Emerging Affect Theories & Their Relevance for Psychotherapy

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Learning Objectives

- Knowledge of emotion theories & data from affective science
- Implications for practice
- Broader relevance - “take home” messages

Core “Take Home” Messages

- Emotions are complex – easy answers unlikely to be the final word

- Much skepticism is necessary – beware of popular theories (e.g., right brain vs. left brain)

- Trends:
  - Emotion & cognition interdependent
  - Emphasis on the underlying mechanisms

Outline

- **Historical perspective**
- Affective science research
- Implications for clinical practice
- Broader relevance – “take home” messages
- Conclusions

The Stormy History of Emotions

- Always a “hot” topic
  - Loved or hated
  - Denied (Stoics, behaviorists) …or glorified (Romanticism)
  - Pathological vs. adaptive

“Diseases of the Mind”

Immanuel Kant (1700’s)

vs.

“ reason is, and ought only to be, the slave of the passions”

David Hume (1700’s)

Historical Views on Emotion: From the Liver to Neuromodulation

- From the ‘mortal soul’ (Plato) to the liver & heart (Galen)
- From dedicated components of the brain (limbic system, amygdala) to specific neural circuits to…
- Neuromodulation (Fellous, 2004): systemic, global effects across multiple brain structures…to
- …???

Evolving Views on Emotions in Psychology Research

- Behaviorism
  - "Out of sight, out of mind"
  - Impossible to measure so irrelevant
- Cognitivism
  - Difficult to measure so ignore
  - Early computer metaphors couldn't accommodate emotions
  - Emotions associated with dysregulation / pathology
  - Emotion viewed as resulting from cognitive processing
- Contemporary - affectivism?
  - Emphasis on adaptive functions of emotions
  - Multi-modal nature of emotions
  - Acknowledgment that we don't yet understand

History of Emotions in Therapy (1)

- Psychoanalytic
  - Emotions associated w/ pathology
  - “Repressed / disawoved affect”
  - “drive related” “need to be discharged or tamed”
  - Associated with (unconscious) conflict

- Interpersonal
  - “socially adaptive orienting tendencies”
  - Mediating satisfaction of genuine needs

(Greenberg & Safran, ‘89)

History of Emotions in Therapy (12)

- Behaviorist
  - Learned, maladaptive responses
  - Modified through deconditioning & exposure
- Cognitive
  - Result of cognitive appraisals
  - Modified through re-appraisal – cognitive restructuring
- Experiential / humanistic
  - “Orienting system” “provides organism with adaptive information”

(Greenberg & Safran, ‘89)

Contemporary View: Psychology

- Emotions are fundamentally adaptive
  - Mediate information processing
  - Closely coupled w/ cognition – may not be separable
  - Motivate behavior necessary for survival
  - Facilitate social interaction, including attachment

BUT

- Emotions can become maladaptive
  - Affective ‘signal’ can become distorted
  - Emotions can become dysregulated (too much, too little, wrong ones)

Contemporary View: Neuroscience

- No single location, region or circuit dedicated to emotion generation
  - No "emotional homunculus" (Fellous, 2004)
  - 'Older' subcortical & 'newer' cortical structures involved
- Neuromodulatory effects play a key role in affective processing
  - Systemic effects across large population of neurons
  - Mediated by 'free-floating' neurotransmitters - not by specific synaptic connections
  - Modify manner in which neurons process information (speed, sensitivity)
  - Multiple time scales (msec, hours, days)

"Historically, theories of emotion have often been far more subtle and complex than the methods available to test them."

(Ellsworth & Scherer, 2005)

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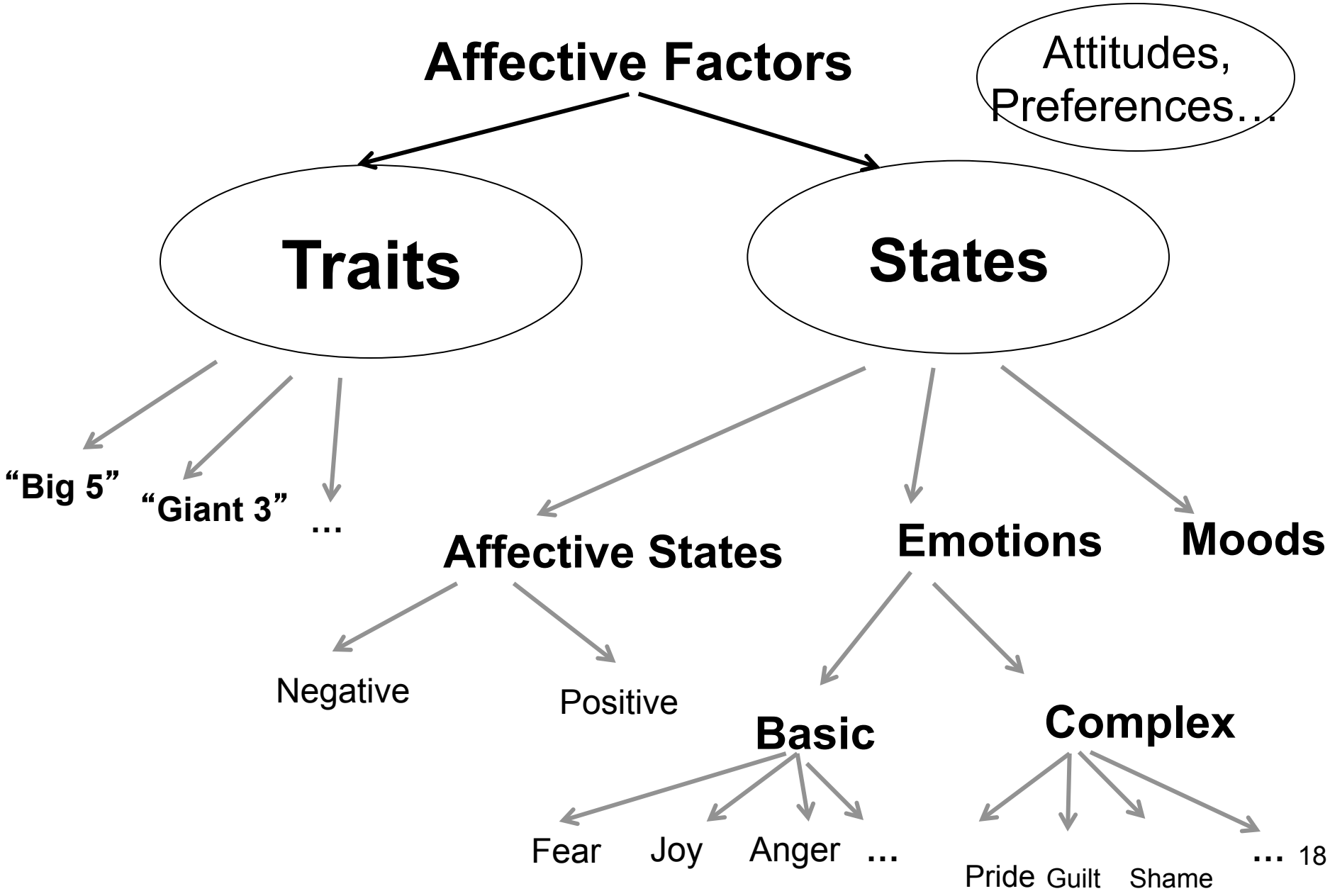
Affective Science

http://www.mrc-cbu.cam.ac.uk/~andyc/neuropsychology.php

Topics

- Different types of ‘affective factors’
- Definition
- Multi-modal nature of emotions
- Multiple roles of emotions
- Core affective processes – generation & effects
  - Emotion generation (will focus on cognitive appraisal)
  - Emotion effects on cognition & behavior

A Taxonomy of Affective Factors



Transient States

- Affective States
  - Undifferentiated positive / negative assessments, dispositions & behavioral tendencies
    - Like -→ approach; Dislike -→ avoid
- Emotions (seconds – minutes)
  - "Basic emotions" (6-10 fundamental emotions)
    - Fear, anger, joy, sadness, disgust, surprise
  - Complex emotions (many cognitively-complex emotions)
    - Jealousy, pride, shame, guilt…
- Persistent mood states (hours – days – months)
  - Similar types as 'basic' & complex emotions (fearful, happy, sad, angry) Perceptually & behaviorally diffuse

Definition?

“there is little consensus about what emotion is, and how it differs from other aspects of mind and behavior”

(LeDoux, 2012)

So What ARE Emotions?

- Evaluative judgments of the:
  - World
  - Others
  - Self

  - … in light of our goals & beliefs

    (hence large individual & cultural differences)

- …motivating & coordinating adaptive behavior
  (hence associated with physiological changes & expression & specific action tendencies)

- **“emotion is about motivation”**
  - Positive & negative feelings, readiness or tendency to cope, cues for cognition & action

- **“cognition is about knowledge”**
  - Learning, memory, symbol manipulation, thinking & language“ (Izard, 1993, p. 75)

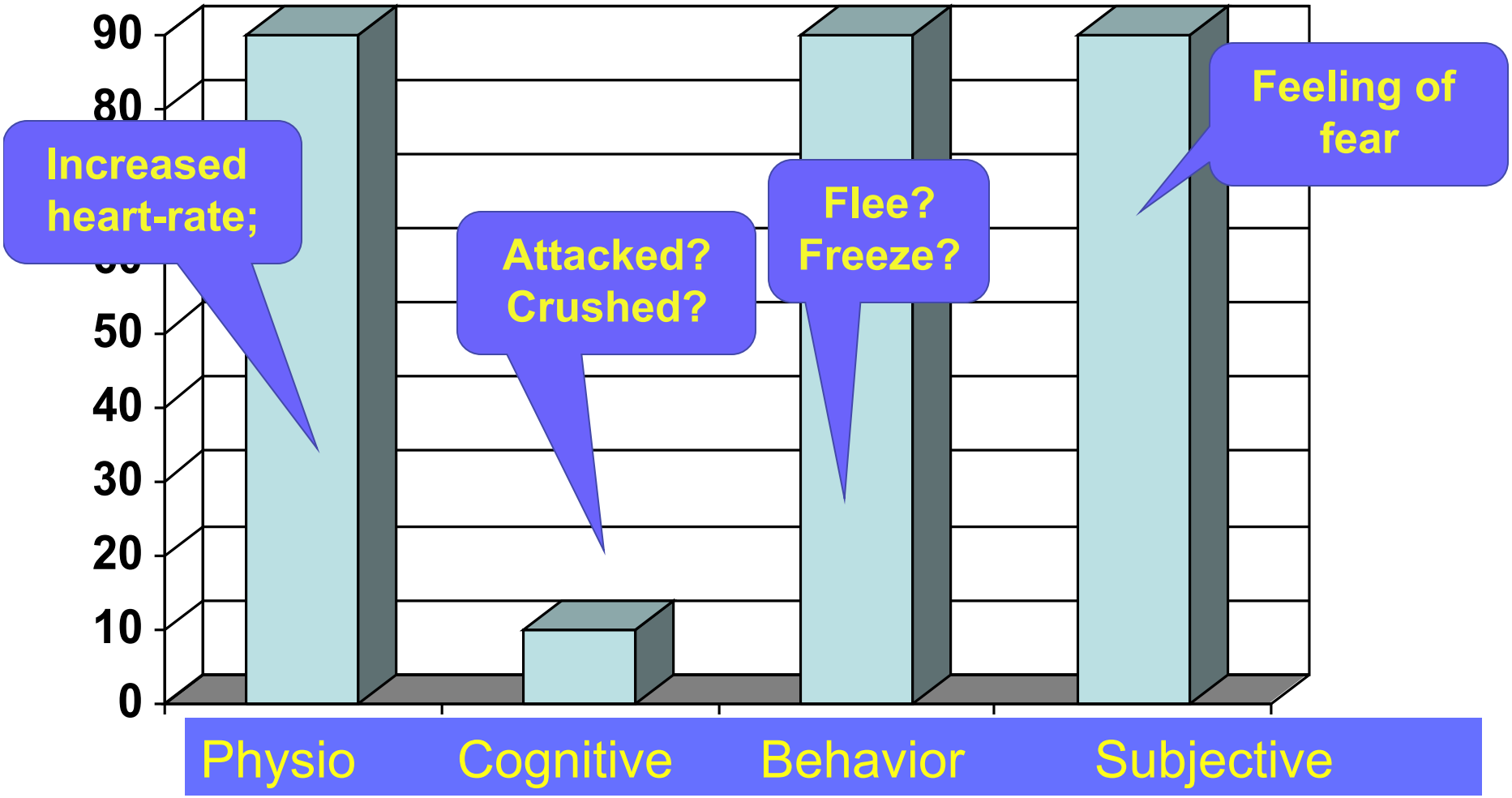
- **BUT**
- They are interdependent processes
  - May not be possible to decouple them

The Many Faces of Emotions

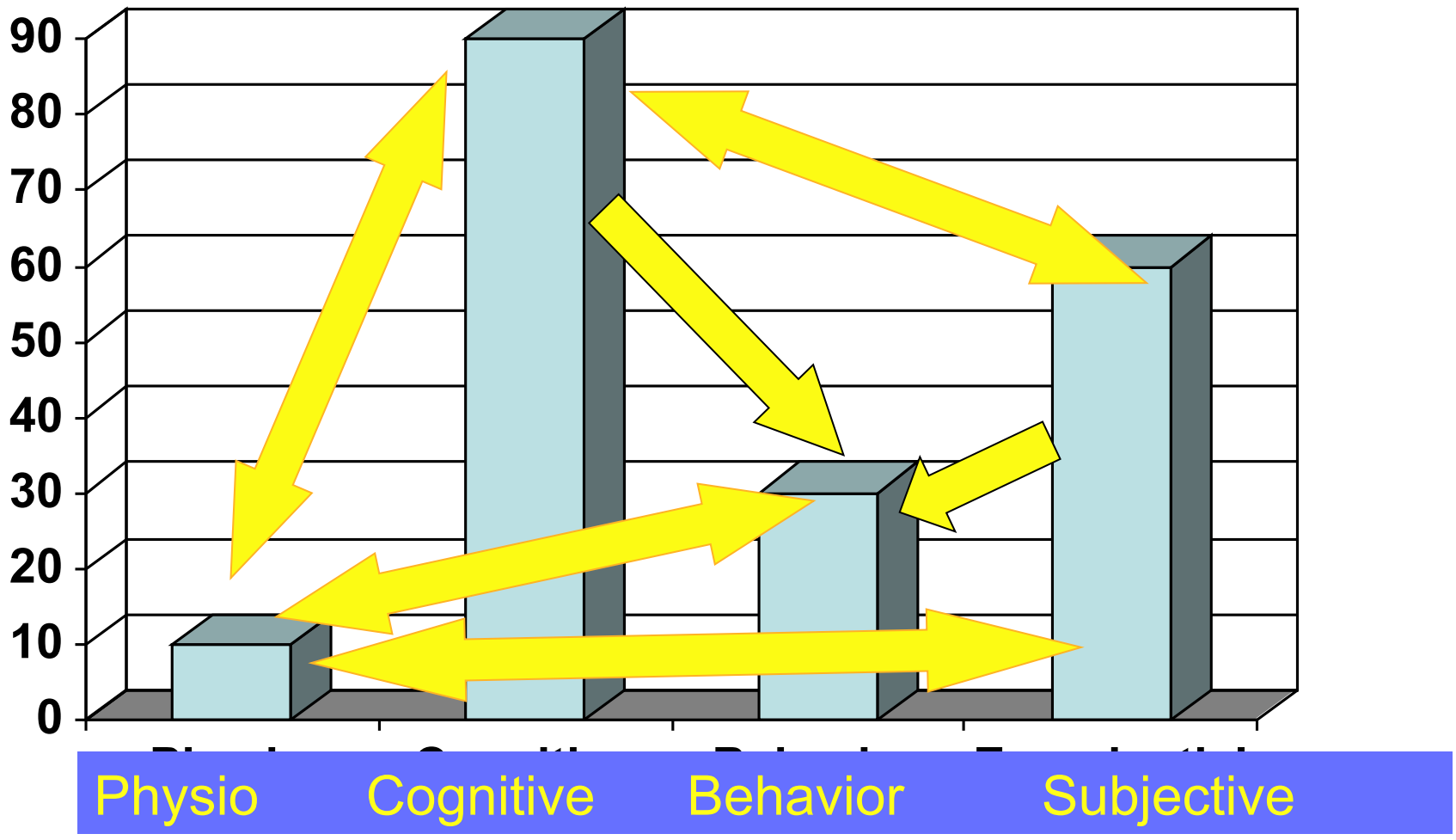
- Manifested across multiple*, interacting* modalities:
  - Somatic / Physiological (neuroendocrine - e.g., heart rate, GSR)
  - Cognitive / Interpretive ("Nothing is good or bad but thinking makes it so…")
  - Behavioral / Motivational (action oriented, expressive, 'visible')
  - Experiential / Subjective ("that special feeling…", consciousness)

- Much terminological confusion can be attributed to a lack of consideration of these multiple modalities of emotions
  - e.g., Is emotion a feeling or a thought? - It's both

Simple Fear "Signature": Large, Approaching Object



Feedback & Interactions Among Modalities



Do Different Emotions Have Unique Signatures Across these Modalities?

- Cognitive
  - Positive emotions: positive view of self, world, other
  - Negative emotions: negative view of self, world, others
  - Fear / anxiety: threat focus, narrow attentional focus

- Behavioral
  - Positive emotions → approach tendencies
  - Negative emotions → withdraw tendencies…

    … but also fight for anger - an approach behavior

Do Different Emotions Have Unique Signatures Across these Modalities?

- Physiological
  - Differences exist, but physiology alone unlikely to differentiate among all emotions
  - Jury still out on even the ‘basic’ emotions – but it appears that SOME may be distinguishable via ANS signatures
  - More ANS differences among negative than positive emotions
    - “just sit back and relax” does not require much metabolic support
    - + emotions as ‘undoers’ of ANS activation produced by - emotions (Levenson, 1994)
- Subjective
  - Yes – but difficult to characterize objectively

Anger

- Trigger:
  - Progress toward a goal hindered… esp. by other agent

- Cognitive:
  - Focus attention (very strong effect)
  - Assign blame to perceived causal agent
  - Overestimate likelihood of success
  - Try alternate strategies

- Physiological: ANS highly activated
- Behavioral:
  - Eagerness to act
  - Fight & aggression
  - Social: prevent (or facilitate) aggression

Fear

- Trigger:
  - Perceived danger to important self- or other-protective goals
- Cognitive:
  - “Tunnel vision” (attentional narrowing focus on threat)
- Physiological:
  - Mobilize energy level – ANS activated
- Behavioral:
  - Motivate flight & avoidance (& sometimes freeze)
  - Motivate protective behavior

Sadness / Depression

- Trigger:
  - Loss or inability to achieve important goal

- Cognitive:
  - Focus on negative evaluations of situation / self (past, present, future)
  - Slower, more deliberate & analytical processing… to prepare for alternative strategies
- Physiological - Lower ANS activity

- Behavioral:
  - Avoidance / withdrawal (resource conservation following (repeated) failure or adverse event)
  - Slower motor reactions
  - Social: Communicate need for help (can strengthen social bonds)

Emotions Are Not All Created Equal

- Different elicitors & behaviors.. Of course
- BUT also vary in:
  - Consistency/ diversity of elicitors & responses
  - Sustainability & decay
    - Anger decays most slowly after initial trigger
  - Infusive potential - generalization over time
    - Anger is very high
  - Contradictory action tendencies
    - Fear: flee or freeze?
  - Relative frequency
    - anger most frequently experienced… in the US (Lerner & Tiedmus, 2006)
  - Ability to capture attention
  - Accurate recognition (facial expression)
    - Anger most accurately recognized

Implications for Practice:

Affective 'Literacy'

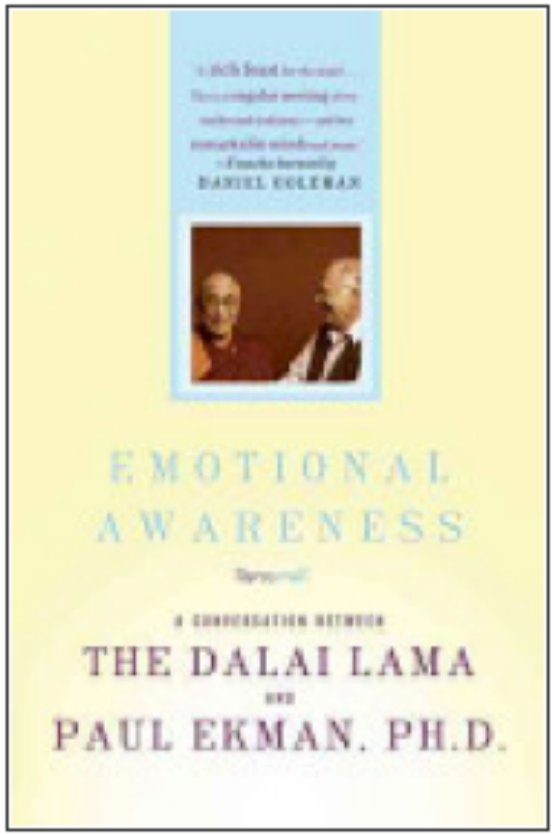
"Emotions provide us with important information about our internal & external environmens, & it may be necessary for idividuals to identify & understand their emotions before they decide if & how to regulate them." (Campbell-Sills & Barlow, 2007)

Affective Literacy

- Important element of emotional intelligence – awareness of own emotions
- Much of therapy focuses on helping clients ‘get to know’ their affective self

Emotional Awareness: Overcoming the Obstacles to Psychological Balance and Compassion

The Dalai Lama
& Paul Ekman



Your Thougths…

- How can more refined conceptualization of emotions promote affective literacy?
- Multi-modal emotion signatures:
  - Triggers / elicitors
  - Cognitions & cognitive processes & biases
  - Physiological
  - Behavioral / expressive
- Variable characteristics of emotions:
  - Diversity of elicitors & responses
  - Sustainability & decay
  - Infusive potential
  - Frequency
  - Ability to capture attention

Emotion Roles

Roles
* Social coordination
* Rapid communication of behavioral intent
* Attachment

Roles
* Motivation
* Homeostasis
* Adaptive behavior

Interpersonal

Intrapsychic

HOW?
Express emotions via:
-Facial expression
-Speech (content & properties)
-Gesture, Posture
-Specific actions

HOW?
- Emotion generation (appraisal)
- Emotion effects (processing biases)
- Global interrupt system
- Goal management
- Prepare for coordinated actions

Intrapsychic Roles

- Perform rapid, undifferentiated processing of salient stimuli (avoid danger, get food)
- Monitor & regulate goal-directed behavior
  - Re-prioritize goals when unexpected cues arrive
- Motivate behavior & learning
  - Implement reward & punishment
  - Enable boredom & curiosity
- Trigger & prepare for fixed behavioral routines
  - Distinct emotions linked to distinct desired behavior – "action tendencies"
  - Coordinate multiple systems necessary for adaptive behavior (cognition: attention; physiology: energy; motor: act)

Social Roles

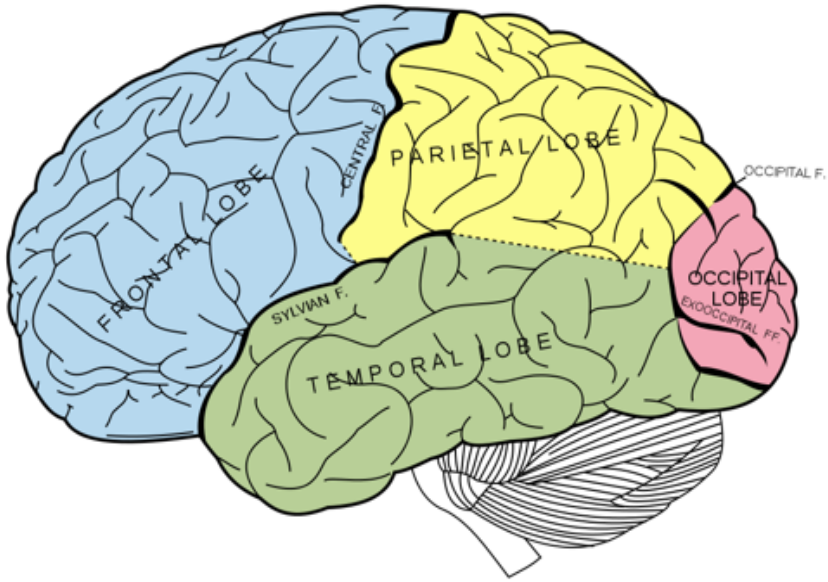
- Coordinate activities among individuals
  - Coordination of group behavior
  - Mediation of relational behavior
- Facilitate rapid communication of internal state & behavioral intent (via visible, non-verbal cues)
  - Pleasure vs. displeasure (frown / smile)
  - Imminent attack vs. withdrawal
- Mediate attachment behavior
- Much similarity across cultures & species
  - Darwin – 1872: The Expression of the Emotions in Man and Animals

Core Affective Processes

Generation of Emotions

Effects of Emotions (on cognition & behavior)

Stimuli

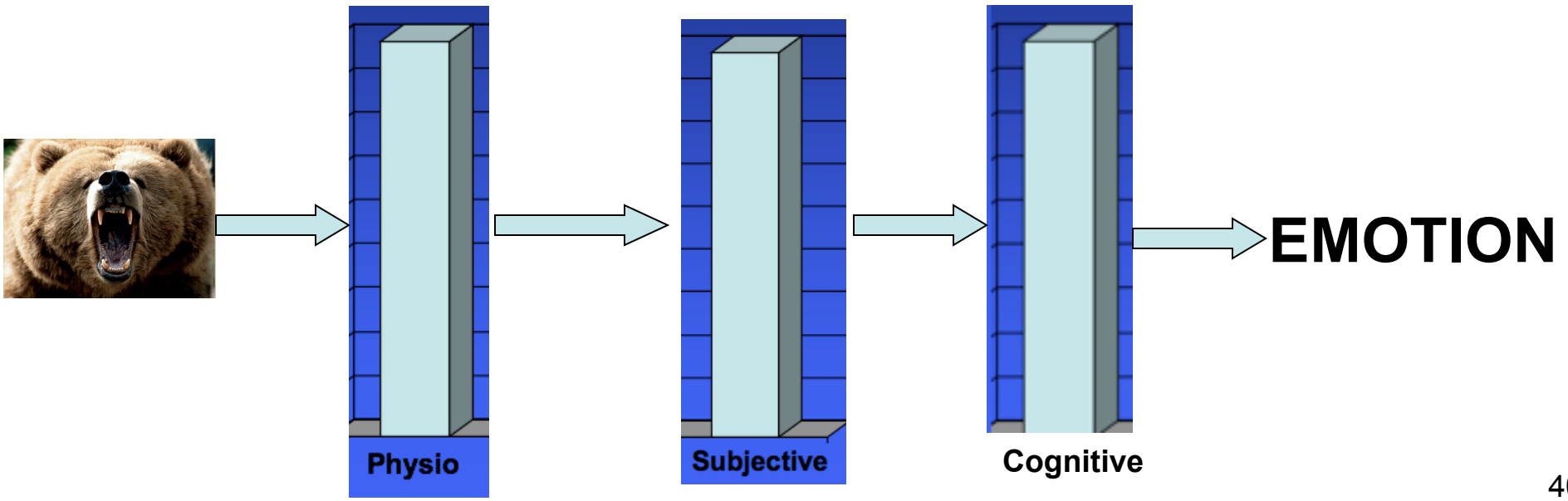


Emotions

Emotion Generation: A Bit of History

- Historical controversy regarding how exactly emotions are generated

- Alternative theories can be characterized by the causal role & location of the distinct modalities in the generation sequence



Peripheralist ("Feeling") Theories

- Physiological responses "precede & determine emotional experience"

- Emotion is the interpretation of a physiological / bodily state
  - Emotion is "the feeling of bodily changes" (James, 1884)
  - "we feel sorry because we cry, angry because we strike, afraid because we tremble, & [it is] not that we cry, strike, or tremble, because we are sorry, angry, or fearful"

- See bear → run → feel adrenalin & self running
  -→ interpret as fear

Variations on a Theme

- BUT - Subjective feelings alone can't differentiate among the many emotions we can experience

SO

- Additional brain structures added to help differentiate (hypothalamus) (Cannon, Papez – early 1900's)

- Facial musculature added – "facial feedback theories" (Tomkins, Izard, Ekman)
  - Smile → feel happy

Cognitive Appraisal Theories (1)

- Emotions result from cognitive interpretations (appraisal) of stimuli (events & situations)
  - Internal & external; real & recalled & imagined
  - "Nothing is good or bad but thinking makes it so"
    … BUT - not necessarily *conscious, deliberate* thinking!

- Emotions arise when stimuli match particular 'emotion elicitors'
  - Large, approaching object -→ triggers fear
  - Unhelpful customer service person → triggers anger
  - Child wins a contest → triggers pride, joy

Cognitive Appraisal Theories (2)

- Dominant theoretical perspective on emotion generation

- Two views:
  - Appraisal is the antecedent of emotions
  - Appraisal is the cognitive component of emotions – NOT an antecedent

- Multiple stages with distinct functions
  - Primary - situation assessment – “What’s going on?”
  - Secondary - coping assessment – “What can I do about it?”

Cognitive Appraisal Theories (3)

- Appraisal processes vary in their degree of complexity and cognitive involvement, ranging from:
  - Low-level, 'hardwired', species-specific triggers -→
  - Complex, culture-specific, idiosyncratic triggers

- Typically 3 levels proposed
  - Conceptual
  - Schematic
  - Sensorimotor (hardwired, species-specific)

  - Processing interacts at all levels

Emotion Generation via Appraisal (1)

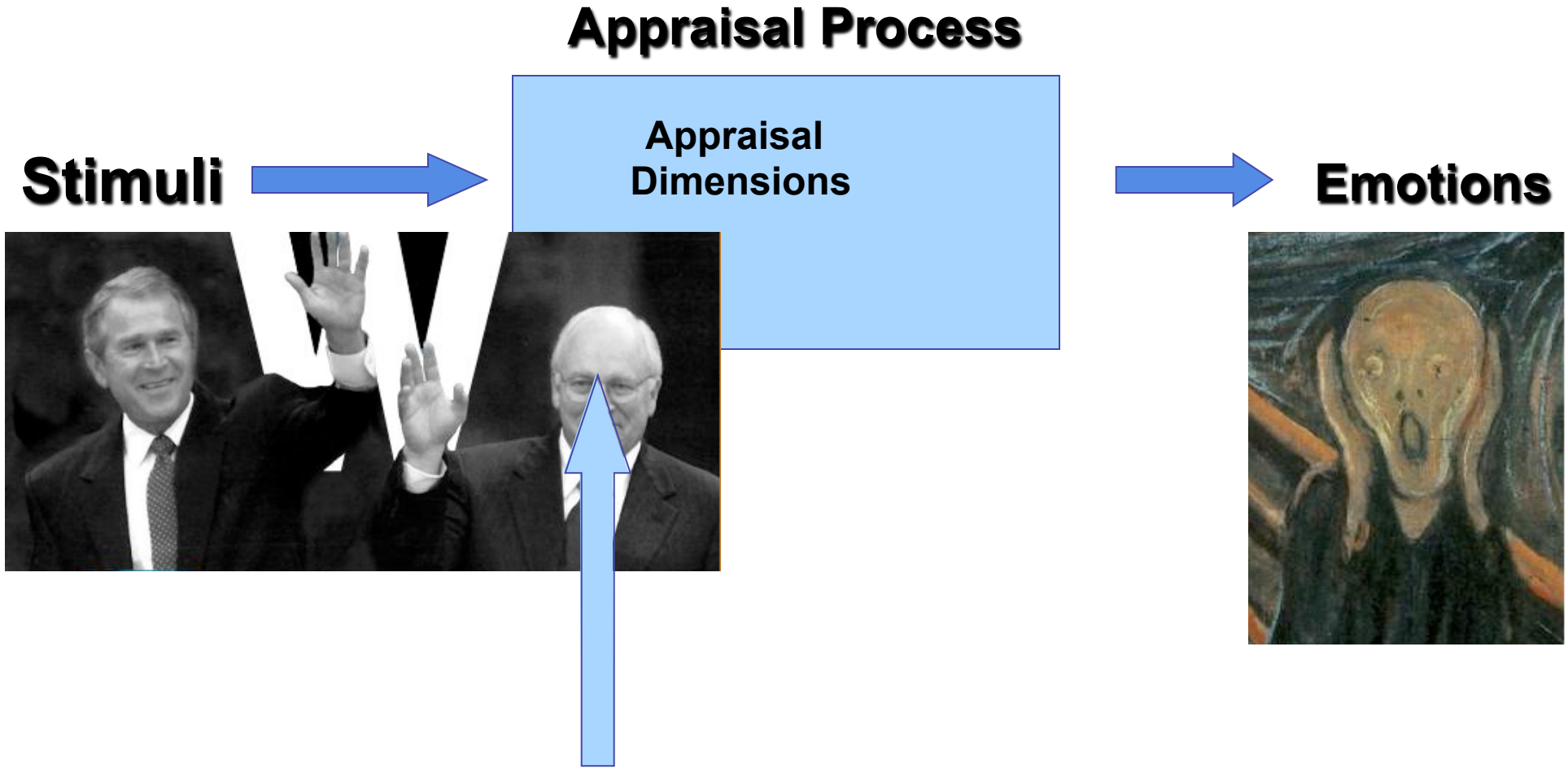
Appraisal Process

Stimuli

Appraisal Dimensions

Emotions

Emotion Generation via Appraisal



Emotion Generation via Appraisal

Appraisal Process

Stimuli → **Appraisal Dimensions** → **Emotions**

Domain-Independent Appraisal Dimensions

Novelty
Valence
Goal / Need relevance
Goal congruence
Agency
Coping potential
Social and self norms and values

STIMULI

FEAR

Novelty	*high*
Valence	*low*
Goal relevance	*high*
Agency	*other*
Outcome probability	*high*
Goal congruence	*low*
Urgency	*v. high*
Coping potential	*low*
Norms	

Appraisal & Coping

- Agent's ability to handle the situation is an important component of appraisal

- Coping strategies divided into:
  - Problem focused
    - Task
    - Social support
  - Emotion focused
    - Denial of problem
    - Venting (to control emotion)
    - Sour grapes (reappraisal of the desirability of the original goal)

Implications for Practice:

Emotion Regulation & Re-Appraisal

Established ER Strategies

- Suppression
- **Re-appraisal**
- Modification of action tendencies

Re-Appraisal (1)

- "If you are distressed by anything external, the pain is not due to the thing itself, but to your estimate of it; and this you have the power to revoke at any moment." Marcus Aurelius, Meditations

- "realistic & evidence-based re-interpretations" (Barlow)
  - NOT "Pollyanna-style" rationalizations

- Upset because flunked test
  - NOT – "It didn't matter anyway"
  - BUT - "It does matter, but not the end of the world, and I can study harder next time… and this is how I will do it"

Re-Appraisal (2)

- Modify cognitive appraisal to:
  - Induce different emotion
  - Reduce intensity of distressing emotion

- Does re-appraisal work?
  - Associated with higher + affect; lower – affect
  - Associated with improved sense of well-being

Your Thougths…

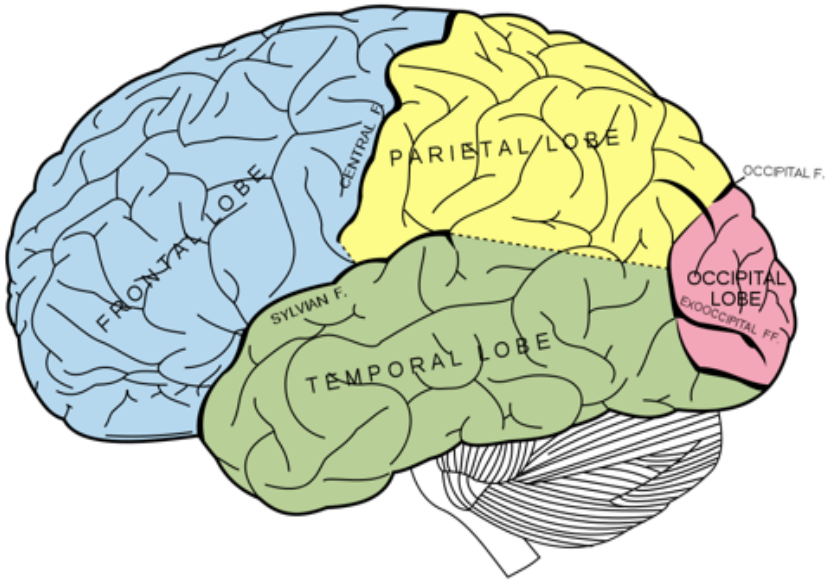
- How could we use the specific 'appraisal variables' to improve re-appraisal strategies?
- Appraisal variables:
  - Novelty
  - Goal relevance
  - Outcome probability
  - Agency
  - Norms
  - Valence
  - Goal congruence
  - Urgency
  - Coping potential

- How could we take advantage of multiple-modalities to facilitate emotion regulation?

Emotion Effects on Cognition & Behavior

Effects of Emotions (on cognition & behavior)

Stimuli



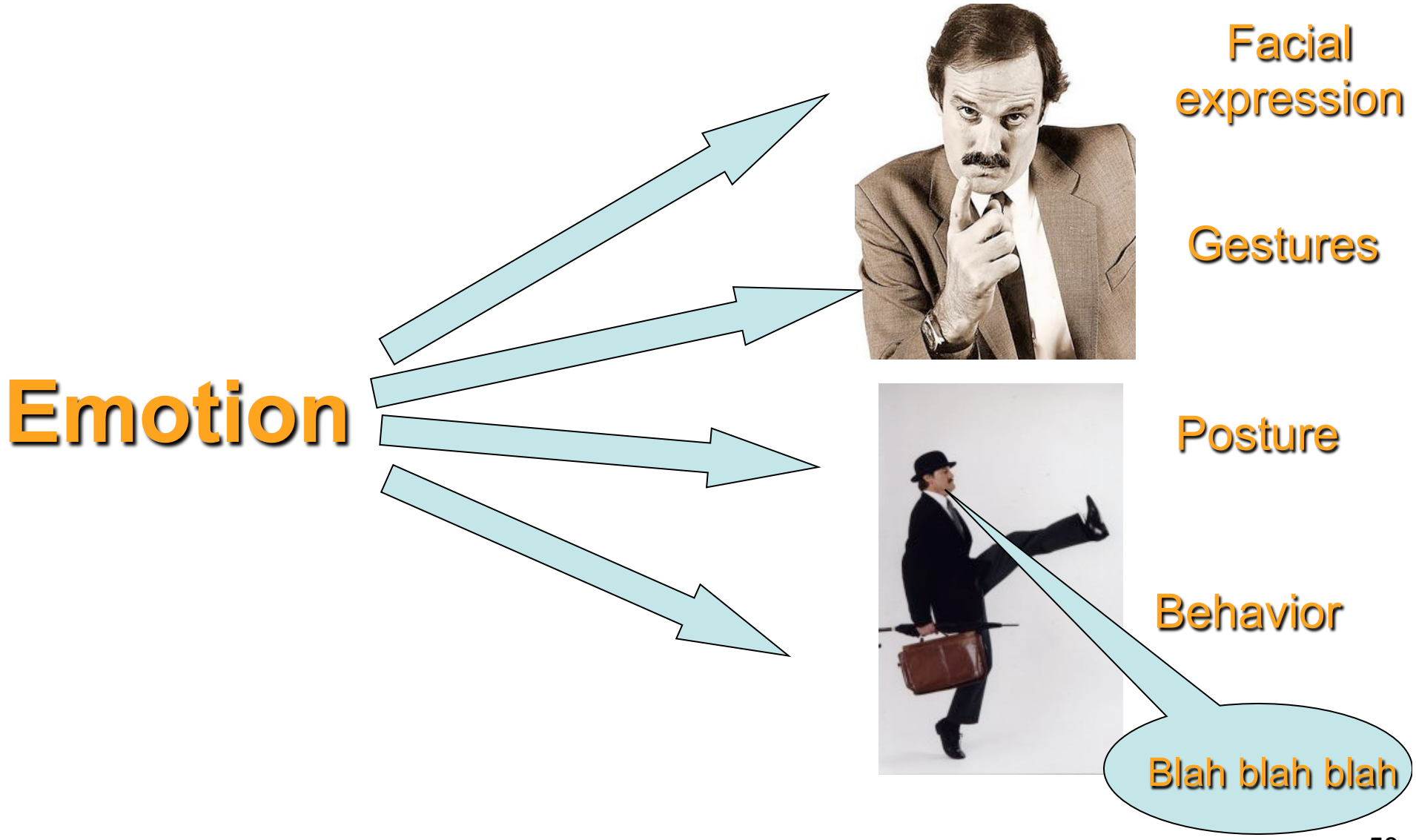
Emotions

Emotion Effects

- Effects on behavior
  - Expressive behavior (face, gestures…)
  - Action selection (specific behavior – fight, flee, freeze)

- Effects on cognition
  - Attention & memory processes
  - Perception
  - Cognitive processes (learning, planning, decision-making...)

Emotion ---> Expression & Behavior



Effects on Expression & Behavior

- Reasonably well understood …
  … from an "external" perspective

- Individual, contextual & cultural variability

- Variability in expression proportional to emotional complexity (= magnitude of cognitive component)
  - Fear: flee / freeze
  - Grief: ?
  - Schadenfreude: ??
  - Agape: ???

Effects on Cognition

- Emotion & cognition function as closely-coupled information processing systems
  - Complex feedback interactions

- Emotions influence fundamental processes mediating high-level cognition:
  - Attention speed & capacity
  - Working memory speed & capacity
  - Long-term memory recall & encoding
    - Mood-congruent recall (Bower, 1981; Bower, 1986)

- Influence on processing & contents and structure of memory
  - Transient biases influence processing
  - Long-term biases result in differences in long-term memory content & structure

Examples of Affective Biases

- Anxiety
  - Narrows attentional focus
  - Bias toward detection of threatening stimuli
  - Bias toward interpretation of ambiguous stimuli as threats
  - Promotes self-focus
- Anger
  - Increases risk tolerance
  - Bias toward impulsive action
  - Bias toward attribution of hostile intent in others
- Positive emotions
  - Increase estimates of degree of control
  - Overestimate of likelihood of positive events
  - Focus on “big picture”
- Biases can be adaptive or maladaptive, depending on context

The Delusion of Happiness

Dysphoric individuals have more accurate perceptions of reality (risks, expectations)

Implications for Practice:

Affective Biases on Attention, Perception & Cognition

Two Sides of Affective Biases

- In clients
- In clinicians

Affective Biases in Emotional Disorders

- Depression
  - Negative evaluation of self, world, future
- Anxiety (catastrophizing)
  - Overestimation of probability of negative event
  - Overestimation of consequences of these events
  - Focus on threat
  - Interpretation of ambiguous cues as threats

Affective Biases in Clinical Work

- Confirmation bias
  - We all have our favorite theories
- Availability bias
  - What we recall easily we believe
    - My last client had xxx; was helped by yyy
- We are human – we have moods & associated biases
  - Too positive?
  - Too negative?
  - Focusing on the wrong topic?

Your Thoughts?

- How might knowledge of specific affective biases on cognition help your clinical practice?
- Can you identify your own biases in clinical practice?

Individual & Cultural Differences

- "All people are the same. Some people are the same. No person is the same." (Revelle, 1995)

- We are all the same
  - "Basic" emotions
  - Similarities in triggers and expression across people, cultures

- We are all different
  - Sensitivity & reactivity / affective dynamics
  - Social emotions – idiosyncratic triggers
  - Expression – cultural differences

Some Questions

- Does everyone benefit from writing about experienced trauma?
- Is someone inhibited or just not as emotionally expressive?
- Is emotion expression always a good idea?
  - Anger?

“Take Home” Message

- Significant individual & cultural differences exist
- … in triggering of complex emotions
- … in regulation
- … in expression
- ... in distress tolerance

- Differences due to:
  - Neurophysological differences – temperament, reactivity
    - Evidence that BPD individuals more reactive
  - Cognitive-affective schemas – experience & individual & cultural norms
    - Influence emotion generation – type & intensity
    - Influence type & nature of affective expression & behavior

Outline

- Historical perspective
- Affective science research
- Implications for clinical practice
- **Broader relevance – “take home” messages**
- Conclusions

Broader Relevance

- Education & Training:
  - Add affective science to SW curricula
  - Promote training in emotional intelligence & ‘affective health’ skills in schools
- Encourage research
  - Numerous open questions
  - Encourage multi-disciplinary collaborations
  - Promote mechanism-based perspective
- Policy
  - Support affective education & research
  - Reimbursement for prevention – ‘affective literacy’

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Summary

- Emotions mediate key survival functions in biological agents
  - Mediate interpersonal behavior
    - Communicate behavioral intent
    - Mediate attachment
  - Coordinate mental & physical processes
    - Recognize & respond to threat
  - Coordinate multiple systems

- Emotions exert profound influences on cognitive processes
  - Fundamental processes: attention & memory (speed, capacity, encoding, recall)
  - Higher-level processes: decision-making, learning, planning

Conclusions

- Emotions are fundamentally adaptive…
  but can become distorted
  - Due to trauma, attachment failures, genetics

- Multi-modal phenomena
  - Either / or thinking unlikely to be productive
  - Closely linked with cognition

- Emerging theories & findings support
  - Increasing understanding of mechanisms
  - More accurate assessment of affective dysfunction
  - More targeted treatment approaches
  - Customization of treatment

So Where Does This Leave Us?

- Better informed – early misconceptions about emotions corrected

- Skepticism is essential
  - Today's news can be tomorrow's hype
  - Much new understanding, much we don't know

- Optimistic – more refined theories & more data coming

The Nature of Emotions

Thank you!

Questions? Comments?

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