

What's Emotion Got to Do With It!



SG Friedman, Ph. D
www.behaviorworks.org
facebook.com/behaviorworks

Let's start with a question.

... actually, let's start with THE question: How are we even talking about this without a common definition of emotion?

Is it...

- Physiology (sensations)?
- Perception (interpretation of sensation)?
- Behavior (innate/universal, operant/learned, private/covert)?

We need a ***contemporary*** scientific understanding that is ***valid and useful***.

Uhh. . . nope.



“We must give up the idea that personal recipe knowledge of human behavior is adequate, that this is the only psychology we need” (Stanovich, 2001, *How to Think Straight About Psychology*, p. 222).

Emotional feelings vs. emotional behavior.



It's a hard problem to study.

- I can't know your private experience and you can't know mine.
- When we report feeling grief, do you feel the same sensations as I do?
- Like color — not a property of a thing, it is a perception of an observer
“. . . differences in color naming across languages cause differences in color cognition and/or perception.”

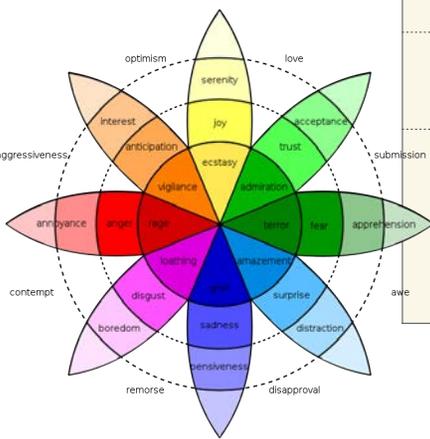
https://en.wikipedia.org/wiki/Linguistic_relativity_and_the_color_naming_debate



- Two main views—classical and constructional.
- These views cross disciplines, e.g., neuroscience, psychology, behavior analysis.

Classical View

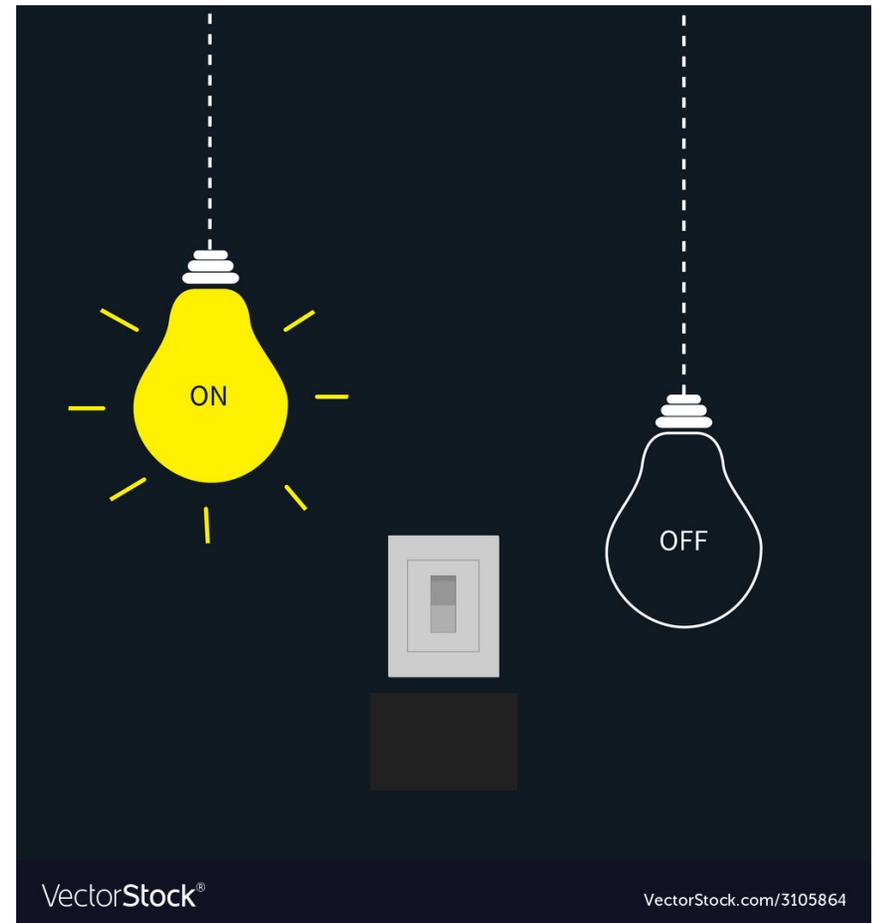
- Emotions are innate, tangible, distinct, locatable entities inside our brains and bodies, the result of natural selection. ***Everyone is programmed to react the same way.***
1. Plutchik (1927 – 2006)—psychiatrist, Psycho-evolutionary Theory of Emotions.
 - Proposed that the 'basic' emotions are biologically primitive and have evolved in order to increase the reproductive fitness of the animal.
 - Each emotion triggers behavior with high survival value, such as the way fear inspires the fight or flight response.
 2. Panksepp (1943-2017)—neuroscientist, Affective Neuroscience.
 - 7 basic emotional systems mapped to distinct neural circuits in the primitive brain.
 - When triggered, we have a stereotypic response like heart rate, breathing, chemicals in body, a particular facial expression, and a particular action, e.g., freeze in fear, attack in anger.



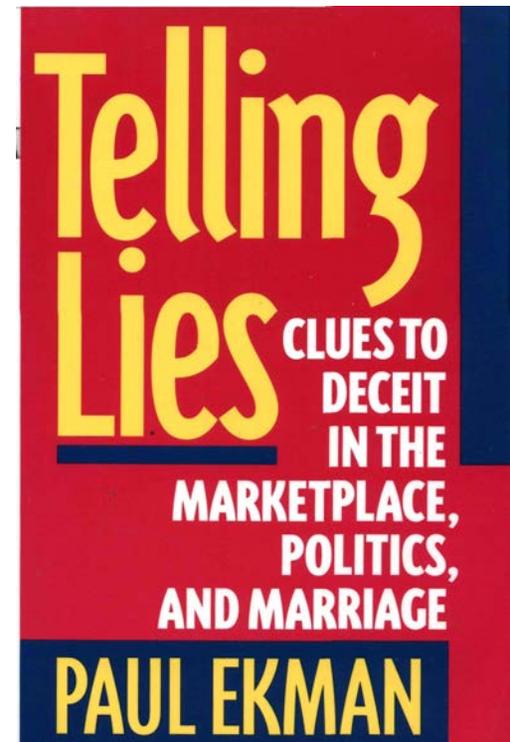
Plutchik - psy/evo	Panksepp - neuro
Anger	RAGE (Basic)
Anticipation	SEEKING (Basic)
Sadness	GRIEF (Basic)
Fear	FEAR (Basic)
Joy	LUST (Social)
Trust	CARE (Social)
Surprise	PLAY (Social)
Disgust	

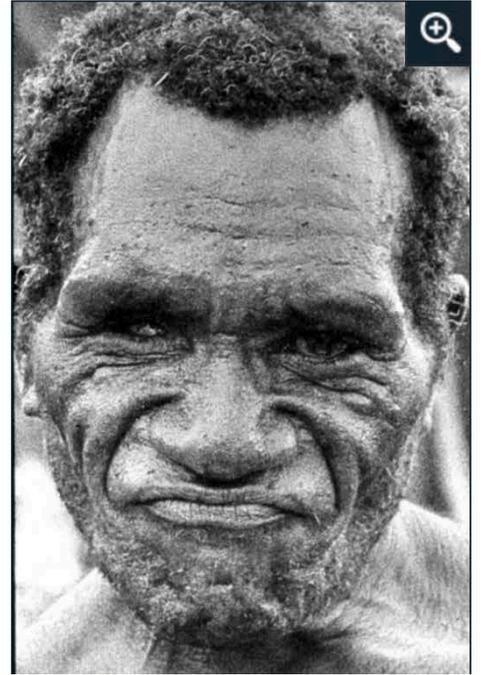
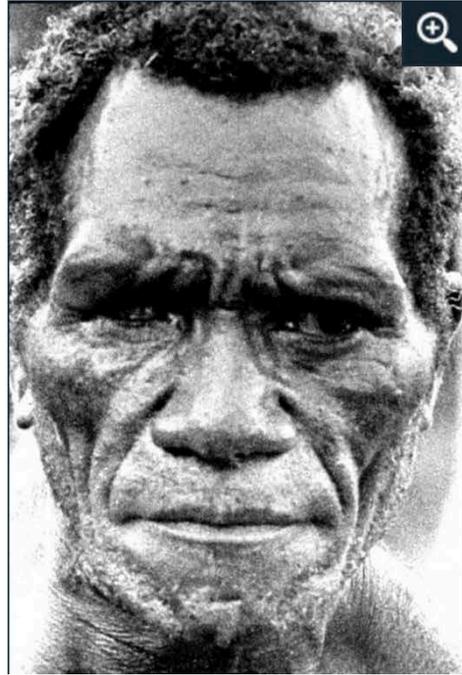
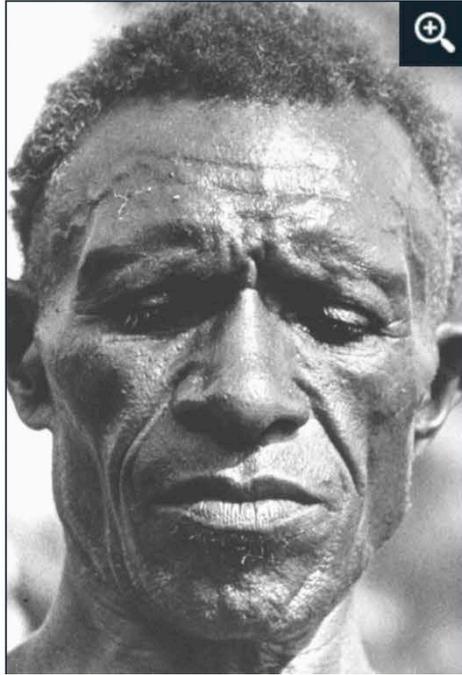
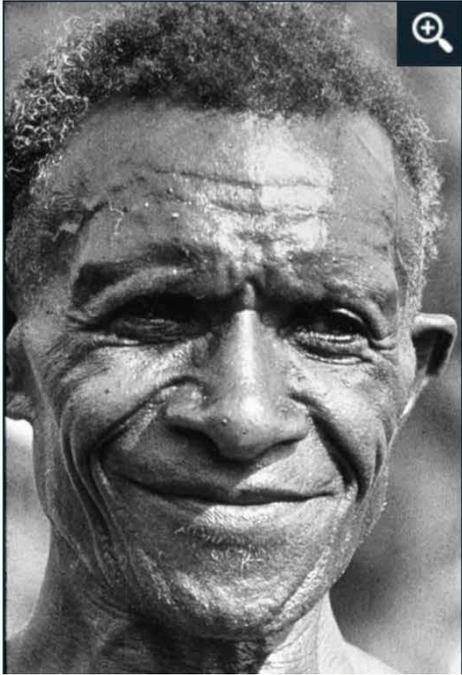
Basic Emotional Systems	Key Brain Areas	Key Neurotransmitters
General Pos. Motivation SEEKING/ Expectancy System	Nucleus Accumbens - VTA Mesolimbic and mesocortical outputs Lateral hypothalamus - PAG	DA (+), glutamate (+), opioids (+), neurexins (+), orexin (+), Many other neuropeptides
RAGE/ Anger	Medial amygdala to Bed Nucleus of Stria Terminalis (BNST). Medial and perifornical hypothalamic to PAG	Substance P (+), Ach (+), glutamate (+)
FEAR/ Anxiety	Central & lateral amygdala to medial hypothalamus and dorsal PAG	Glutamate (+), DBI, CRF, CCK, alpha-MSH, NPY
LUST/ Sexuality	Cortico-medial amygdala, Bed nucleus of stria terminalis (BNST) Preoptic hypothalamus, VMH, PAG	Steroids (+), vasopressin, & oxytocin, LH-RH, CCK
CARE/ Nurturance	Anterior Cingulate, BNST Preoptic Area, VTA, PAG	oxytocin (+), prolactin (+) dopamine (+), opioids (+/-)
PANIC/ Separation	Anterior Cingulate, BNST & Preoptic Area Dorsomedial Thalamus, PAG	opioids (-), oxytocin (-) prolactin (-), CRF (+) glutamate (+)
PLAY/ Joy	Dorso-medial diencephalon Parafascicular Area, PAG	opioids (+/-), glutamate (+) Ach (+), cannabinoids, TRHU

- Michael Gazzaniga: Logical error—the switches (brain circuits or genes) are not the *source* (*the “power plant”*). The Bisected Brain, 1970?
- Feldman-Barrett questions existence of Panksepp’s data. 🧑

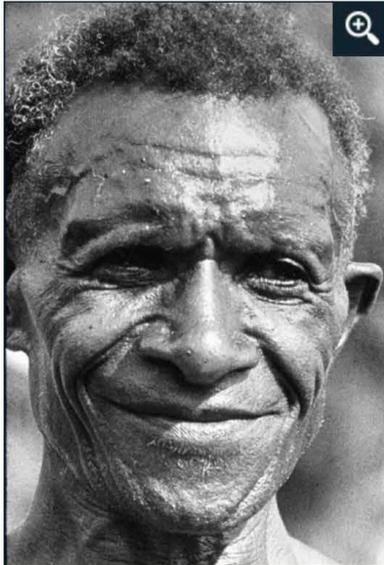


3. Ekman—psychologist, universal emotions as they relate facial expressions. He created an "atlas of emotions" with more than ten thousand facial expressions, and has gained a reputation as "the best human lie detector in the world."

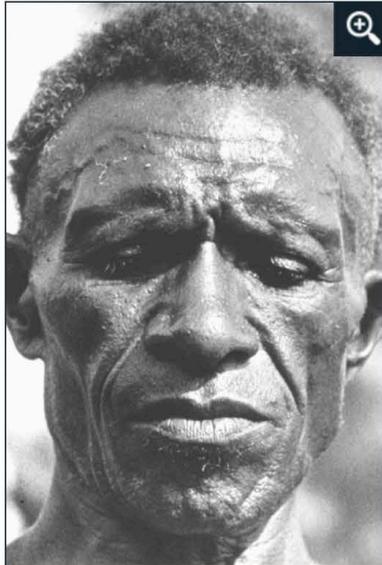




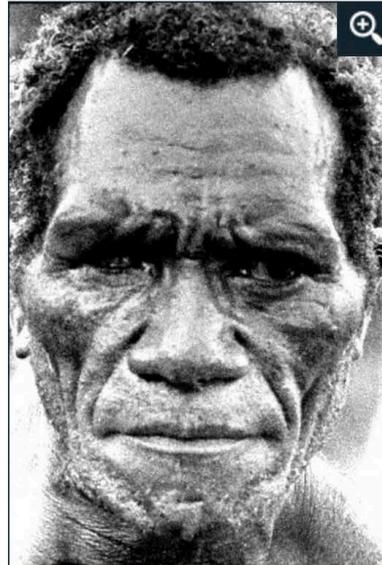
Try to guess which emotion is posed in each black and white photograph below. If you guess correctly, that is evidence that facial expressions are culture-specific. Choose between *anger*, *sadness*, *disgust* or *happiness*.



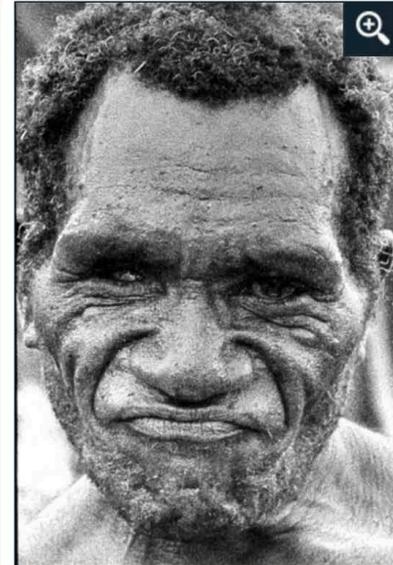
Anger
Sadness
Disgust
Happiness



Anger
Sadness
Disgust
Happiness



Anger
Sadness
Disgust
Happiness



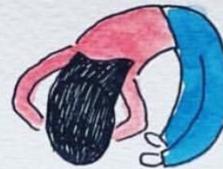
Anger
Sadness
Disgust
Happiness

The SHAPES OF SADNESS



CRESCENT:

- General Bad Day
- ENNui
- DiSAPPOINTed SOMEONE



BALL:

- Ex Takes HiS New GiRLFRIEND To The Place You WeRe Going To Go ToGeTheR
- BA& HaiRCuT



STARFiSH:

- MoNEY woeS
- Lack oF PuRPOSe
- SToRE oUT oF AvocAdoS



LiNE:

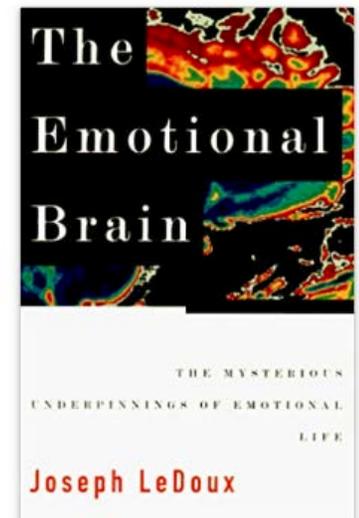
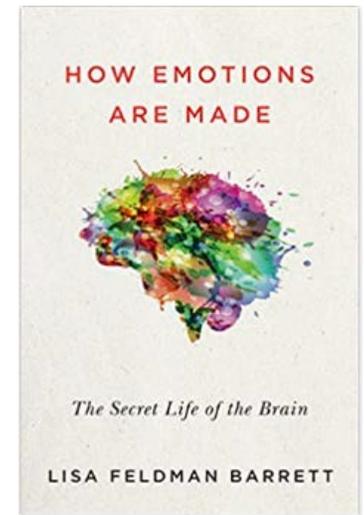
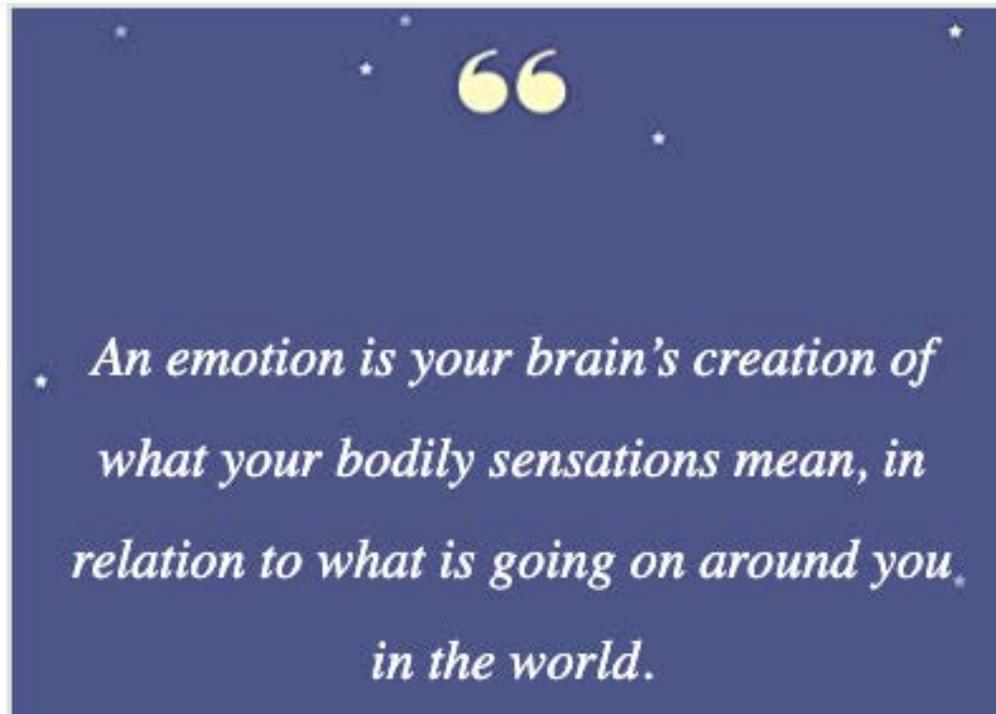
- LoNeLiNeSS
- FoRGOT HBO PaSSwoRd
- LoST FAVORiTe NeckLace

Mari Andrew

<https://qz.com/990343/this-artists-comics-are-the-antidote-to-instagram-anxiety/>

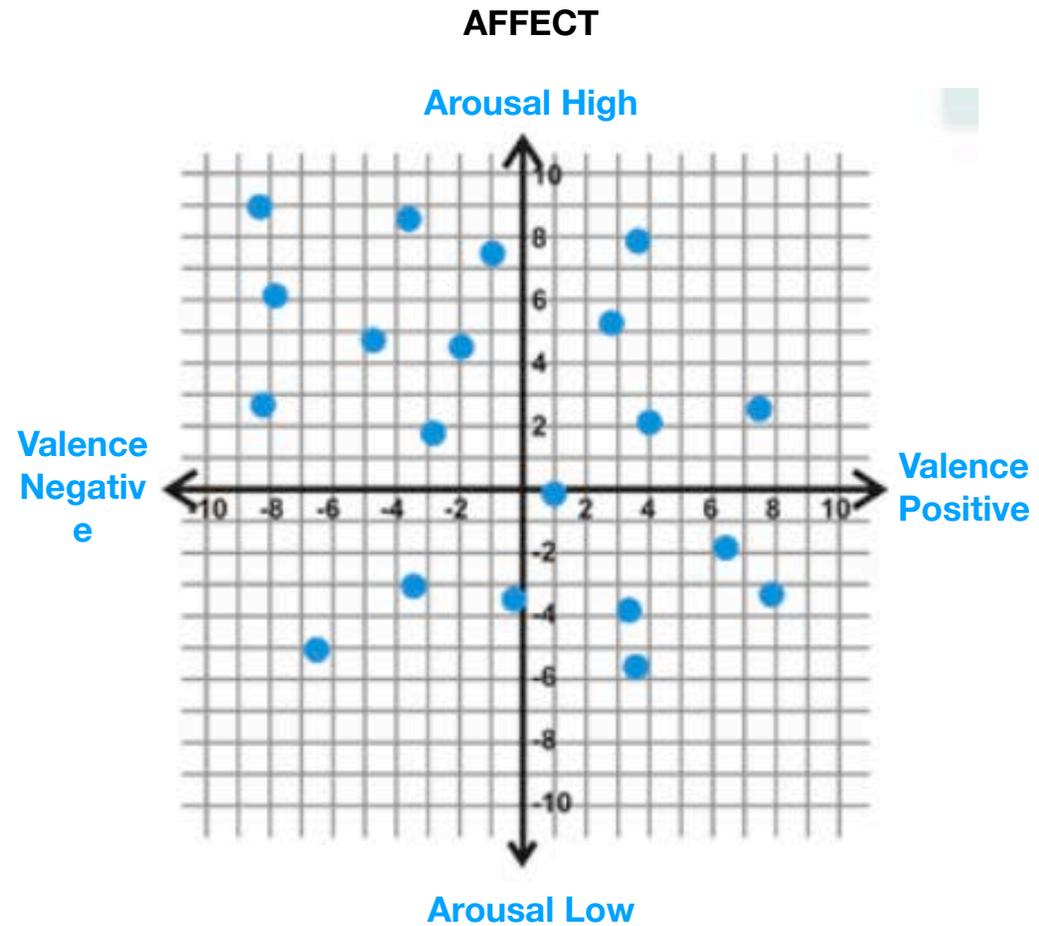
Constructional Views

- The result of new neuro-technology and a better understanding of behavior analysis.

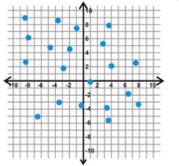


What is innate and universal is *affect*.

- Affect (two factors [capabilities], each with two levels: arousal (readiness to act, high/low) and valence (value, positive/negative)).



Learning is required to make meaning out of affect.



- You learn what situations and feelings correlate with which emotion word. ***You don't have one anger or sadness, you have whole repertoires.***
 - If you live in a culture that doesn't do sadness, you don't experience it because your brain becomes wired to make whatever mental event exists in your culture.
 - Tahitians don't feel *sad* when someone passes, they feel *sick*.
 - Ilongot tribe in the Philippines feel *liget* for which we have no translation.
<https://www.npr.org/sections/health-shots/2017/06/01/529876861/an-anthropologist-discovers-the-terrible-emotion-locked-in-a-word>



- Our brains feel the sensory changes in our bodies—*interoception*, that leads to the basic ingredient “**affect.**”

- ***Emotions are the meaning we give to those physical signals, learned value.***

- We give different meaning to those bodily sensations ***depending on context.***

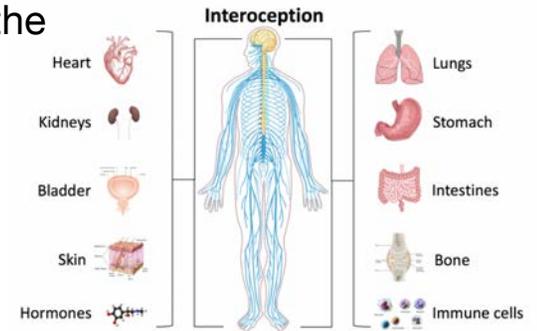
- Judges give out harsher sentences before their lunch breaks than after lunch breaks.

- Turns out that a knot in your stomach that tells you that you don't trust someone feels very similar to hunger.

- Doesn't make emotions unreal, just socially constructed like the color red.

- They become part of the brain and it changes when we change culture.

- **Social reality is important for regulating our nervous system and bodies.**



IDENTIFYING The PROBLEM



I'M FeELING iRRiTABLE and WEIRD and a LiTTLE Mad at EVERYONE, MoSTLY MySELF

IS it Because OF MY BReak UP 18 MONTHS AGO?

IS it THE PaTRIARChy?

Because I WASNT INVITED To Their wedding?

Because I Have a PIMPLE?

TRUMP?

Because MY Dad is DEAD?

The PaSSaGe OF Time?

MONEY?

* STEPS INTO AiR CONDitiONiNG *

Oh. I WAS JuST HoT.

What Loneliness Does to the Human Body

- The United Kingdom last week announced the creation of a Minister for Loneliness role within its government, the Cox Commission.
- Loneliness is the perceived discrepancy between one's desired level of social connection and their actual level of social connection. Julianne Holt-Lunstad (2018).
- Some people who are socially isolated don't necessarily feel lonely, and some people who are lonely are surrounded by people who make them feel more alienated, not less.
- The bodies of people who feel lonely are more likely to have high blood pressure, cardiovascular disease, reduced immunity, inflammation, poor sleep.
- Interventions include "Door Knock" and "The Great Get Together" by events in UK; "Just Say Hello" campaign (Oprah), and new legislation making hearing aides more affordable in US.

<https://www.thecut.com/2018/01/the-health-effects-of-loneliness.html>

<https://www.nytimes.com/2017/12/11/well/mind/how-loneliness-affects-our-health.html>

Emotions words like anger name a population of diverse biological events that vary depending on context. *No question we have common expressions, but we learn them.* Your body can do many things but there is a limit, so redundant...

	Anger	Happiness	Sadness	Fear	Disgust
Rate	Slightly faster	Faster or slower	Slightly slower	Much faster	Very much faster
<i>Pitch Average</i>	Very much higher	Much higher	Slightly lower	Very much higher	Very much lower
<i>Pitch Range</i>	Much wider	Much wider	Slightly narrower	Much wider	Slightly wider
<i>Intensity</i>	Higher	Higher	Lower	Normal	Lower
<i>Voice Quality</i>	Breathy, chest	Breathy, blaring tone	Resonant	Irregular voicing	Grumble chest tone
<i>Pitch Changes</i>	Abrupt on stressed	Smooth, upward inflections	Downward inflections	Normal	Wide, downward terminal inflects
<i>Articulation</i>	Tense	Normal	Slurring	Precise	Normal

Table 1: Emotions and Speech Parameters (Murray and Arnott, 1993)



How do you know the difference between anger/play/happy/concerned?

CONTEXT



- “Instead of asking where in the brain emotions can be found or what bodily patterns define them, ask, “How does the brain **construct** these experiences?”

Biological state interocepted and conditions perceived . . .



Past experience used by the brain to make a prediction . . .



Current outcomes confirm or disconfirm prediction.

2. Layng—behavior analyst. Emotional behavior is an operant in its own right, shaped and maintained by contingencies, including the verbal community.

- Skinner wrote emotions are private events that are not behavior but rather part of behavior that should be accounted for with a natural science approach. Skin is no barrier. (Behaviorism at Fifty, 1963, p. 953)
<https://doi.org/10.1017/S0140525X00027618>).
- Layng describes emotions as ***part of contingencies, ABCs.***
- Emotions track changes in contingencies. Neither behavior nor stimuli to be responded to, not physiology. Emotions are in a class of their own.
- Emotions are indicators or descriptors of consequential contingencies.







NIC BISHOP 2019

- This is a hard nut to crack because we can't teach discriminations about events which we cannot measure. When you say you feel sad, is it the same experience as when I feel sad?

- Really no different than asking if you see the same thing I see when we both say the balloon is red.

- I don't know what you see but I know what I see when you say red!

- **We change emotions by changing contingencies so is the emotion in us or in the contingency?**

- I'm depressed: One could say, I am not active because the contingencies that reinforce active behavior are lacking.

“It does not help in the solution of a practical problem to be told that some feature of [an individual’s] behavior is due to frustration or anxiety; we also need to be told how the frustration or anxiety has been induced and how it may be altered.” (Skinner, 1953. *Science and Human Behavior*, p. 167).

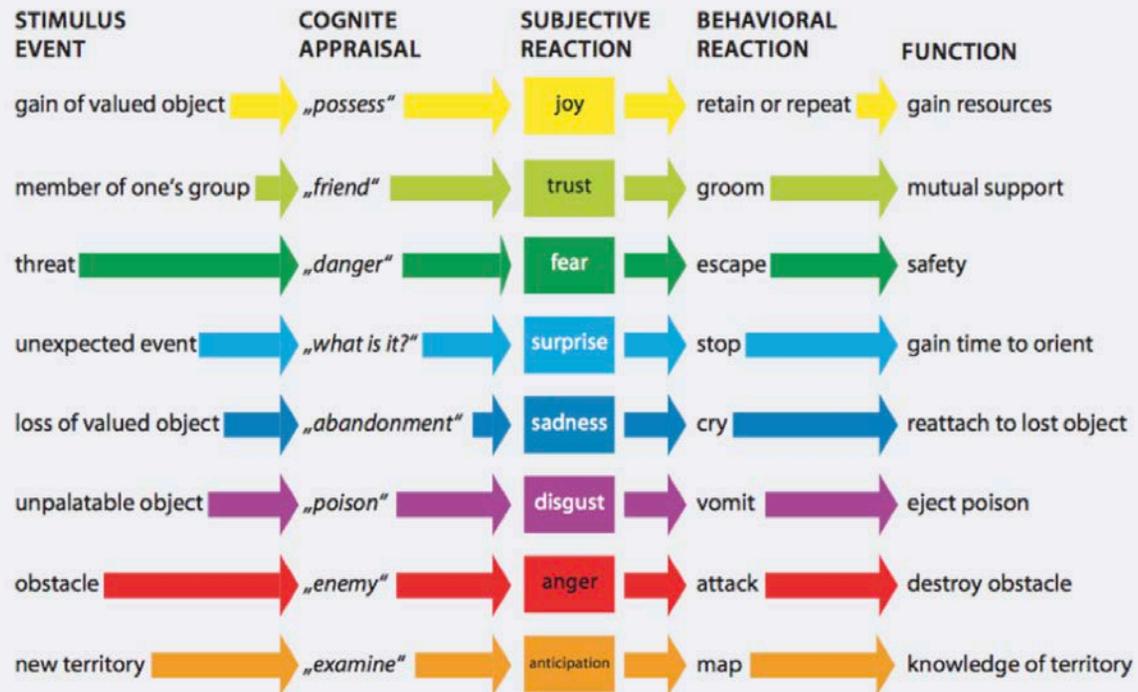
Layng, T.V. J. (2017). Private emotions as contingency descriptors: emotions, emotional behavior, and their evolution. *European Journal of Behavior Analysis*, 18:2, 168-179

Emotion	Contingency
Guilt	Consequence is reducing a penalty for a social misstep.
Embarrassment	Failing to meet criteria for social behavior set by community.
Shame	Similar to embarrassment but includes a personal loss by another as a result one's action.
Repulsion	Distancing an aversive object, but little likelihood of personal damage or loss.
Anxiety	A situation with specified or implied criteria for behavior not previously emitted under those conditions.

- When are we ever not emotional? Never, because we are always behaving.
- Use emotions to understand and change contingencies.
- Don't just accept emotions as naturally occurring events, or reflexive.

Survival Issues Plutchik

„Organisms at all evolutionary levels face certain common functional survival problems.“



What about animals?

Which species, worms or elephants?

What's the measure?

Why does it matter?

*A reasonable component of welfare,
inexorably tied to the ABCs.*



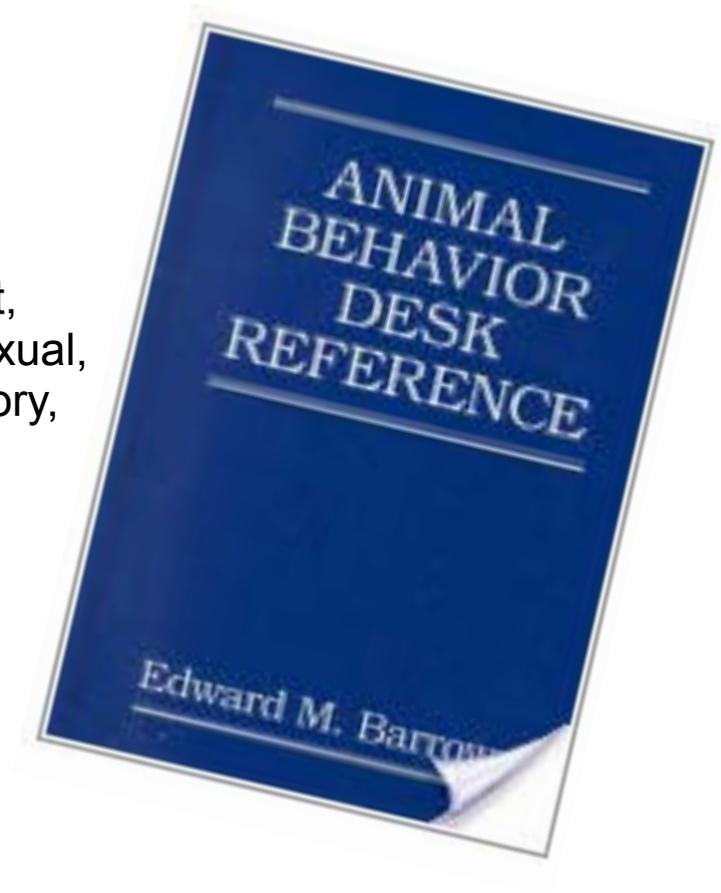
“When we conceive of emotions and hunger not as things but as verbal descriptions of ***environment relations***, we are able to see important similarity between human and nonhumans” (Lewon & Hayes, 2014, p. 819).



Final Exam

Twenty differential descriptions of aggression (Barrows, 2001).

- Anti-predatory, aversion induced, behavioral, defensive, direct, displaced, dominance, ecological, frustration-induced, intrasexual, intraspecific, moralistic, parental, parental disciplinary, predatory, redirected, sexual, territorial, weaning.
- What differentiates one from the other?



To change emotions, change conditions. DO HAPPY!



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- <https://www.nytimes.com/2017/12/11/well/mind/how-loneliness-affects-our-health.html>