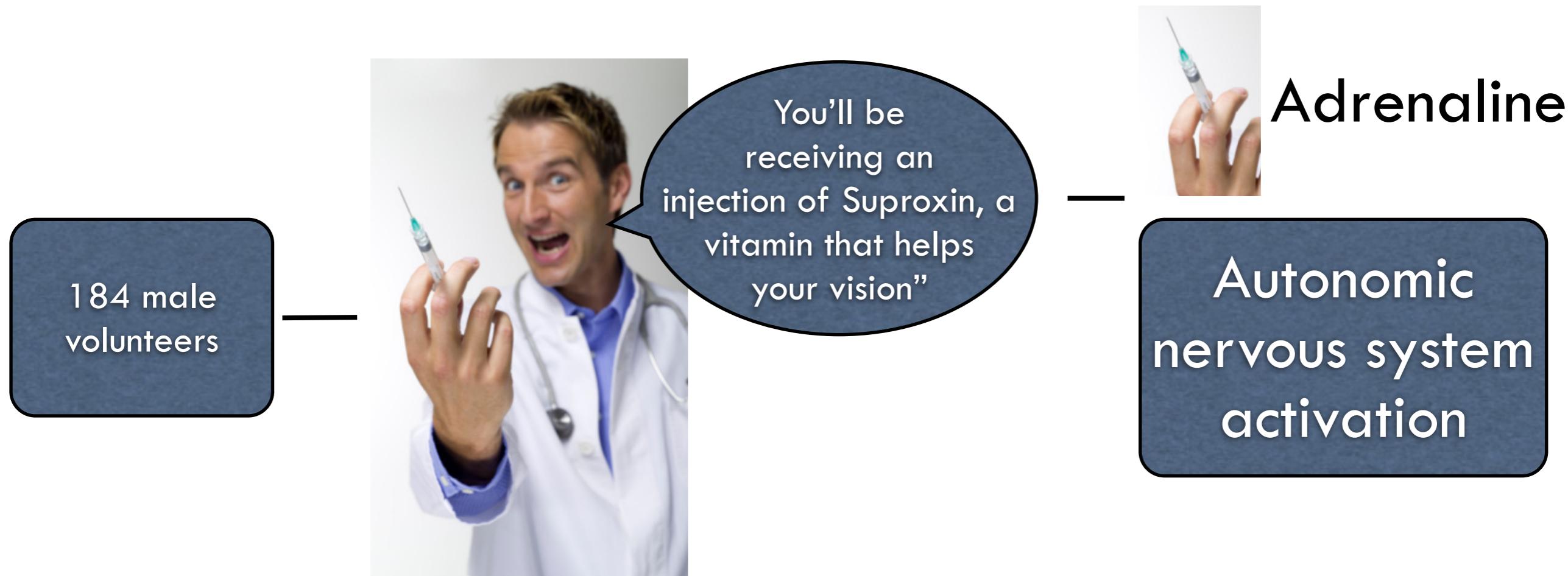
“Given a state of physiological arousal for which an individual has no immediate explanation, he will ‘label’ this state and describe his feelings in terms of the cognitions available to him (p. 381).”

2. Our cognition (appraisal) dictates which emotion we are experiencing.

Schachter “two factor” theory



Schachter & Singer's famous study



Arousal

Explanation

Context



ANS+



Fun context



Annoying context



ANS+

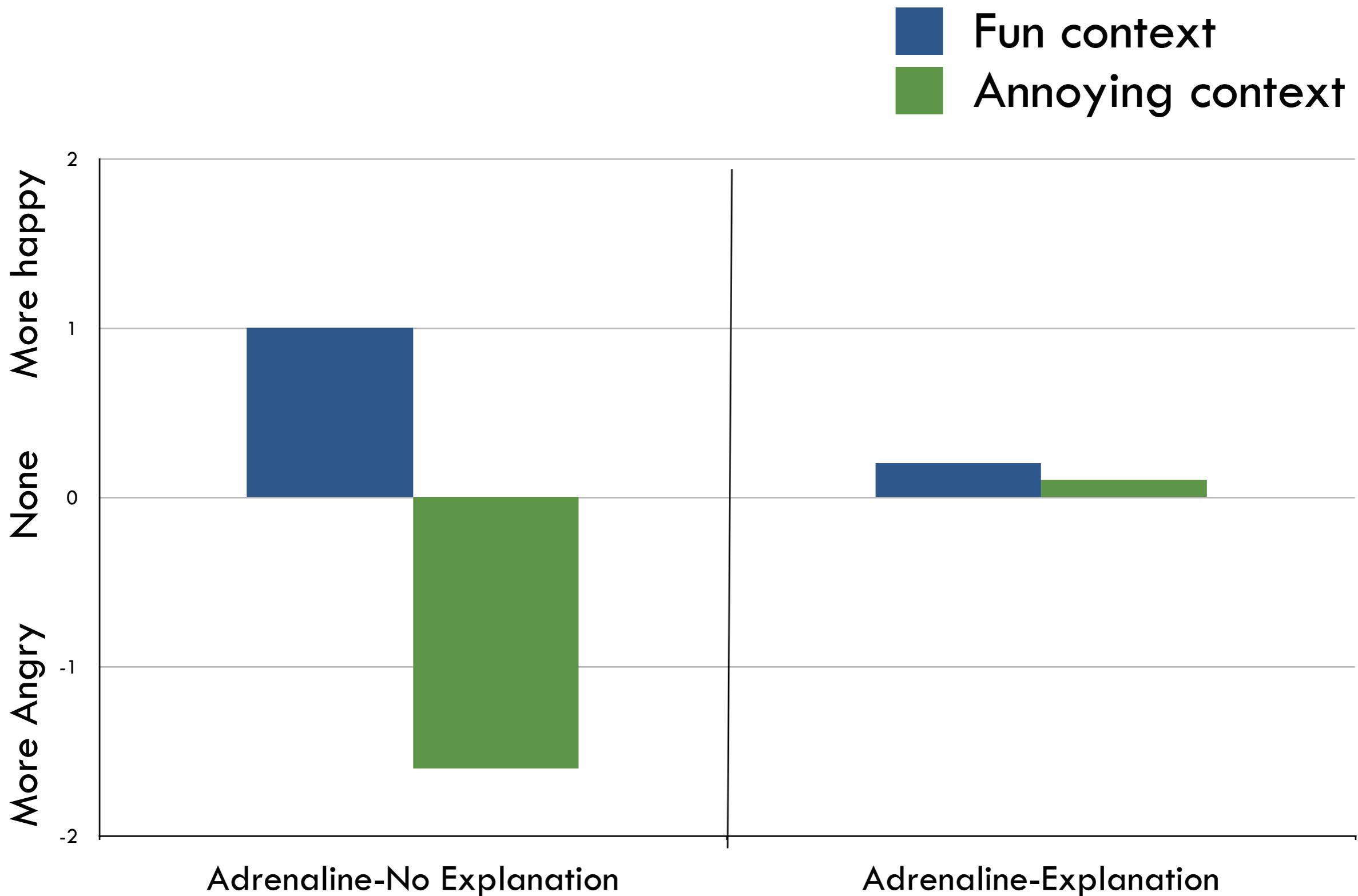


Fun context

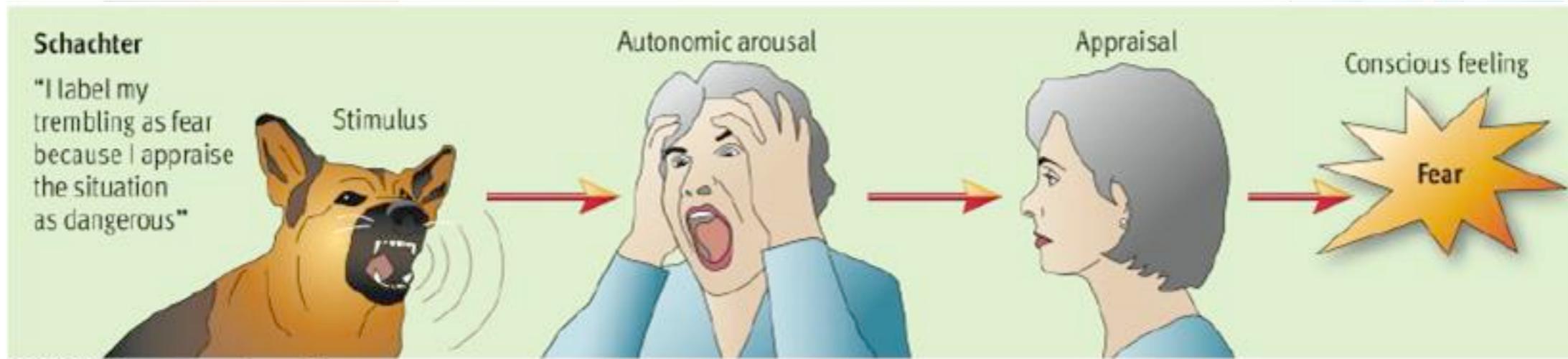


Annoying context





Schachter “two factor” theory

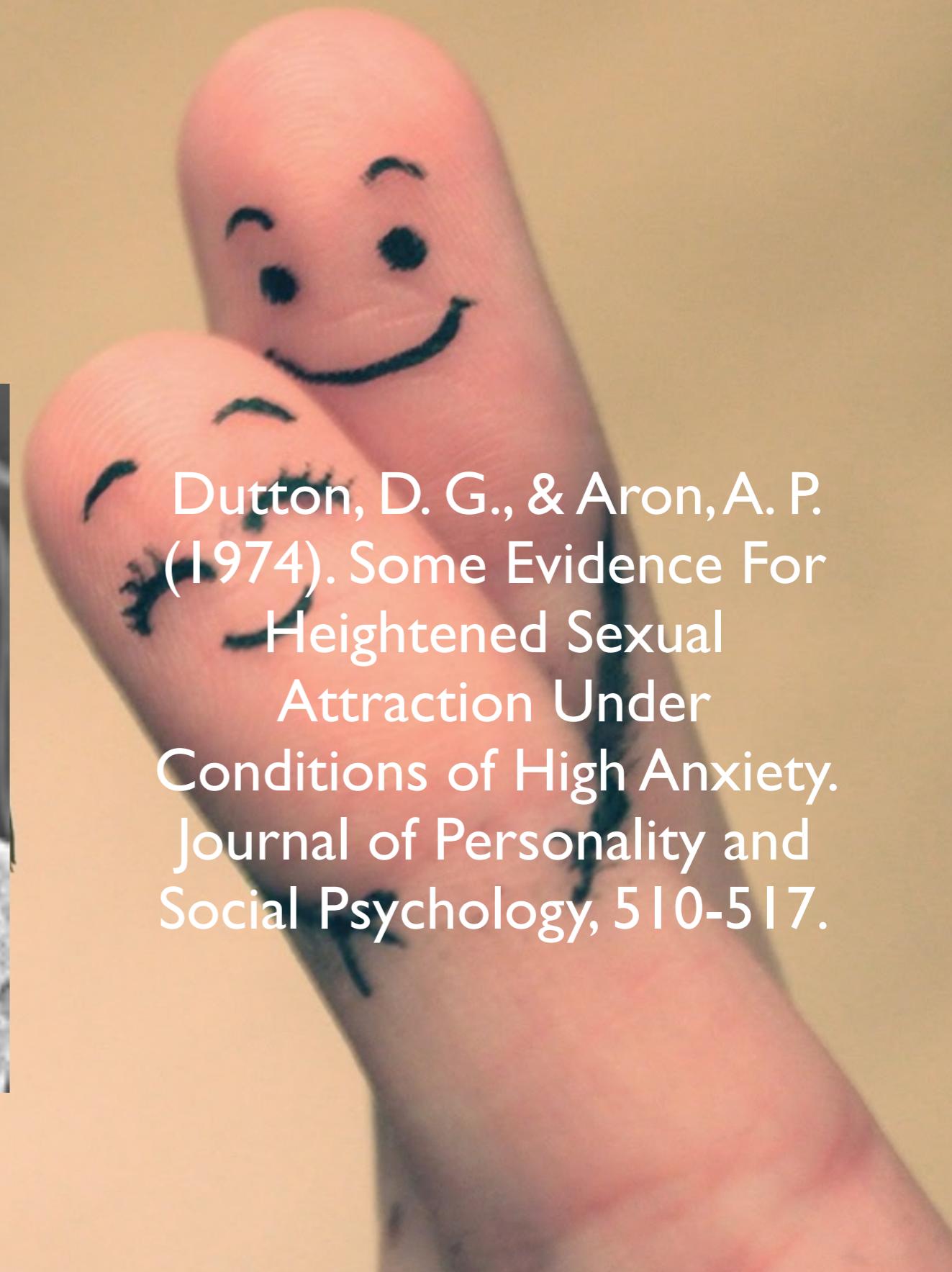


Prior conundrums solved....

- Are *there really enough different possible physiological responses for every emotion?*
- *Explains how the same stimulus produces a different emotion in different people & instances.*

(Slightly more contemporary) forms of this theory remain widely accepted today

Can these guys help you fall in love?

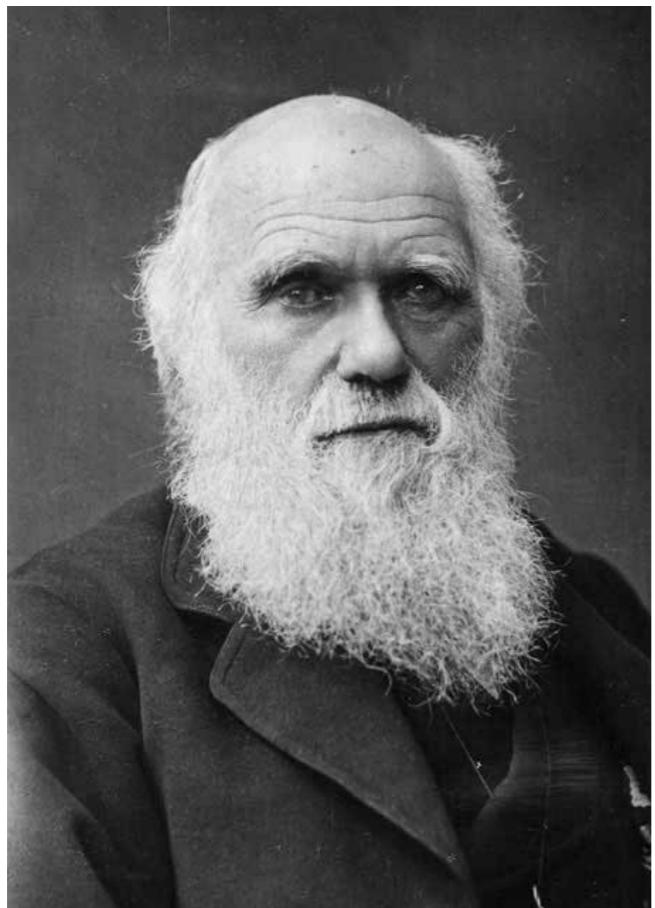


Dutton, D. G., & Aron, A. P. (1974). Some Evidence For Heightened Sexual Attraction Under Conditions of High Anxiety. *Journal of Personality and Social Psychology*, 510-517.



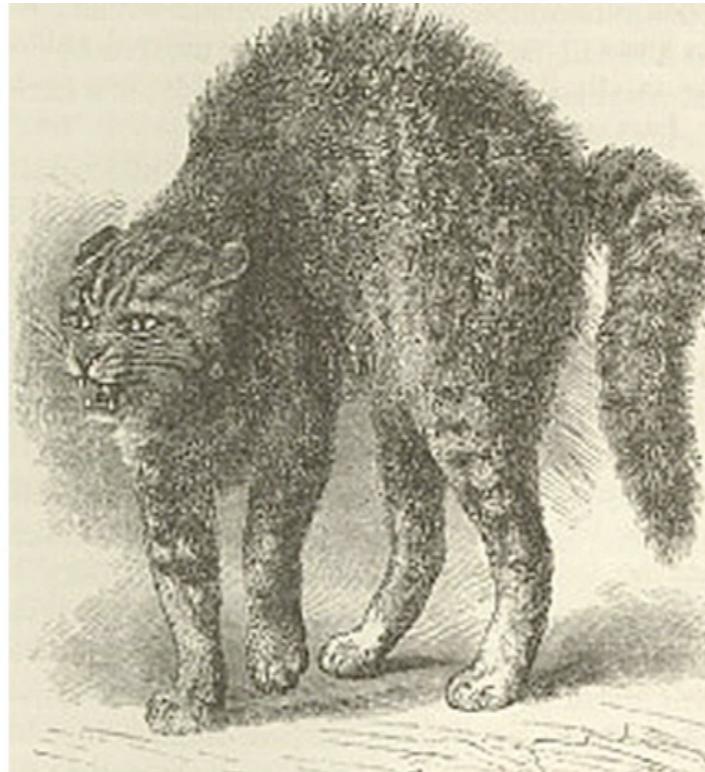
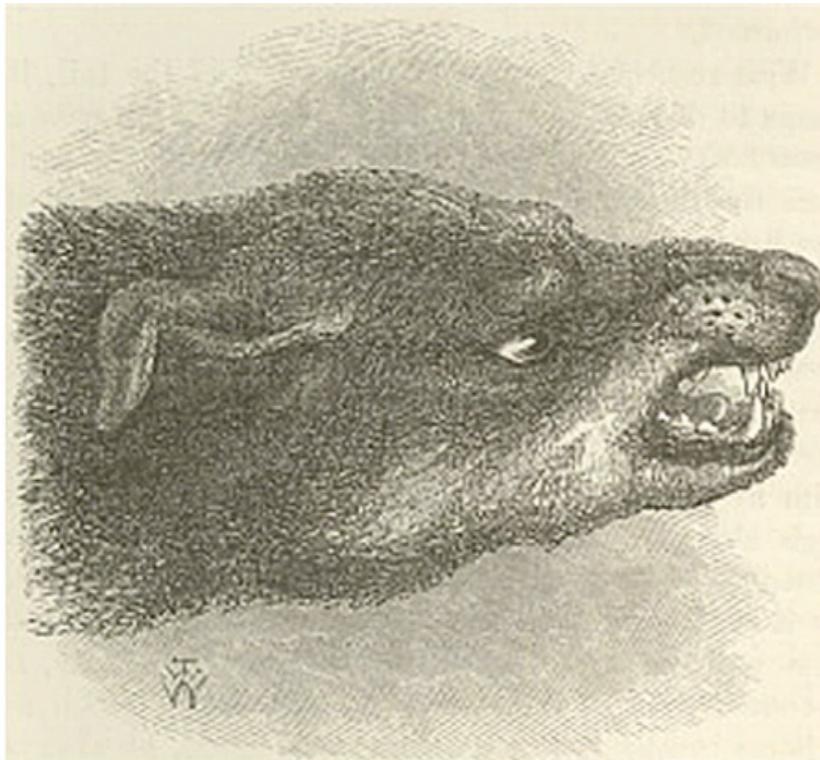
<https://www.ket.org/program/this-emotional-life/racing-hearts/>

*Do we all have the same set of
basic emotions?*



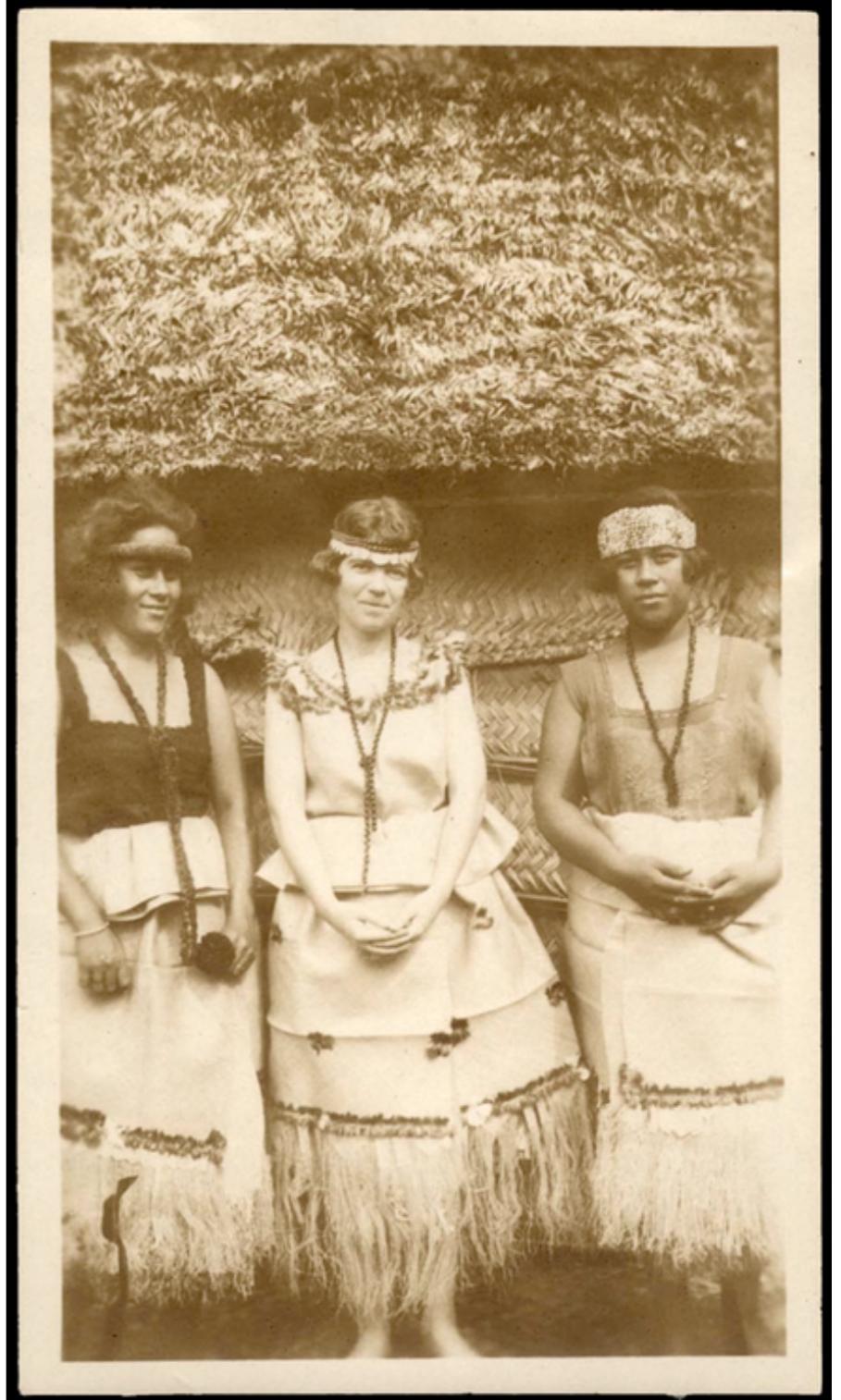
Charles Darwin proposed certain emotional expressions can be seen across all mammals

“Expression of emotion in man and animals” (1872)



Margaret Mead
(anthropologist) claimed
that emotional
experiences dramatically
differed by culture

- *Coming of Age in Samoa* (1928)
- Cultural Relativism



“Basic” emotion theory

- The human mind has been endowed with a small set of emotions that we have an innate, core understanding of.
- These six “basic” emotions are functional (they help us survive):

Emotion	Hypothesized Purpose
Fear	Cope with threat
Anger	Restore justice/fairness
Sadness	Pause, readjust, reevaluate
Disgust	Avoid contaminants
Happiness/Enjoyment	Repeat
Surprise	Ambiguity resolution

“Basic” emotion theory

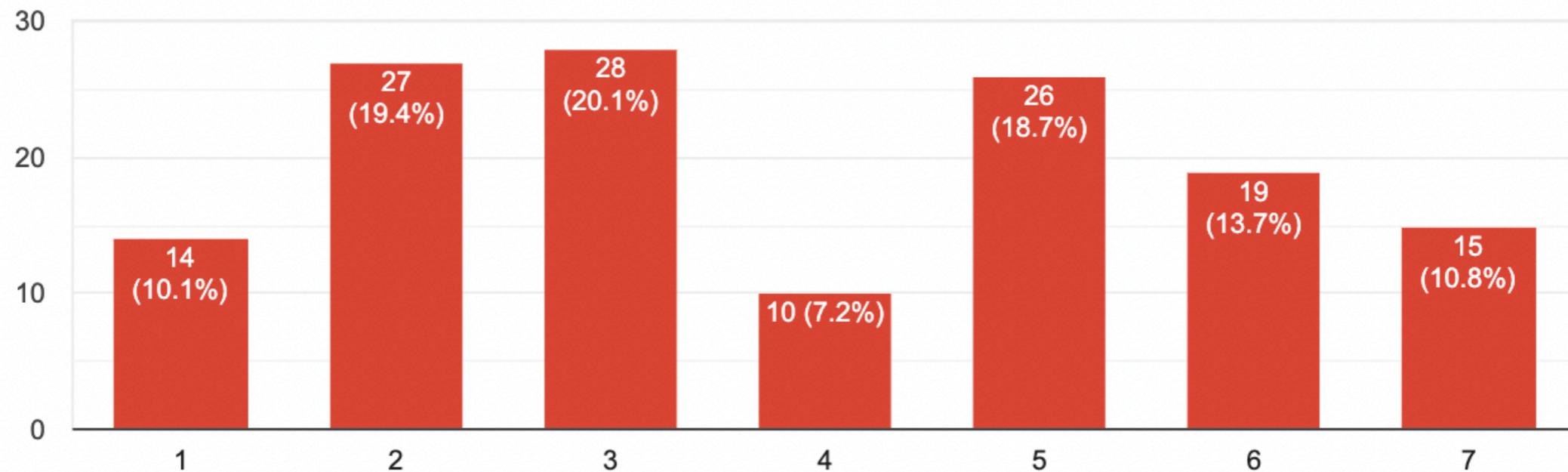
- The human mind has been endowed with a small set of emotions that we have an innate, core understanding of.

Evidence generated from:

- Universally expressed & recognized
- No experience necessary

The class's intuitions

All cultures of the world have the same emotions.

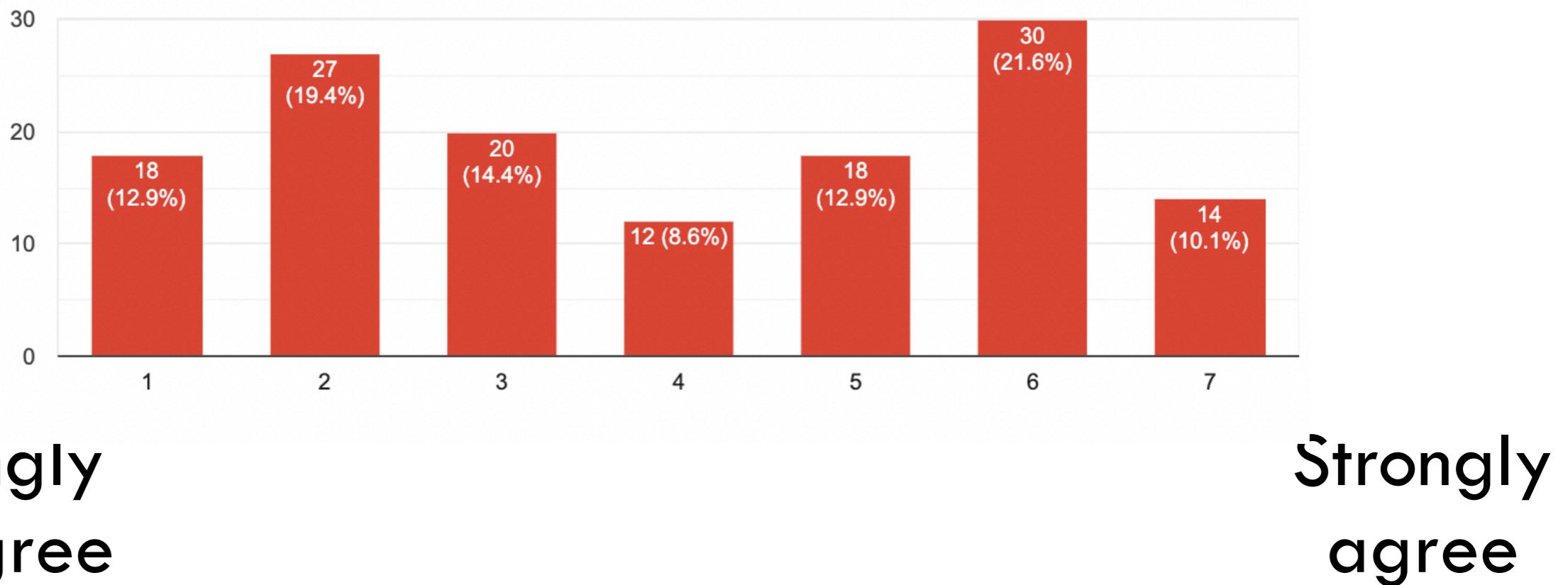


Strongly
disagree

Strongly
agree

The class's intuitions

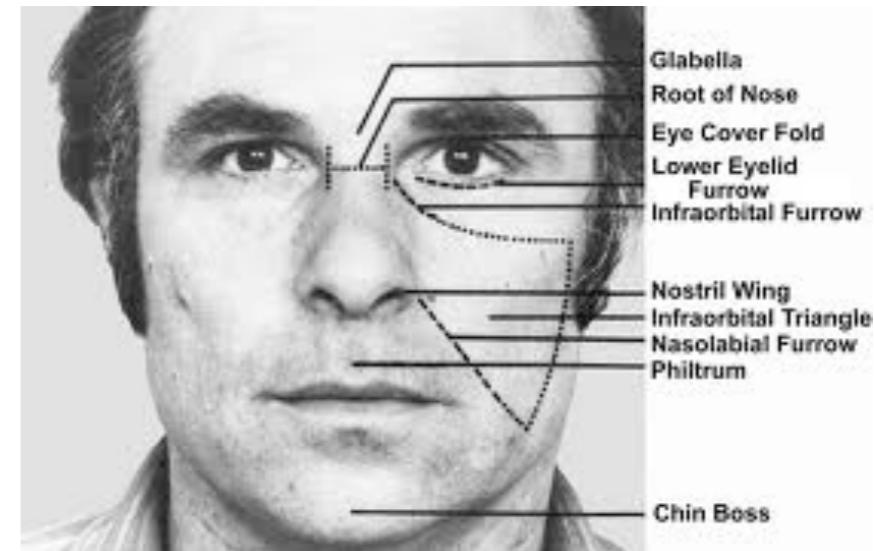
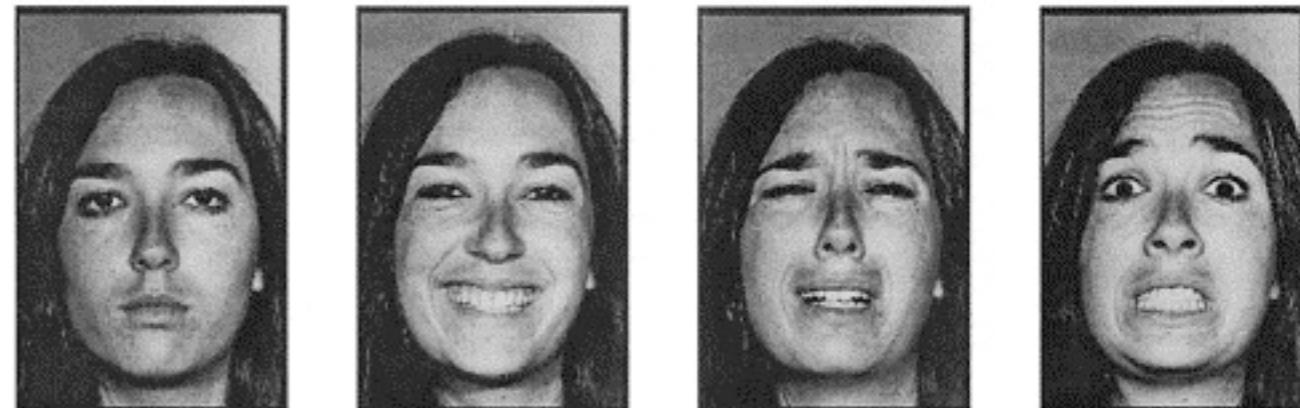
All cultures of the world use emotional expressions the same way (i.e., a smile means the same thing across the world; a frown means the same thing across the world).





Paul Ekman assessed human emotion universality

- Active in research 1960s-2000s
- Numerous contributions to emotion science
 - Focus on nonverbal communication of emotion
 - Ekman & Friesen stimulus set (1976) & JACFEE (Culturally diverse faces)
 - FACS coding
 - Lie detection



CONSTANTS ACROSS CULTURES IN THE FACE AND EMOTION¹

PAUL EKMAN²

AND

WALLACE V. FRIESEN

University of California, San Francisco

Langley Porter Neuropsychiatric Institute

To overcome this difficulty in the interpretation of previous results, it is necessary to demonstrate that cultures which have had minimal visual contact with literate cultures show similarity to these cultures in their interpretation of facial behavior. The purpose of this paper was to test the hypothesis that members of a preliterate culture who had been selected to insure maximum visual isolation from literate cultures will identify the same emotion concepts with the same faces as do members of literate Western and Eastern cultures.

Dr Paul Ekman

interviewed by

Lili and Alexi from San Francisco



0:05 / 4:31



www.youtube.com/watch?v=h19PzyqOxxo

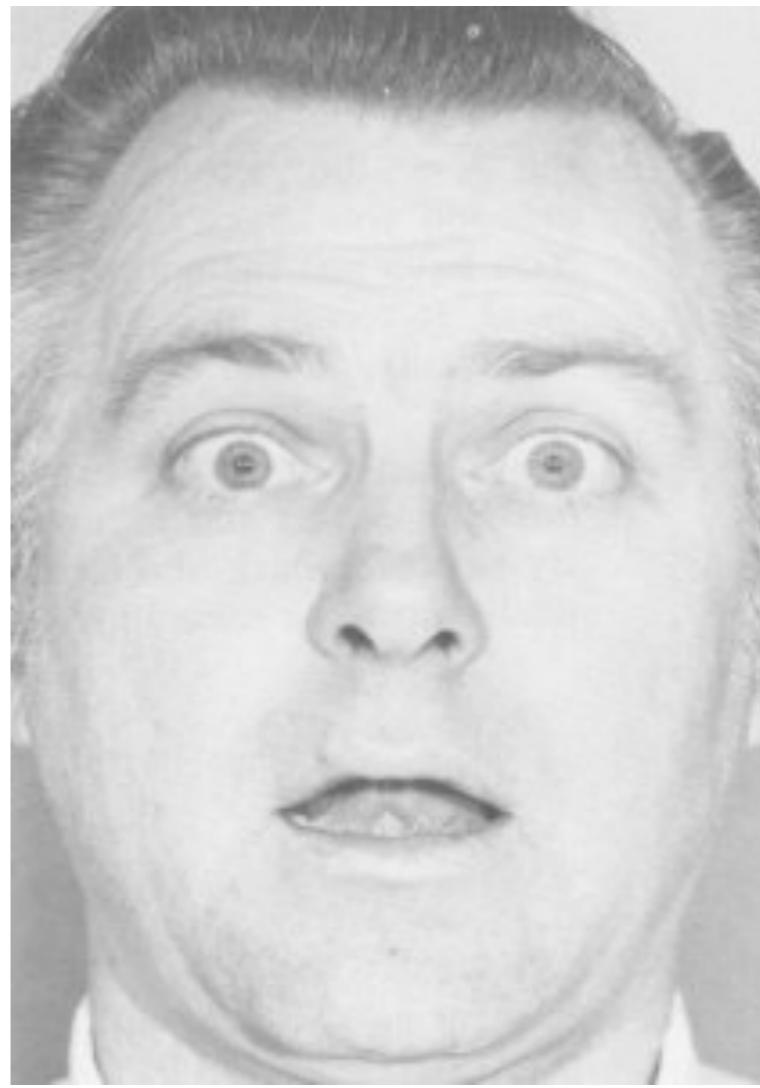
1971 study procedure

- Scenario paired with three different expressions. Choose the one to best match the story.
- (Chance = 33%)



Scenario used	Intended emotion	% agreement
His (her) friends have come, and he (she) is happy.	Happy	92%
His (her) child (mother) has died, and he (she) feels very sad	Sad	81%
He (she) is angry; or he (she) is angry, about to fight.	Anger	87%
He (she) is looking at something he (she) dislikes; or He (she) is looking at something which smells bad.	Disgust	83%
He (she) is just now looking at something new and unexpected.	Surprise	68%
He (she) is sitting in his (her) house all alone, and there is no one else in the village. There is no knife, axe, or bow and arrow in the house. A wild pig is standing in the door of the house, and the man (woman) is looking at the pig and is very afraid of it. The pig has been standing in the doorway for a few minutes, and the person is looking at it very afraid, and the pig won't move away from the door, and he (she) is afraid the pig will bite him (her).	Fear	64%

Most common mistake



1971 study procedure

- Choose among pairs the appropriate facial reaction to a given scenario
- Six emotion categories



Happiness: His (her) friends have come, and he (she) is happy.



Sadness: His (her) child (mother) has died, and he (she) feels very sad.



Anger: He (she) is angry; or he (she) is angry, about to fight.

Disgust: He (she) is looking at something he (she) dislikes; or He (she) is looking at something which smells bad.

Surprise: He (she) is just now looking at something new and unexpected.

Fear: He (she) is sitting in his (her) house all alone, and there is no one else in the village. There is no knife, axe, or bow and arrow in the house. A wild pig is standing in the door of the house, and the man' (woman) is looking at the pig and is very afraid of it. The pig has been standing in the doorway for a few minutes, and the person is looking at it very afraid, and the pig won't move away from the door, and he (she) is afraid the pig will bite him (her).

Ekman's conclusion

“The results provide evidence in support of the hypothesis that the association between particular facial muscular patterns and discrete emotions is **universal**.”

Ekman & Friesen, 1971



“Basic” emotion theory

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Evidence generated from:

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- No experience necessary



David Matsumoto

- 1980s to today
- Expert in nonverbal expression
- Role of prior experience in emotional expression.
- Judo aficionado

Spontaneous expressions in congenitally blind people

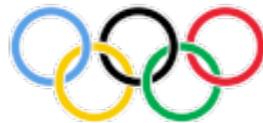




ATHENS 2004
PARALYMPIC GAMES



ATHENS 2004



Judo

Gold = won

Silver = lost

Bronze = won

Expressions on the medal stand

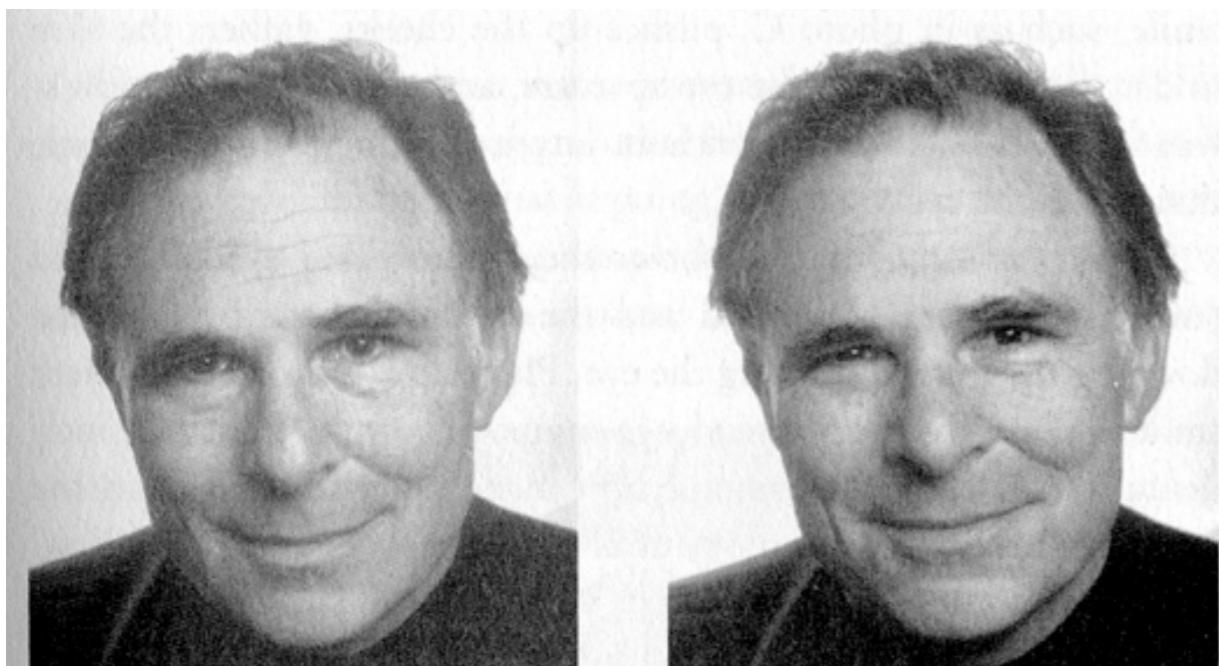
Gold & Bronze vs Silver & no
medal

1. Sighted
2. Congenitally blind
3. Noncongenitally blind

Matsumoto et al., 2009



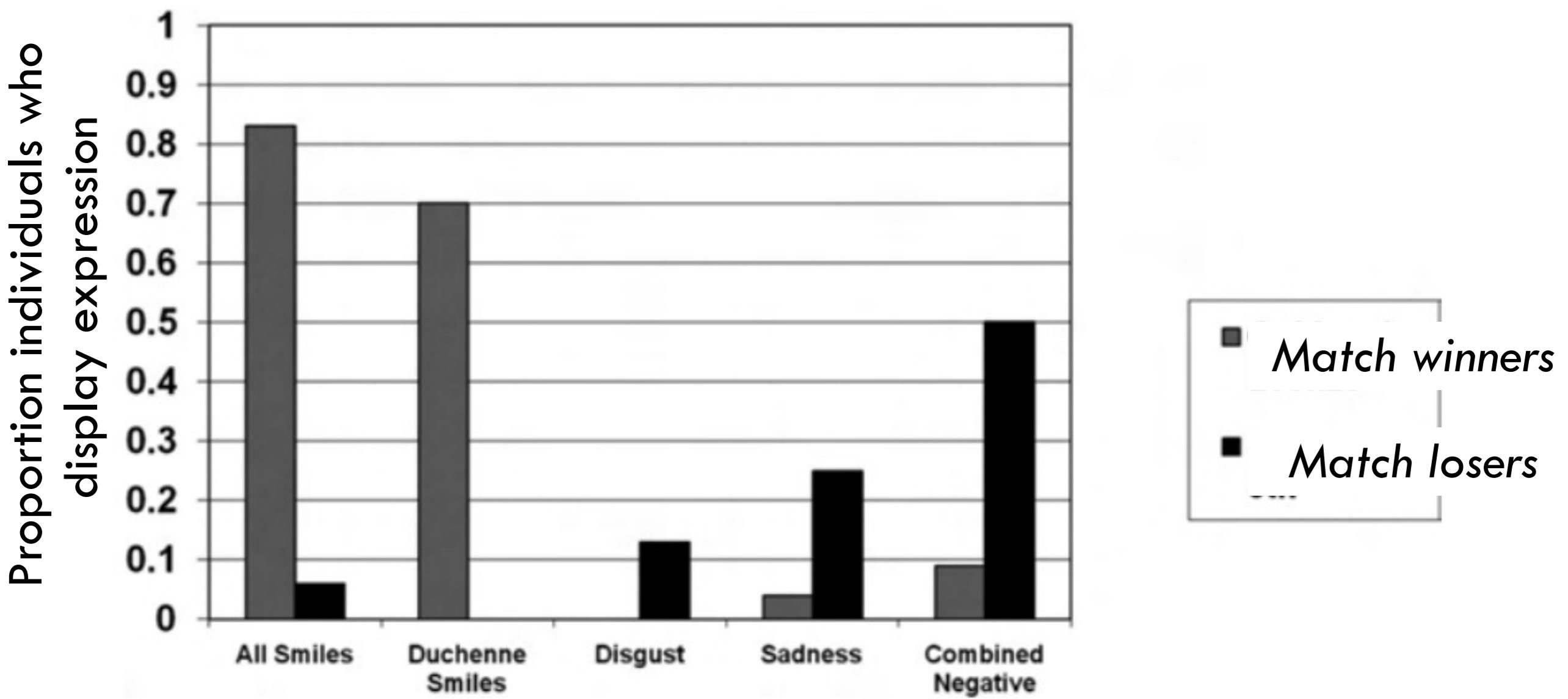
- All three groups demonstrated statistically comparable frequency of spontaneous expression after the match and on the medal stand.
 - Cannot be explained by overall differences in facial activity.
- Did their expressions ‘match’ their place-finish?



Disgust
Sadness
“General negative”
Duchenne smiles
Non-duchenne smiles

Expressed emotion at moment of winning match

Congenitally blind



- “[Our findings] strongly suggest that the universality in emotional expression observed in numerous studies involving adult humans originates from an evolved, potentially genetic source and that all humans, regardless of gender or culture, are born with this ability.”

Matsumoto & Willingham, 2009

Basic emotion theory proposes that the small set of “biologically basic” emotions are ‘natural kinds’

- A natural kind is a nonarbitrary group of instances
- These instances cluster together and share co-occurring features or properties
- Boundaries reflect underlying nature
- ‘Carving nature at its joints’

The table includes the following sections:

- Lanthanide series:** Lanthanum (La), Cerium (Ce), Praseodymium (Pr), Neodymium (Nd), Promethium (Pm), Samarium (Sm), Europium (Eu), Gadolinium (Gd), Terbium (Tb), Dysprosium (Dy), Holmium (Ho), Erbium (Er), Thulium (Tm), Ytterbium (Yb).
- Actinide series:** Actinium (Ac), Thorium (Th), Protactinium (Pa), Uranium (U), Neptunium (Np), Plutonium (Pu), Americium (Am), Curium (Cm), Berkelium (Bk), Californium (Cf), Einsteinium (Es), Fermium (Fm), Mendelevium (Md), Nobelium (No).
- Other elements:** Hydrogen (H), Helium (He), Lithium (Li), Beryllium (Be), Sodium (Na), Magnesium (Mg), Potassium (K), Calcium (Ca), Rubidium (Rb), Strontium (Sr), Cesium (Cs), Barium (Ba), Lanthanum (La), Cerium (Ce), Praseodymium (Pr), Neodymium (Nd), Promethium (Pm), Samarium (Sm), Europium (Eu), Gadolinium (Gd), Terbium (Tb), Dysprosium (Dy), Holmium (Ho), Erbium (Er), Thulium (Tm), Ytterbium (Yb), Boron (B), Carbon (C), Nitrogen (N), Oxygen (O), Fluorine (F), Neon (Ne), Argon (Ar), Krypton (Kr), Xenon (Xe), Radon (Rn), and various transition metals like Scandium (Sc), Titanium (Ti), Vanadium (V), Chromium (Cr), Manganese (Mn), Iron (Fe), Cobalt (Co), Nickel (Ni), Copper (Cu), Zinc (Zn), Gallium (Ga), Germanium (Ge), Arsenic (As), Antimony (Sb), Tellurium (Te), Iodine (I), and Polonium (Po).