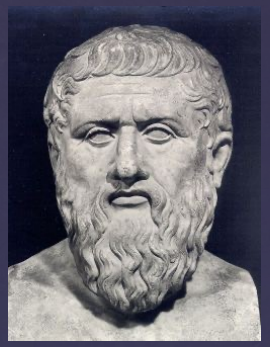
Film as an emotional artifact.
Aalto University
UWAS

THEORY OF EMOTIONS

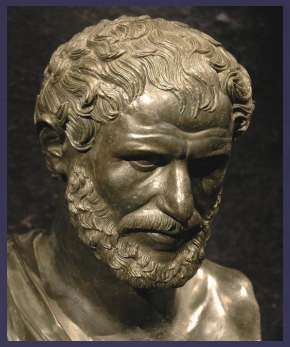
(The secret life of the brain)

Jose Cañas-Bajo, PhD
jose.canasbajo@aalto.fi
University of Wide Arts

Classical view of Human Nature

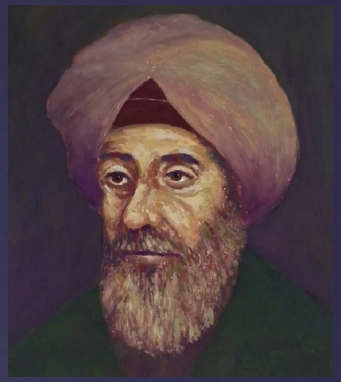


Plato



Heraclitus

Traditional Buddhism

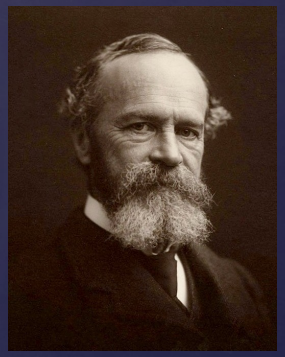


Ibn al-Haytham

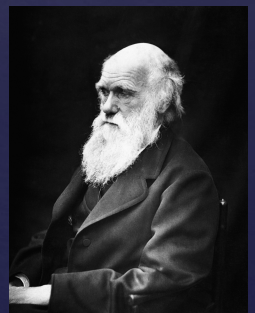
Thomas Aquinas

René Descartes

David Hume



William James



Darwin

Definitions

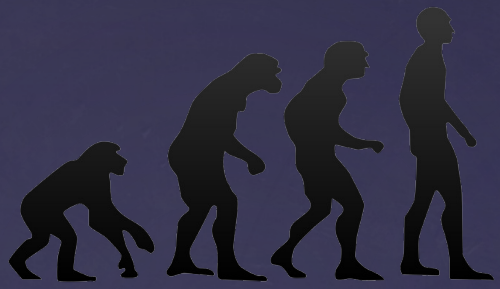
- Affective phenomena
  - Emotion: multi-situated body mechanism to give semantic meaning and coordination to internal and external data in order to create action states.
  - Affect: outward, physical signs of emotion.
  - Mood: pervasive emotion over a longer period of time.
    - Character/personality.
  - Feeling: the self perception of an emotional event.

Why do exist emotions?

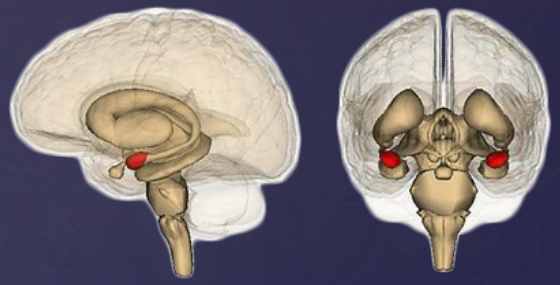
Functions of Emotions

- Somatic/ phisiological: regulating homeostatic processes.
- Behavioral/expressive: sharing clues about internal states and selecting behavior.
- Cognitive/interpretative: driving decision-making processes.
- Experiential/subjectie: flavoring personally the Self data binding.

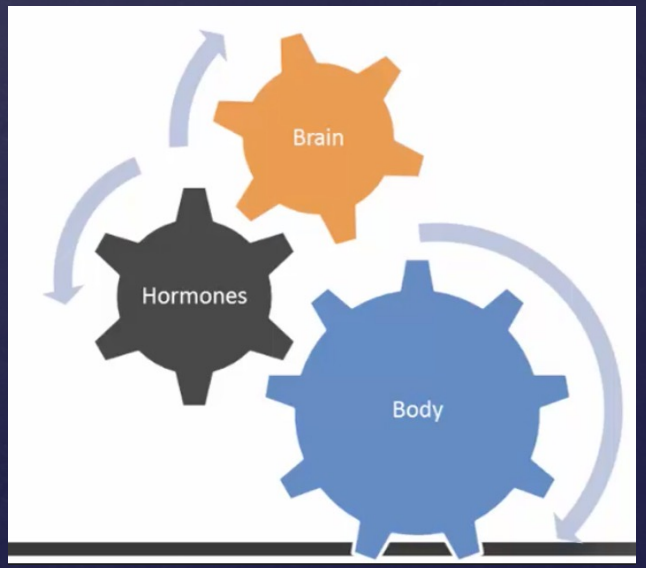
How did emotions evolve?



Limbic system



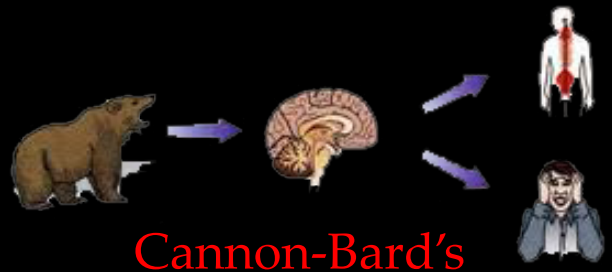
- Evolution Theory of Emotions (Charles Darwin) :
  - Emotions evolved because they were adaptive and allowed human beings to survive and reproduce.
  - Emotions motivate people to respond quickly to a stimulus of the environment



Body regulation & survival

James-Lange's

- Emotions occur as a result of physiological reactions to events.
- This emotional reaction is dependent on the way we interpret those physical reactions.



Cannon-Bard's

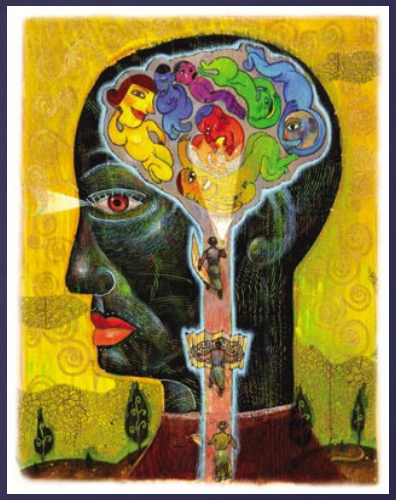
- People experience the physiological reactions associated with emotions without feeling the emotion.
- Emotions occur when the thalamus sends a message to the brain.

Schachter-Singer's

- Physiological activation occurs first. Next, the individual must identify the reasons for this activation to experience the emotion label.
- A stimulus provokes a physiological response that is then interpreted and labeled cognitively, which becomes the emotional experience.

Cognition: mapping and filling the gap

- Mapping; Somatic Marker Hypothesis (1994, Antonio Damasio)
- Filling the Gap:
  - Attention
  - Situation assessment
  - Expectation generation
  - Affect appraising
  - Goal managing
  - Action selection

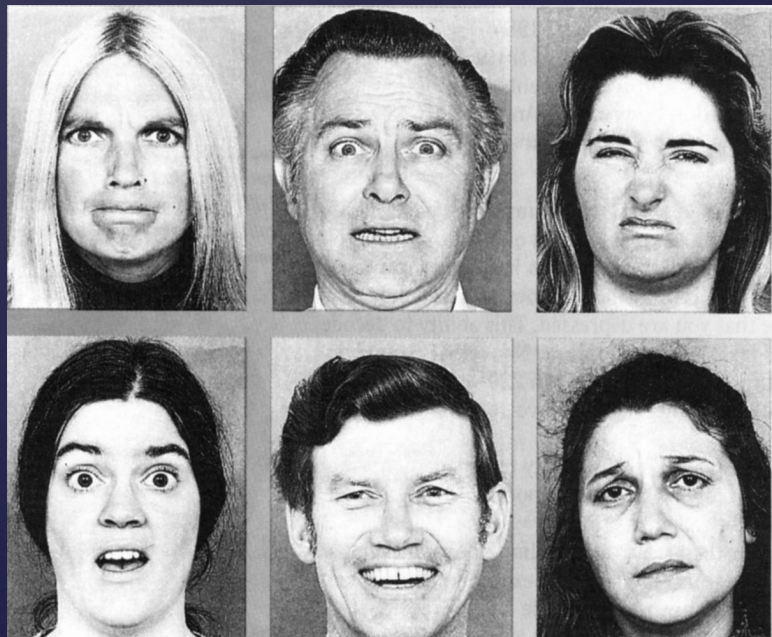


- Theory of cognitive evaluation (Richard Lazarus):
  - Thought must occur before the experience of emotion.
  - The sequence of events first implies a stimulus, followed by an emotion.
  - Emotion theory of facial feedback:
  - This theory states that facial expressions are connected with emotional experience.
  - Emotions are directly related to changes in facial muscles.

What are the Basic Emotions?

Paul Ekman Theory

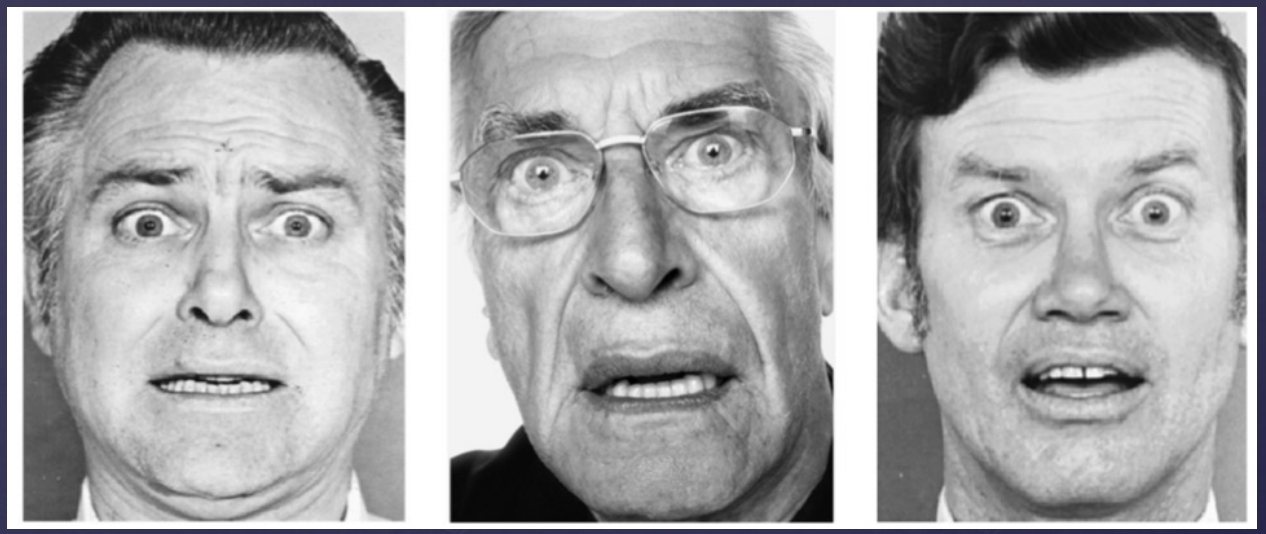
- Microexpression: is a facial expression performed involuntarily and automatically.
- Microexpressions are universal: since they are the result of the expression of certain genes.
- Adaptive potential: emotions and facial expression allows other members of the species to recognize them and use this information for the good of their community.
- Training: knowledge about the emotional state of the other person even if they try to avoid it.
- Basic Emotions: Anger, Disgust, Fear, Joy, Sadness, Surprisse



What are the Basic Emotions?

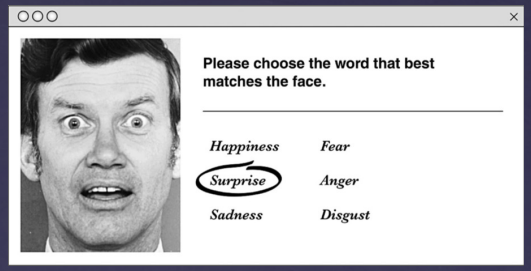
Reference	Basic emotions
Ekman et al. [13]	Anger, disgust, fear, joy, sadness, surprise
Izard [24]	Anger, contempt, disgust, distress, fear, guilt, interest, joy, shame, surprise
Plutchik [57]	Acceptance, joy, anticipation, anger, disgust, sadness,surprise, fear
Tomkins [64]	Anger, interest, contempt, disgust, distress, fear, joy, shame, surprise
Gray [14]	Rage and terror, anxiety, joy
Panksepp [51]	Expectancy, fear, rage, panic
McDougall [42]	Anger, disgust, elation, fear, subjection, tender-emotion, wonder
Mower [44]	Pain, pleasure
James [26]	Fear, grief, love, rage
Oatley, Johnson-Laird [49]	Anger, disgust, anxiety, happiness, sadness

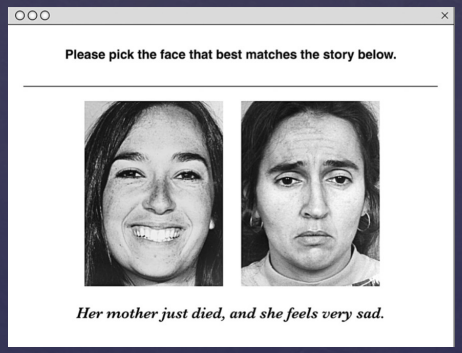
Searching for Fingerprints



Actor Martin Landau (Center) flanked by basic emotions method faces for Fear (left) and Surprise (right)

Searching for Fingerprints





P. Ekman method

Facial Electromyography
EMG

Better talk about stereotypes

Variation is the norm.

Theory of Constructed Emotions

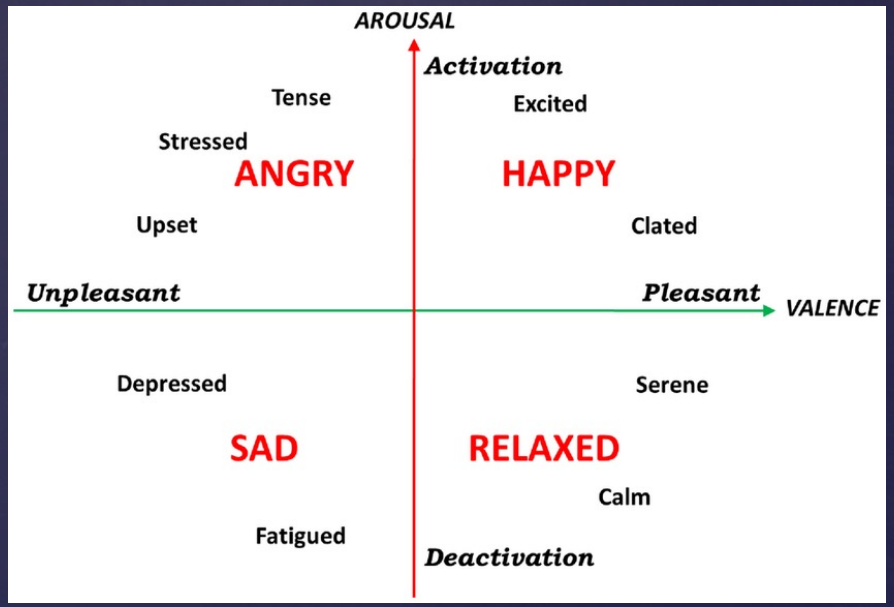
Lisa Feldman Barrett

- Emotions are *not* hard-wired in an ancient, "reptilian" part of the brain.
- Emotions *cannot* be detected through facial expressions or any other physiological measurement.
- There are *no* "universal" emotions across people, nations, or cultures.
- There are *no* distinct parts of the brain dedicated to specific emotions (such as the amygdala for fear).
- Emotions are *not* "reactions" to external events.

Emotianal coordinates

Russell's circumplex of affect

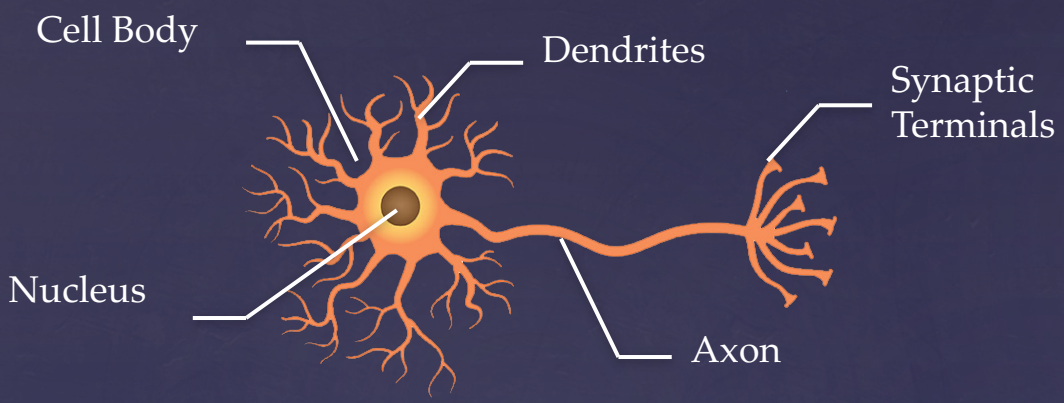
- The dynamism of these three basic coordinates:
  - Valence: correlation for reaction.
  - Intensity/Arousal: tends to stabilize (homeostatic system)
  - Time: moods, as well as chronic states (such as chronic pain).



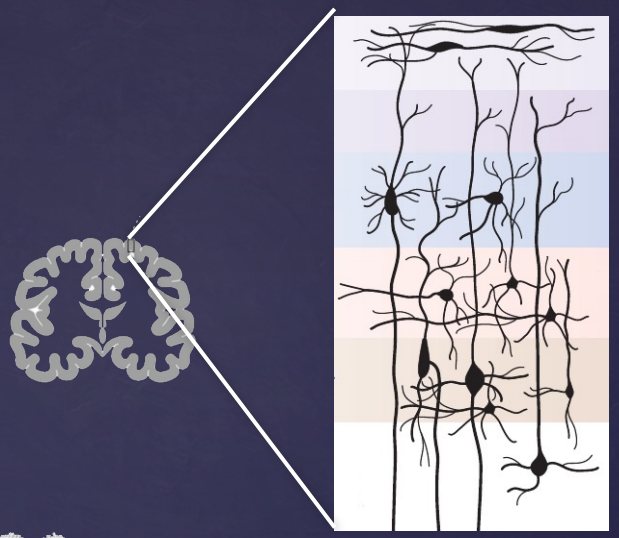
Emotions and Brain

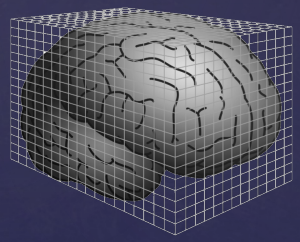
- Scientist have long studied people with brain damage to try to locate an emotion in a specific area of the brain.
- Amygdala → Fear/measure skin conductance
- 1930: Group of monkeys with removed amygdales. They were approaching objects and animals that would normally frighten them, like snakes.
- Studied case "SM," afflicted with a genetic disease that gradually obliterates the amygdala during child- hood and adolescence, called Urbach-Wiethe disease.
- SM seemed fearless, and her damaged amygdalae seemed to be the reason.
- Funny thing happened: They even found a way to make SM feel terror, by asking her to breathe air that was loaded with extra carbon dioxide. Lacking the normal degree of oxygen, SM panicked.
- The case of the twins.

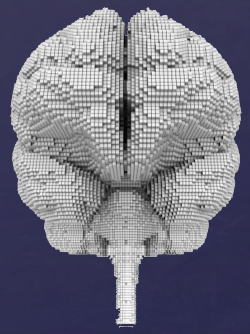
Degeneracy (Many to one)



The Neuron







Many combinations of neurons can produce the same outcome.

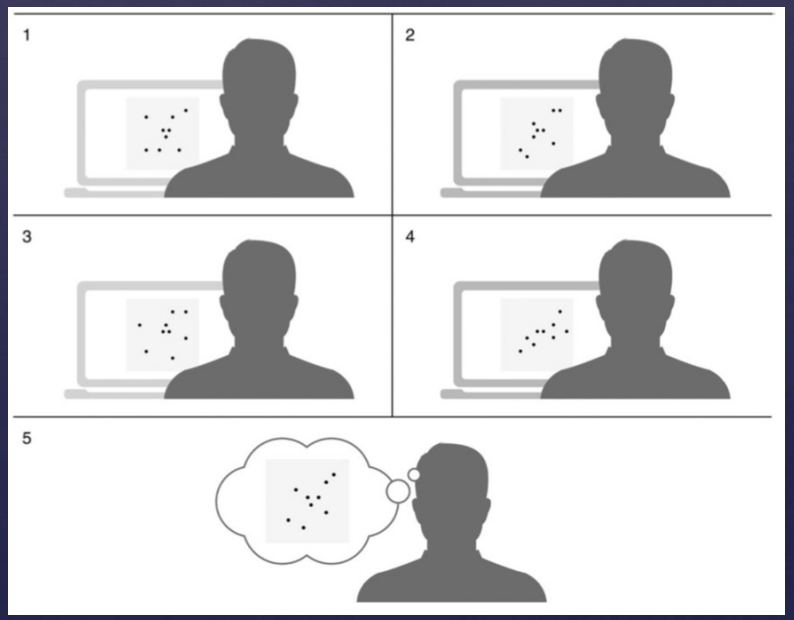
Intrinsic brain activity / Intrinsic neurons network.

Emotions are Concepts

- Emotions are concepts that are constructed by the brain.
- The Brain receives all sorts of data from your eyes, ears, nose, skin, and mouth. This data is informative, but also ambiguous. It has to be interpreted.
- The brain uses past experience as a guide. If it can match the current experience with a past memory, it can save a lot of time and energy.
- It would take too long for it to consider thousands of old memories, one at a time. A concept is like a compressed version of hundreds or thousands of past experiences.
- Concepts are like labels or categories that your brain has created to make sense of the world around you. When you see something new, your brain doesn't ask "What is this?"; it asks "What is this like?
- Emotions like "fear," "sadness," and "disappointment" are concepts just like any other. They don't feel like concepts because we experience them so intensely. But they are.

Emotions are Concepts (II)

- Categories: Collection of objects, events or actions that are grouped together as equivalent for some purpose.
- Concept: Mental representation of Category.
- Prototype: Concept is represented in brain as the best example of its category.



Emotions are Concepts (III)

- Goal-based concepts: W. Barsalou. (Context dependent)

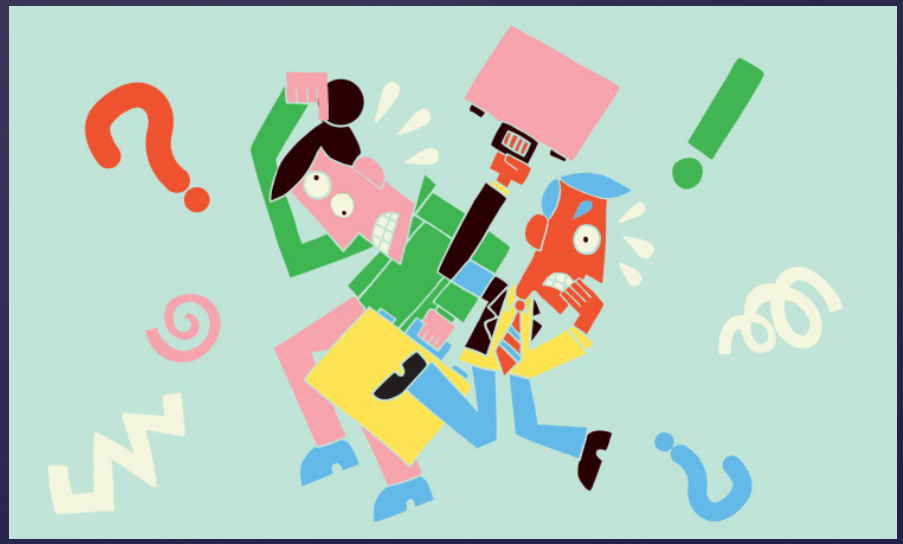
Objects	 Animals that fly	 Animals that fly	 Animals that fly
Objects + Goals	 Things that fly	 Things that fly	 Things that fly
Goals	**Romantic Love** (passion, longing, lust) *Goal: Desire*	**Tough Love** (discipline, criticism, punishment) *Goal: Help*	**Brotherly Love** (affection, cooperation, association) *Goal: Connection*

Emotions are Concepts (IV)

- Statistical learning (Sandra R. Waxman & susan A Gelman)
- Mental similarities: (Goals, intentions, preferences)
- Conceptual combination: Experience and perceive an emotion even if you don't have a word for it

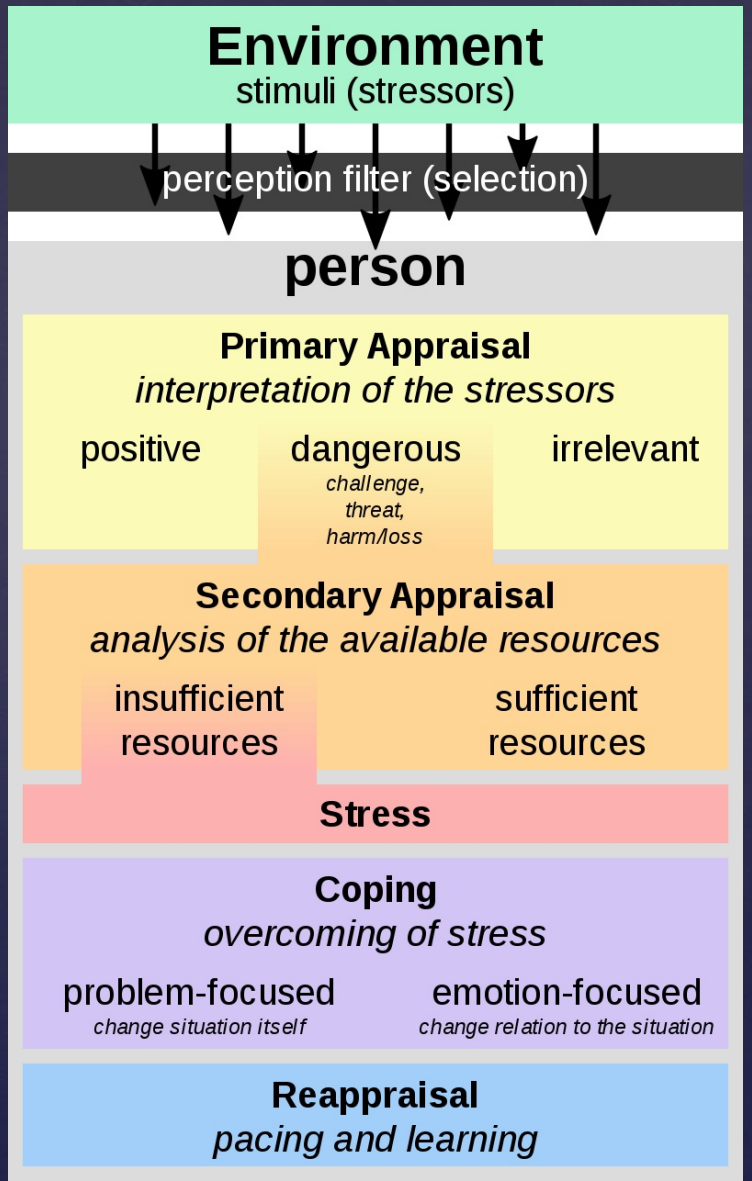
Emotions are Predictions

- Not just "interpretation": brain is not passively observing incoming data from the outside world.
- It creates a "simulation" or prediction of what it thinks might happen next.
- The brain prepares the body for the scenarios ahead of time, by redirecting blood flow to certain muscles or becoming more vigilant.
- Brain's default mode of operation: Your brain cannot help but constantly build predictive models of every experience you have, or any experience it thinks you might have.



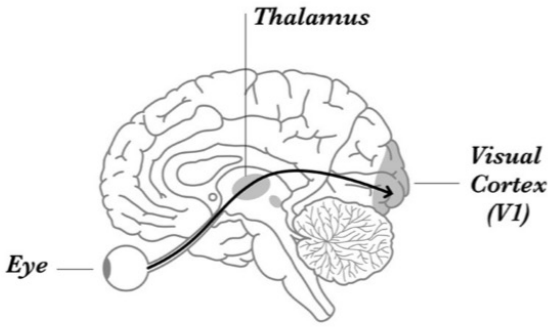
Appraisal theory of emotions

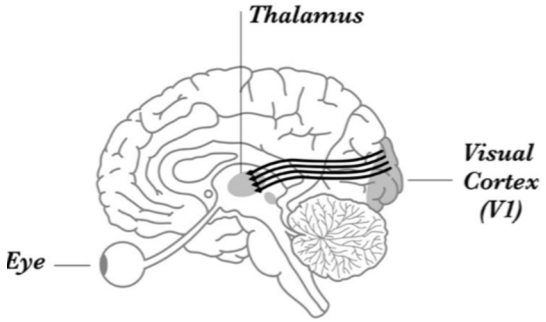
(Scherer, 2001)

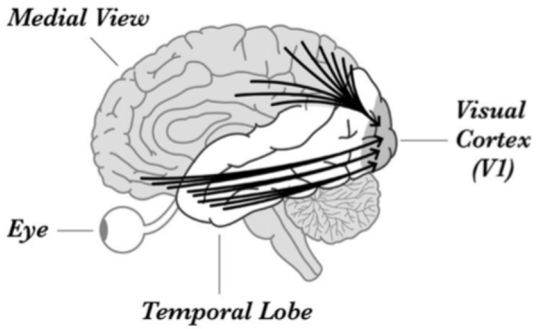


Profound conclusion

- The simulations we create in our heads are more real to us than the physical world.
- What we see, hear, touch, taste, and smell are simulations of the world, not reactions to it.
- The data coming in from our senses merely influences our perceptions, like a small stone skipping across a rolling ocean wave.
- This startling conclusion is reinforced by research on how humans see.

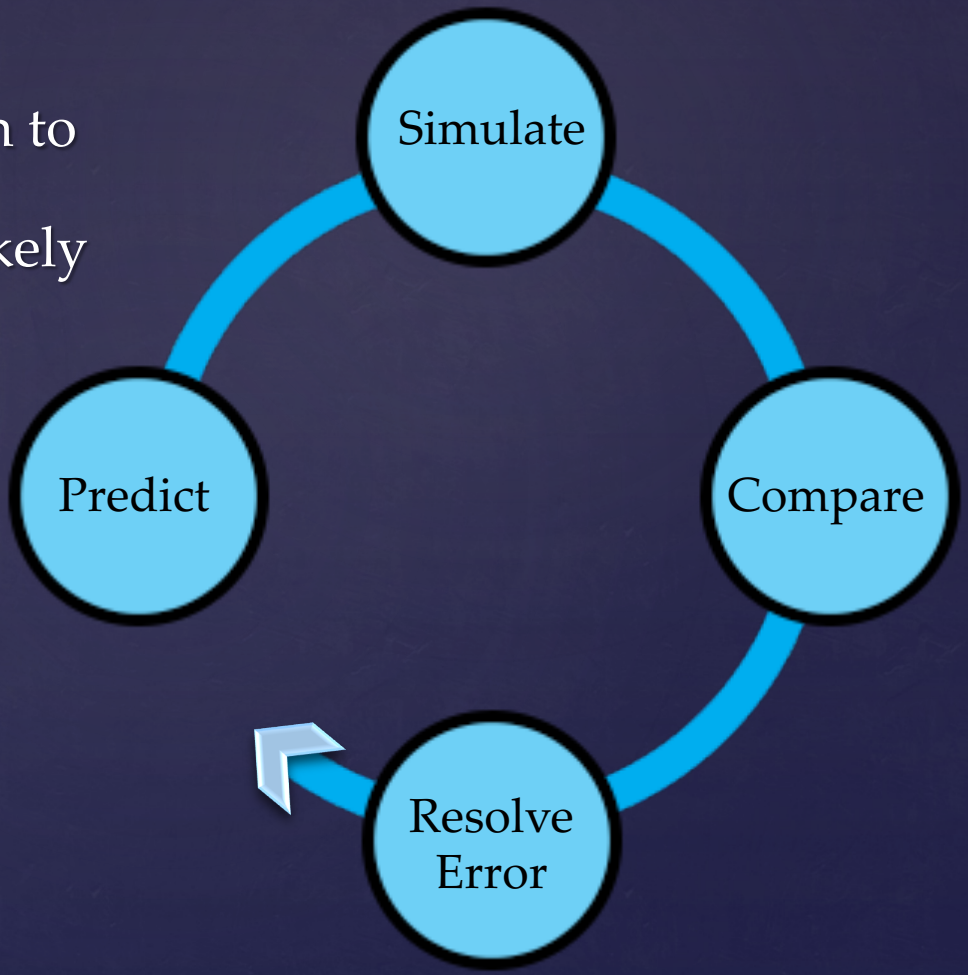






What does the brain do when its predictions are wrong?

- It can change its prediction to match what the senses are telling it. But it is just as likely to do the opposite.
- Stick with the original prediction, and filter the incoming data so that it matches the prediction



Interoception and body budget

- The body is just another part of the external world that it must explain.
- Brain uses the very same mechanism to interpret sensations coming from inside the body.
- No objective meaning: They feel so intense because they're coming from inside you.
- Example: Ache in your stomach can be explained as:
  - Hunger (if you're sitting at the dinner table)
  - Impending sickness (if it's flu season)
  - Heartbreak (if you are going through a breakup)
  - Certainty that a defendant is untrustworthy (if you're a judge in a courtroom and haven't had lunch)
- The process of interpreting these bodily sensations is called interoception.

Interoception and body budget

- "Interoceptive network": The brain that takes in information from your internal organs and tissues, the hormones in your blood, and your immune system, among many others, and labels this information with a concept such as "hunger" or "heartbreak."
- "Body budget": Everything your body does, inside or out, requires energy.
- The brain makes predictions and issues corrections about when and where it thinks energy will be needed.
- Many of these "budgetary changes" we experience as emotional experiences.
- Emotions are concepts built by the mind out of pieces of sensory data, cultural knowledge, and a history of social interactions.
- Interoception evolved to balance our body budgets.

Experiential blindness

- Concepts are not just labels for the things we passively observe. They are necessary for us to perceive things in the first place.
- A concept serves as a lens (or sometimes, a filter) for what we are able to see in the first place.

- "Experiential blindness" – the inability to perceive what you don't already have a concept for.

Experiential blindness

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Experiential blindness

- Now you have a new concept in your brain. You've gained a "conceptual lens" that allows your brain to fill in the information that is missing.
- Our concepts allow us to perceive things in a world that always provides only incomplete, ambiguous information.

- External perception meets internal construction before you know what's happening.
- Self-fulfilling prediction: Even on a neurological level, you create your own reality.

Emotional Granularity.

- If someone doesn't have a concept to describe an emotion, they won't be able to perceive it.
- Granularty: The ability to construct and identify more precise emotional experiences.
- Low emotional granularity: Imprecise information about what is happening inside the body. It will be difficult to handle many of life's challenges. experientially blind to even their own feelings.
- High emotional granularity: Making sense of bodily sensations requires energy, and trying to sort a huge amount of sensory data into a broad feeling like.
- Affective realism: causes us to experience supposed "facts" about the world that are in fact created by our feelings.

Principle of Apparent Reality and Film viewing

- Coding reality: Fictional world VS. Artifact.
- Impression of reality created in the subject. Three dimensions (Potter 1988):
  - Magic-window reality: Belief in the literal reality of the television message.
  - Perceived utility: applicability to their own life of what viewers observe.
  - Identity reality: Feeling of closeness to the characters who appear in a particular program.

Film as an emotional stimulus

- The diegetic effect: The viewer as a witness inside the fictional world.
- Subject matter: The emotional stimuli of feature films can best be characterized by comparing them with an imaginary cross-section of episodes from the mundane reality of the everyday life of everyday people.
- Meaning structure: Appraisal (Emotion) + Action Tendency/ Readiness..

Principle of concerns

- Frijda (1993): Emotion regulates the interaction between the individual and the environment in that is directed toward realization of what is of importance to the individual, that is, his or her concerns.
- Emotion signifies that some concerns of the individual has been affected.
- If Movies evoke genuine emotions, then they also touch concerns.
- The concerns that may be touched on by watching a film are many and varied.
- Two Types of concerns:
  - Source concerns: Preferred states of the subject.
  - Surface concerns: Specific objects and aims.

Principle of Change

- A positive or negative turn of the events gives rise to an emotion.
- The intensity of the emotion is proportional to the magnitude of the change.
- The Canonic Course of the Film Narration:
  - A balance is disturbed, then restored.
  - The story has a recognizable middle: The complication.
- Emotion episode: A continuous emotion sequence resulting from the more or less continuous impact of one given event or series of events.
- Focused causal chain: Film story consists of a causal sequences of events with certain cohesion.
  - A limited number of characters are involved in separate and independent actions.
  - If there is more than one plot line, which is generally the case, these lines are integrated.
  - In the end, causality is based on psychological features of protagonists acting in a rational manner.

Principle of Change

- Situational Irony: The end situation of the film story is not always an improvement over all aspects of the disturbed equilibrium or the initial situation. (Ambiguity of meaning).
- Excitation transfer: Involves the reinforcement of an emotional situation by previous but unrelated experiences that have a high activation value.
- The scenic structure serves to demarcate emotions in time.
- Certain scene may evoke limited-emotion episodes that are embedded in the larger emotion episode provided by the film as a whole.
- The hierarchy of emotion episodes corresponds to that of the action structure of the film story, which also contains embedded episodes, each consisting of an attempt to realize a subgoal.

Types of Emotional experience by the film viewer.

	EMPATHY	NO EMPATHY	
FICTION EMOTIONS	**Feelings** **Emotions proper** **Enjoyments and desires**	**Feelings** **Emotions proper** **Enjoyments and desires**	**Interest**
ARTEFACT EMOTIONS	**Emotions proper** **Enjoyments and desires**	**Emotions proper** **Enjoyments and desires**	**Interest**

Schemes of Color

The color contributes to give character to a tape, marks its intensity, emphasizes its emotion and even favors its contextualization, becoming a hallmark of cinematographic identity.

Color Schemas:

Complementary harmony

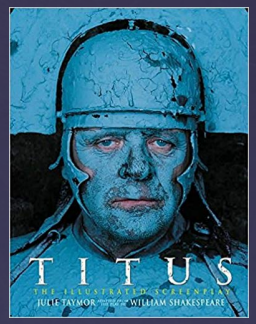
Combined harmony

Analogous harmony

Triadic harmony

Tetradic harmony

Use of Color

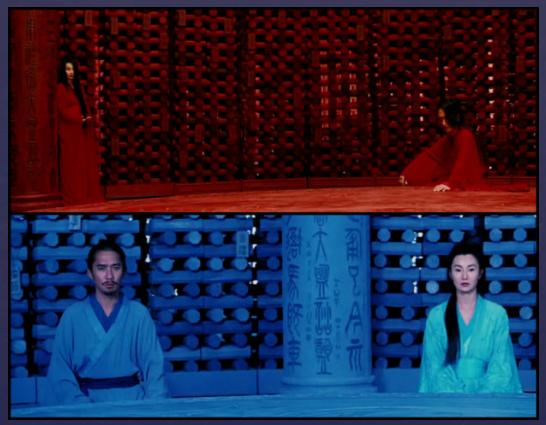


Pictorial color

It gives the film an artistic tone, since it evokes the color of the paintings.

Historical color

With a nostalgic air, it aims to transport the viewer to a certain time.



Symbolic color

Used to accentuate certain effects or details of a scene.

Psychological color

Color that produces a certain mood.

Music cognition

- Adorno (1947): Film music uses standard configurations to interpret the meaning of the action for the less intelligent members of the audience.

- Film music: Regulates meaning by its characteristics.

The meaning of a sequence can be changed with the use of different music selection.

Music and Emotions

- Appearance emotionalism (Kivy, 1989): Similar to Human faces, music has universal recognizable "marks" that express a certain emotion.
- The persona Theory (Levinson, 1993): We perceive music as an agent (person) with whom we emphasize.
- Theory of expressive meaning (Maus, 1997): the music can be experienced as a genuine expression of emotion by the fictional protagonist, and listeners engage with the unfolding psychological development of the protagonist just as they do when engaged with the fictional characters in a movie or a play.
- Arousal Theory (Justin & Västfjäll, 2008): music can arouse emotions or cause us to simulate (imagine) experiencing some emotion or sequence thereof.

Group assigment

- Identify fictional emotions that the movie elicits, provide some examples, and reflect on the intentionality.

- Identify artefact emotions that the movie elicits, provide some examples, and reflect on the intentionality.

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