

Richard D. Lane, M.D., Ph.D.  
Professor of Psychiatry,  
Psychology and Neuroscience  
The University of Arizona  
Tucson, Arizona

**Memory Reconsolidation,  
Emotional Arousal and the  
Neuroscience of Enduring Change:  
Implications for Psychoanalysis**



**fulbrightaustria**

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freud *museum*  
Sigmund Freud Privatstiftung  
Berggasse 19, 1090 Wien

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# NEUROSCIENCE OF ENDURING CHANGE

*Implications for Psychotherapy*



EDITED BY  
RICHARD D. LANE  
& LYNN NADEL

OXFORD

## This Week's Reading

*Int J Psychoanal* 2007;**88**:843–60  
10.1516/ijpa.2007.843

**The foundational level of psychodynamic meaning:**

**Implicit process in relation to conflict,  
defense and the dynamic unconscious**

BOSTON CHANGE PROCESS STUDY GROUP (BCPSG)<sup>1</sup>  
(Final version accepted 11 September 2006)

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**The Affective Origin and Treatment  
of Recurrent Maladaptive Patterns**

*Richard D. Lane*



# Lecture #2

## Recurrent Maladaptive Patterns

### What is the Problem We're Trying to Treat?

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- Freud: Repetition compulsion / Death instinct
- Current psychodynamic approach to RMPs
- RMPs as schematic memories – the internal working model of the social world
- BCPSG and the implicit process of relational knowing
- Updating foundational psychodynamic concepts:  
unconscious, development, defenses, Rx
- A computational perspective on RMPs



# Freud's Concept of Repetition Compulsion

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- Freud's use of the concept of "repetition compulsion" (*Wiederholungszwang*) was first defined in the 1914 article "Remembering, Repeating and Working Through."
- Repetition compulsion is the unconscious tendency of a person to repeat a traumatic event or its circumstances.
- This may take the form of symbolically or literally re-enacting the event, or putting oneself in situations where the event is likely to occur again.



# Freud's Concept of Repetition Compulsion

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“The patient does not *remember* anything of what he has forgotten and repressed, he *acts* it out, without, of course, knowing that he is repeating it ... For instance, the patient does not say that he remembers that he used to be defiant and critical toward his parents' authority; instead, he behaves in that way to the doctor.”



# Recurrent Maladaptive Patterns: An Expression of Implicit Emotional Memories

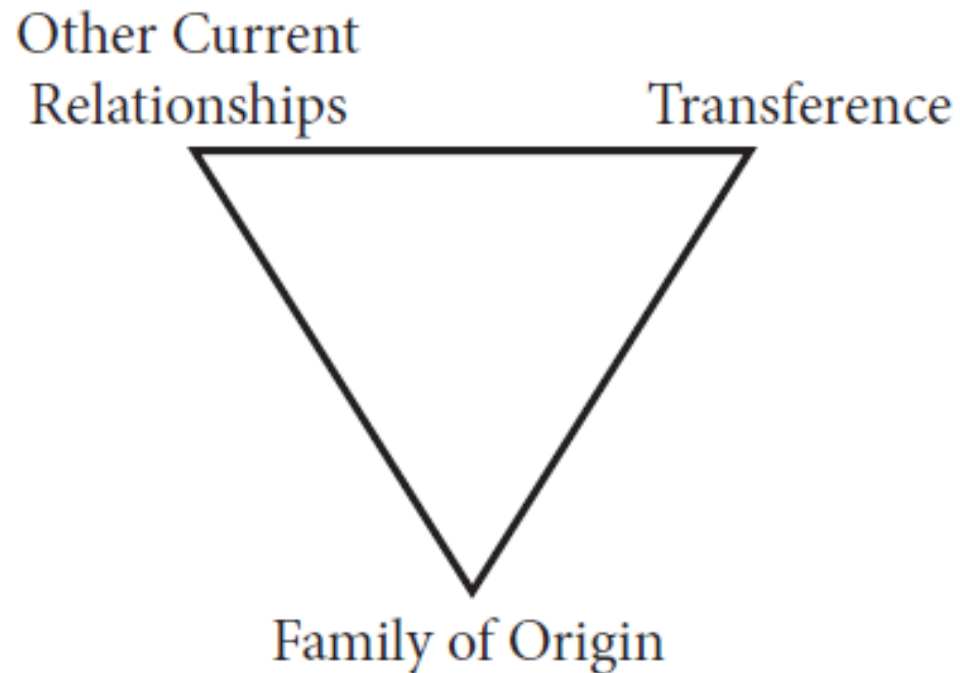
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- Clients often come to psychotherapy because they are unhappy with aspects of their social or occupational lives.
- They are typically unaware that this is part of a behavioral pattern triggered by interpersonal situations that are “reminders” of problematic situations from the past.
- The problematic response to these situations consists of behavioral patterns that aim to ensure **avoidance** of the experience of intolerable emotion.

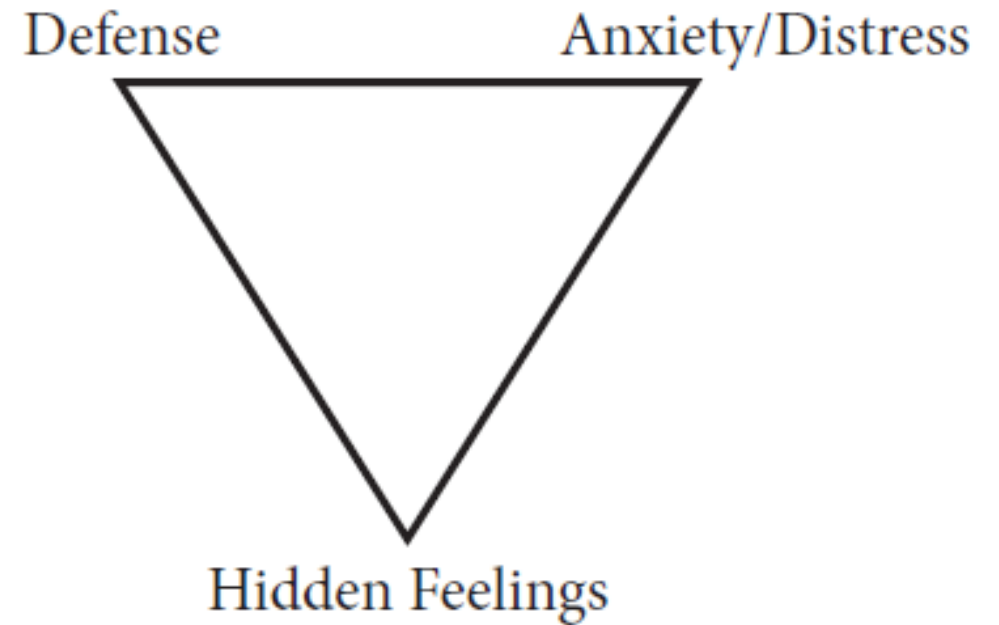


# Karl Menninger's Triangle of Conflict (Intrapersonal) and Triangle of Insight (Interpersonal)

Triangle of Insight



Triangle of Conflict





# Example of a Recurrent Maladaptive Pattern: The Case of Becky

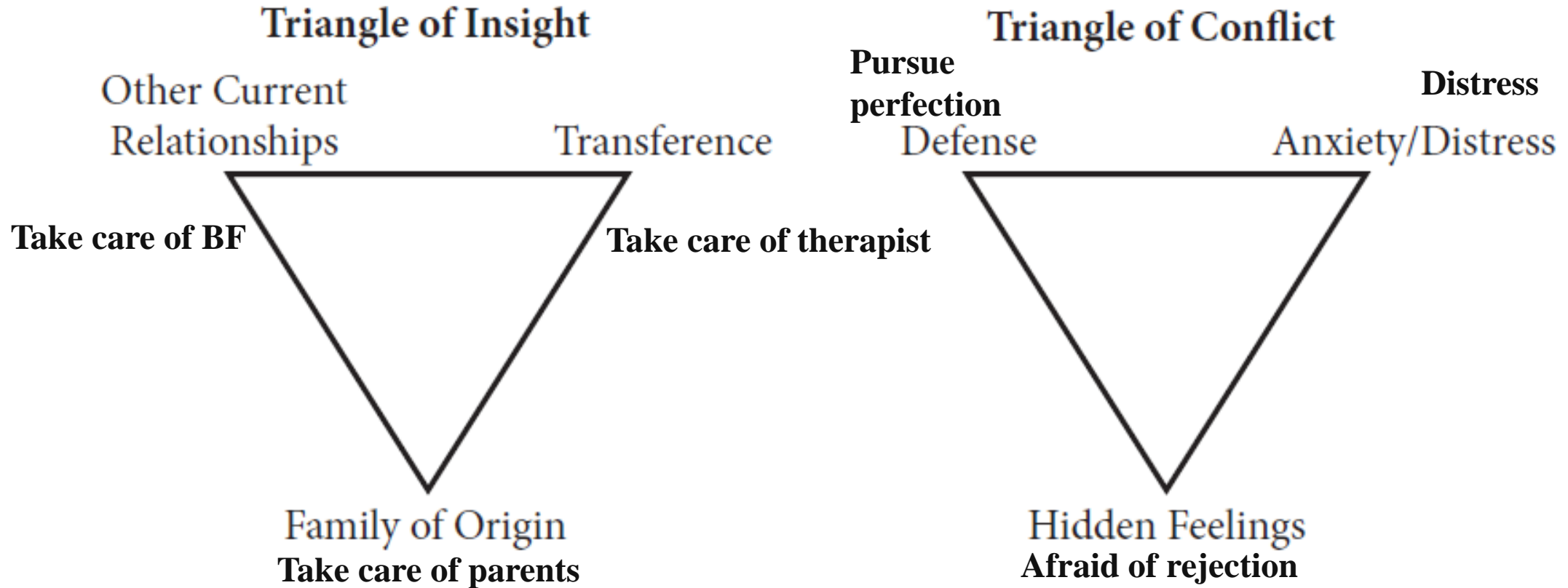
(Hanna Levenson – APA Video)

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- Mother was alcohol dependent and required that Becky attend to mother's needs
- Father was demanding and expected top performance
- Becky became perfectionistic and learned not to impose her needs on others
- She loved her boyfriend but he was often inconsiderate
- She kept her feelings to herself and often cried herself to sleep
- Therapy involved paying attention to her **emotional pain**, **recognizing her needs**, coming to feel that **she was worthy** of being treated well, and **taking action** in her relationships to increase the likelihood that her needs would be met



# Karl Menninger's Triangle of Conflict (Intrapersonal) and Triangle of Insight (Interpersonal)





# Linking Symptoms and Recurrent Maladaptive Patterns

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- Symptoms arise when the avoidance function of the “triangle of insight” does not continue to work adequately
- The intolerable emotional distress that was avoided is now consciously experienced
- Symptoms may be treated/improved by medication, symptom-focused psychotherapy and/or the evolution of events
- As long as the RMP is unaltered the risk of recurrence is high
- Psychotherapy to alter the RMP leads to better symptomatic improvement (vs. medication alone) and much lower risk of recurrence



# Schemas

- Definition of Schemas:
  - superordinate knowledge structures that reflect *abstracted commonalities* across multiple experiences, exerting powerful influences over how events are perceived, interpreted, and remembered” (Gilboa & Marlatt, 2017)
  - internally stored representations of stimuli, ideas or experiences that influence automatic and strategic/conscious information processing (Beck & Haigh, 2014)
- Semantic memories
- Internal Working Model (Bowlby)
- Recurrent maladaptive patterns
- Examples
  - Stern: Representations of Interactions Generalized (RIGs)
  - Luborsky: Core Conflictual Relational Theme (CCRT)
  - Strupp and Binder: Cyclical Maladaptive Pattern (CMP)
  - Horowitz: Recurrent Maladaptive Interpersonal Pattern (RMIP)



# Overvigilance and Inhibition: “Be careful and restrained at all times.”

People with schemas in the Overvigilance and Inhibition domain emphasise performance, following rules, and fulfilling duty over pleasure, joy and relaxation. They may be perfectionistic, suppressing their emotions/impulses to meet **rigid** internalised expectations. Early childhood experiences may include demanding or punitive parenting with a lack of play and self-expression.

## Negativity/Pessimism

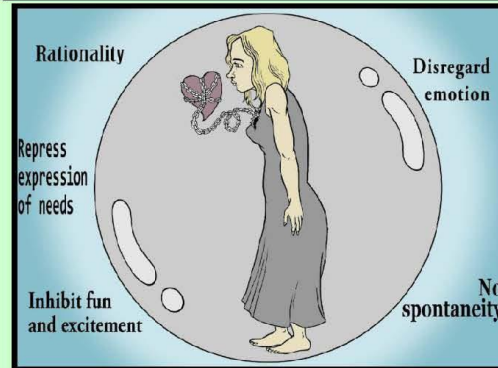
A lifelong focus on all things negative. Positive things are minimised, and negative outcomes are considered inevitable.  
*“Everything goes wrong eventually.”*



**Treatment Goal:** Attempt to realistically evaluate the future understanding that past outcomes do not necessarily predict future ones. Learn to embrace mistakes and use utilise strategies to decrease worry and rumination about the future. Address possible internalised parental attitudes of negativity.

## Emotional Inhibition

Emotions, behaviours, and communications are ‘shut down’ to avoid disapproval by others or feelings of shame.  
*“Stay in control.”*



**Treatment Goal:** Learn to become more emotionally expressive and playful. Teach strategies to appropriately express anger and discuss suppressed emotions. Discover that emotions are normal and healthy, not to be shamed or neglected. Encourage spontaneity, play and expressions of love and/or affection.

## Unrelenting Standards/Hypercriticalness

Feelings of pressure to perform at very high unrealistic internal standards.  
*“I have to do it right!”*



**Treatment Goal:** Address black and white thinking and encourage greater flexibility. Restore balance between work and play and explore the costs of neglecting rest and relaxation. Work with one’s internal critic and examine possible high parental pressure. Learn to embrace imperfections and be kind on oneself.

### Common Coping Patterns Associated with Schema:

Surrender to Schema	Avoid Schema	Overcompensate for Schema
Dismisses positive events and exaggerates negative ones. Always expects the worst and focuses on disappointments and betrayals.	Does not dream or hope for too much. Keeps all expectations low.	Acts as though all things are perfect and unrealistically positive.

### Common Coping Patterns Associated with Schema:

Surrender to Schema	Avoid Schema	Overcompensate for Schema
Focuses on reason and order over emotion. Acts flat, rigid, and controlled and shows very little emotion or spontaneity.	Avoids any activity that would involve the self-expression of emotion or uninhibited behaviour (e.g., drama, singing, dancing.)	Shows little inhibition and acts impulsively.

### Common Coping Patterns Associated with Schema:

Surrender to Schema	Avoid Schema	Overcompensate for Schema
Attempts to be perfect and sets incredibly high standards for the self and others.	Avoids all work and procrastinates.	Seemingly drops all standards and settles for a lack of effort and poor results.



# The Critical Importance of Interpersonal Processes in Psychodynamic Tx

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- The problems start in the context of relationships
- People seek help because they are having problems in interpersonal contexts (social and occupational)
- The problems get resolved in interaction with the therapist
- Working with **affect** and **creating corrective emotional experiences** is the key to successful treatment

Hanna Levenson. Time-Limited Dynamic Therapy:  
A Guide to Clinical Practice. Basic Books. 1995



# **Three Major Reasons Why Recurrent Maladaptive Patterns Are Not Recognized By Other Modalities (e.g. CBT, ACT, BT, EFT)**

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Psychoanalysis and Psychodynamic Psychotherapy:

- Focus on etiology (vs. maintenance factors)
- Therapy relationship as the context for intervention  
(vs. facilitative and supportive)
- Traditional disinterest in objective scientific validation  
(for fear of altering the relationship and  
difficulty capturing relevant variables)



# A Broader Frame of Reference Beyond Symptoms and Diagnoses

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- Sx and Dx fit our medical reimbursement system well
- Current symptom-based nosology is flawed and is widely acknowledged to be in need of revision (RDoC)
- How can we better capture the full range of what people potentially want and need from psychotherapy – e.g. in altering how they perceive and interact with others?
- The adaptability, flexibility and generalizability of the internal working model guiding perceptions and actions in interpersonal relations is a measure of psychological health



# A Definition of Mental Health

**Table 2**

*Definition of Mental Health: Items From the Shedler–Westen Assessment Procedure (SWAP–200; Shedler & Westen, 2007)*

- Is able to use his/her talents, abilities, and energy effectively and productively.
- Enjoys challenges; takes pleasure in accomplishing things.
- Is capable of sustaining a meaningful love relationship characterized by genuine intimacy and caring.
- Finds meaning in belonging and contributing to a larger community (e.g., organization, church, neighborhood).
- Is able to find meaning and fulfillment in guiding, mentoring, or nurturing others.
- Is empathic; is sensitive and responsive to other people's needs and feelings.
- Is able to assert him/herself effectively and appropriately when necessary.
- Appreciates and responds to humor.
- Is capable of hearing information that is emotionally threatening (i.e., that challenges cherished beliefs, perceptions, and self-perceptions) and can use and benefit from it.
- Appears to have come to terms with painful experiences from the past; has found meaning in and grown from such experiences.

- Is articulate; can express self well in words.
- Has an active and satisfying sex life.
- Appears comfortable and at ease in social situations.
- Generally finds contentment and happiness in life's activities.
- Tends to express affect appropriate in quality and intensity to the situation at hand.
- Has the capacity to recognize alternative viewpoints, even in matters that stir up strong feelings.
- Has moral and ethical standards and strives to live up to them.
- Is creative; is able to see things or approach problems in novel ways.
- Tends to be conscientious and responsible.
- Tends to be energetic and outgoing.
- Is psychologically insightful; is able to understand self and others in subtle and sophisticated ways.
- Is able to find meaning and satisfaction in the pursuit of long-term goals and ambitions.
- Is able to form close and lasting friendships characterized by mutual support and sharing of experiences.



# Modalities Differ In the Contexts They Aim To Address

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- Behavior/exposure therapy: specifically identifiable situations that elicit the maladaptive response
- CBT or EFT: symptomatic syndromes that are temporary disturbances in emotional responses (e.g. clinical depression) that are not situation-specific
- Psychodynamic (insight-oriented): enduring trait characteristics that are not temporary and not situation-specific

Lane, R. D., Ryan, L., Nadel, L., & Greenberg, L. (2015). Memory reconsolidation, emotional arousal, and the process of change in psychotherapy: New insights from brain science. *Behavioral and Brain Sciences*, 38, 1-19.



# Clinical Psychoanalysis Today Faces Many Challenges

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- Psa both a model of the mind and a mode of treatment
- Insurers prize brief, structured interventions that are cost effective
- Symptom change as a primary outcome is limiting
- Teaching psa is challenging due to plethora of ideas
- Counter-transference limits analyst's role as researcher
- A genuine (objective) research tradition is lacking
- A comprehensive model of the mind must be open to other perspectives.

Fonagy P. Psychoanalysis today. World Psychiatry 2003.



“Psychoanalysis is more than the creation of a *narrative*, it is the active construction of a new way of *experiencing* self with other.”

Fonagy P. Memory and therapeutic action. IJP (1999)

Psychoanalytic Therapy Principles and Practice (2021)



Prof. Dr. med. Dr. phil. Horst Kächele  
Professor and Chair (Emeritus)  
Dept of Psychotherapy and  
Psychosomatic Medicine  
University of Ulm  
Germany



## **The foundational level of psychodynamic meaning:**

**Implicit process in relation to conflict,  
defense and the dynamic unconscious**

BOSTON CHANGE PROCESS STUDY GROUP (BCPSG)<sup>1</sup>

- How can we take advantage of newer insights from “relational” psychodynamics in which the “intersubjective emotional field” is the focus of the therapy?
- Traditional theory – observable behavior is a function of deeper, unseen forces -- may have it backwards



# Implicit Process of Relational Knowing

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- Lived experience is represented at the implicit level
- Implicit process of relational knowing: what is expected regarding what other people will say and do, how you will feel, how you are expected to behave, how events typically unfold, etc.
- The lived experience of interaction with other people is where development occurs and where change happens
- Concepts of conflict, defense and fantasy are abstractions that are higher level constructs that are superimposed upon the more basic implicit (automatic) level of lived experience
- This view is consistent with implicit emotion as constantly active in the background guiding behavior

Boston Change Process Study Group. *International Journal of Psychoanalysis*, 2007.



# Can Fundamental Psychodynamic Concepts Be Reformulated in Light of Computational Neuroscience ?

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- Putting psychoanalysis on a stronger, neuroscientific empirical footing (Freud's dream)
- Bridging the gap with other modalities so that its utility in relation to other modalities is clear
- Basic concepts
  - Unconscious processes
  - Development
  - Conflicts
  - Defenses
  - Treatment



# Unconscious Processes: Traditional Concepts

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- Consists of dangerous, forbidden impulses
- Often of a sexual or aggressive nature
- Kept at bay through continuous application of defenses such as repression
- The Boston Change Process Study Group (BCPSG) is an updated conception: people learn implicitly what to expect and how to behave in different situations; implicit processes guide behavior in real time.

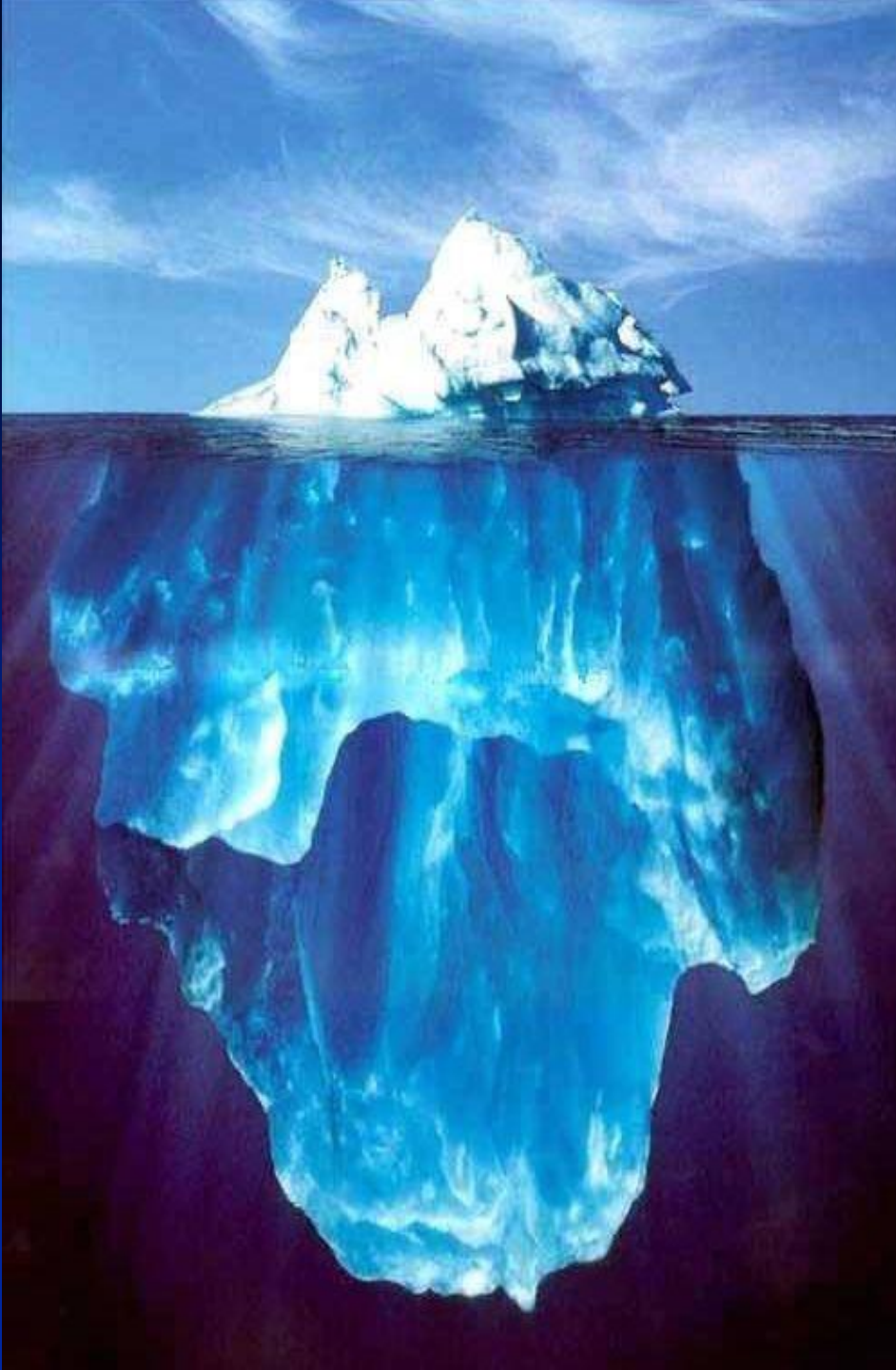


# Unconscious Processes: Updated by Neuroscience

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- Unconscious processes are fundamentally adaptive, not maladaptive
- Working all the time in the background to guide behavior
- Emotions are always activated in the moment based on current circumstances
- Many if not most emotional responses are bodily and action states not experienced as discrete feelings
- Emotional feelings are typically constructed, not unleashed
- Emotions, to be experienced consciously, must compete for access to the global workspace of consciousness
- Emotional awareness has a developmental trajectory

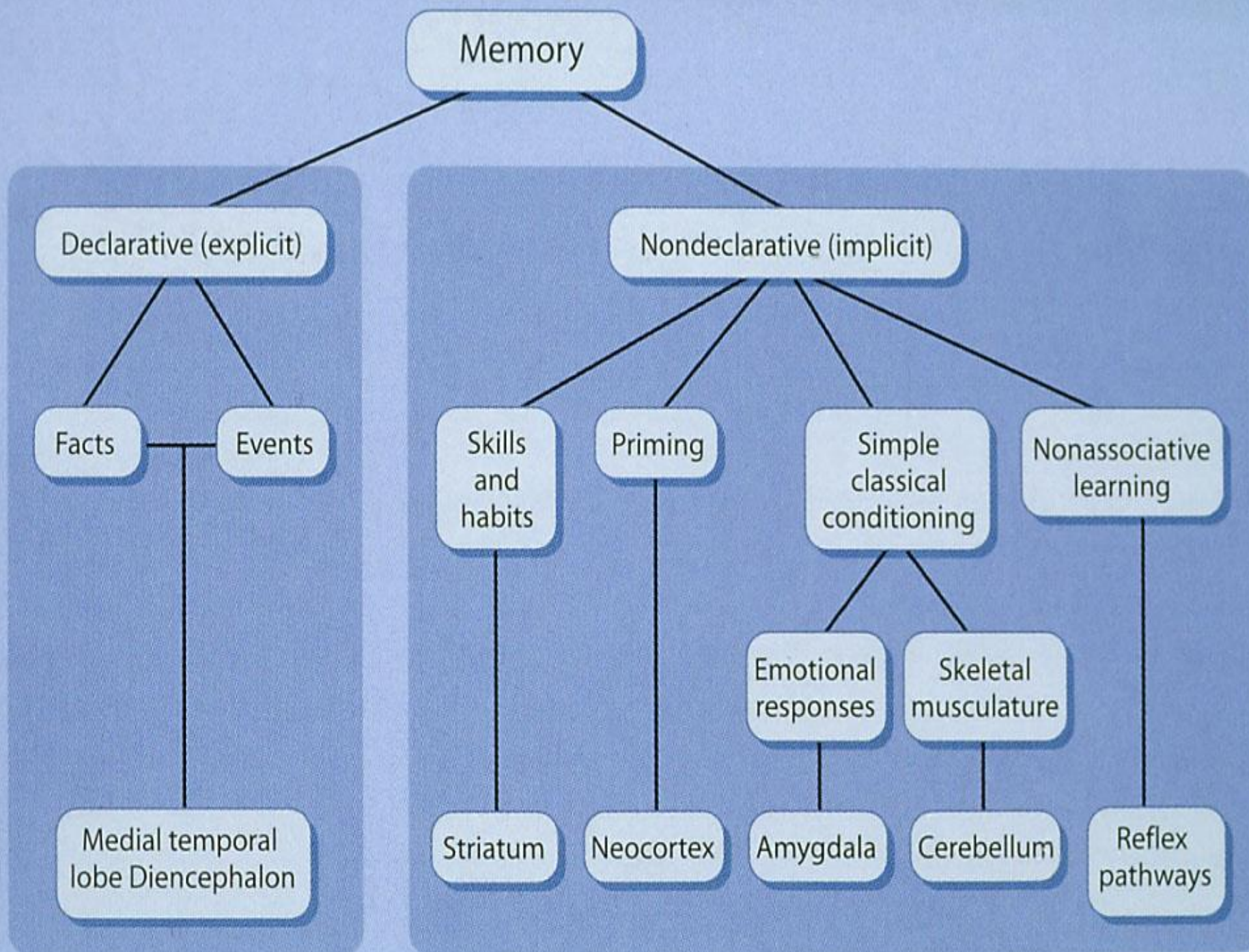




99% of cognition  
is implicit or  
unconscious

The same may be  
true for emotion







# Implicit Memory



Patient H.M

February 26, 1926 – December 2, 2008

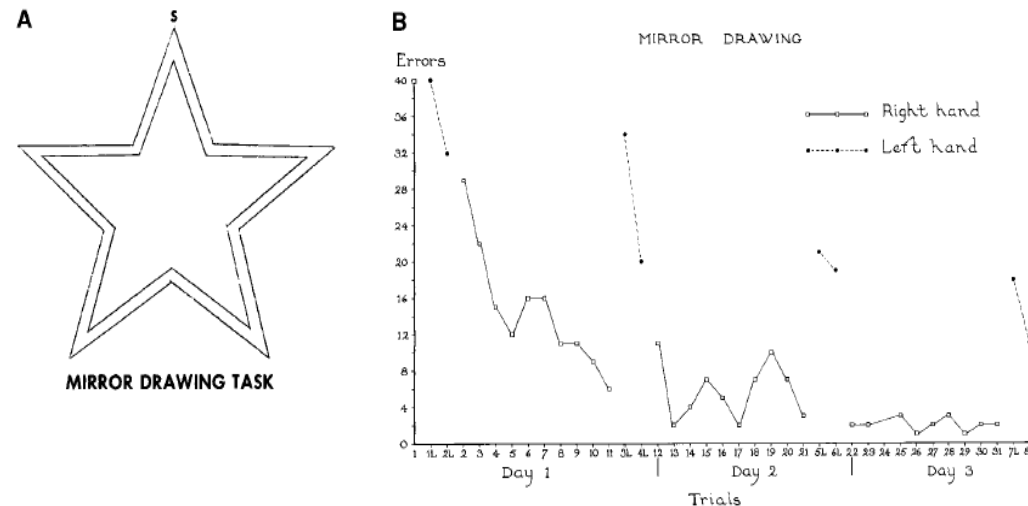


Figure 2. H. M. Showed Improvement in a Task Involving Learning Skilled Movements

In this test, he was taught to trace a line between the two outlines of a star, starting from the point S (Figure 2A), while viewing his hand and the star in a mirror. He showed steady improvement over the 3 days of testing, although he had no idea that he had ever done the task before. (The graph in Figure 2B plots the number of times, in each trial, that he strayed outside the boundaries as he drew the star.) Adapted from Milner (1962).



# Development: Traditional Concepts

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- Psychosexual development: pre-oedipal (2-person) vs. oedipal (3-person) phases of development
- Object relations: development and differentiation of internal mental representations of self and others determine overt behavior
- Separation-individuation and the capacity for autonomy
- Attachment styles: secure and insecure
- Concepts informed by research on mother-child interactions and child development



# Development: Updated by Neuroscience

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- Distinction between Model free (MF) and Model Based (MB) learning is critical; very young children learn what to do based on what feels good and what doesn't (MF)
- These patterns get deeply ingrained via statistical learning
- Attachment experiences, especially early ones, are learned habits more commonly than intentionally chosen behaviors
- Has implications for interpretation in adults of unconscious motivation (abstraction superimposed on implicit process; MB rather than MF learning)
- Deficits/lack of development may contribute to ongoing difficulties and lack of resolution of conflicts



# Unconscious Affective Learning

- Reinforcement Learning Algorithms
  - **Model-Free** (habitual)
    - No outcome predictions
    - Just store and update **average reward values** for state-action pairs
    - Pick the action with the highest reward average
    - *“I feel like acting like this but I don’t know why.”*
  - **Model-Based** (goal-directed)
    - Consciously predicting outcomes
    - Choose action with best predicted outcome





Model learned from repeated experience in the agent's "childhood environment."

→	→	→	→	→	→	→	→	G
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↑	←	←	←	←	←	←	←	←
↑	←	←	← S	←	←	←	←	←

Inability to learn a new model (with a more adaptive action sequence) in the agent's "adult environment."

→	→	→	→	→	→	→	→	G
→	→	→	→	→	→	→	→	↑
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↑	←	←	←	←	←	←	←	←
↑	←	←	← S	←	←	←	←	←



# Conflicts:

## Traditional Concepts

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- Forbidden sexual and aggressive impulses conflict with societal and personal standards
- Conflicts can occur between drives, between mental agencies (e.g., id, ego, superego) or between wishes and reality
- Common issue is ambivalent, conflicting impulses (e.g. loving and murderous) toward a parent or other attachment figure, e.g. oedipal conflict
- Conflict is unconscious and gets expressed in maladaptive behavior, e.g. inability to maintain a close relationship, guilt interfering with occupational success



# Conflicts:

## Updated by Neuroscience

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- Biological imperative for the species: need to survive (as an individual) in order to procreate
- Inherent dual nature: individual and social creature
- Competition and cooperation; hard to succeed without both
- These two goals often conflict
- Blatt's theory of personality development-two main goals:
  - Self-definition and self-actualization
  - Attachment and intimacy
- Inherently conflicting behavioral trends get reconciled using both MF (trial and error) and MB (conceptual) learning;  
a lifelong undertaking



# Defenses:

## Traditional Concepts

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- Classic unconscious defenses described by Anna Freud: repression, projection, reaction formation, isolation of affect, etc.
- More primitive defenses: splitting, projective identification, dissociation
- Brenner: any thought or behavior can serve a defensive function (avoiding distress or awareness of conflict)
- Technical issue: must address defense before content
- Cautious approach to affect (as potentially dangerous and overwhelming)



# Defenses: Updated

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- Defenses may be a subcategory of avoidance behaviors in general
- Avoidance of distress is a universal goal
- Trauma: learn to avoid certain people or actions or thoughts to minimize distress— and never let it happen again -- the basis for recurrent patterns
- Avoidance often achieved by active reversal of passive experience, e.g. “I am strong and independent.”
- Technical implication: since emotion typically not being repressed, only address defense (avoidance) if needed



# Treatment:

## Traditional Concepts

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- Making the unconscious conscious
- Promoting insight and understanding
- Working at the conceptual level to change patterns that are implicit and relational
- Recurrent patterns a focus: Levenson: Cyclical Maladaptive Pattern (CMP), Luborsky: Core Conflictual Relational Theme (CCRT), Stern: Representations of Interactions Generalized (RIGs)
- These **patterns operate implicitly** (without awareness or intention)
- **Working within the transference** to modify the recurrent pattern
- Critical moments (Stern): when something positive and **unexpected** happens in the therapeutic interaction that promotes change
- This is prediction error updating a prior set of expectations



# What Made Video Streaming Possible?

## How is Psychoanalysis Like Video Streaming?

### Prior + Prediction Error = Posterior

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This is how the brain works!

Can this framework be used to understand how the mind/brain changes ?



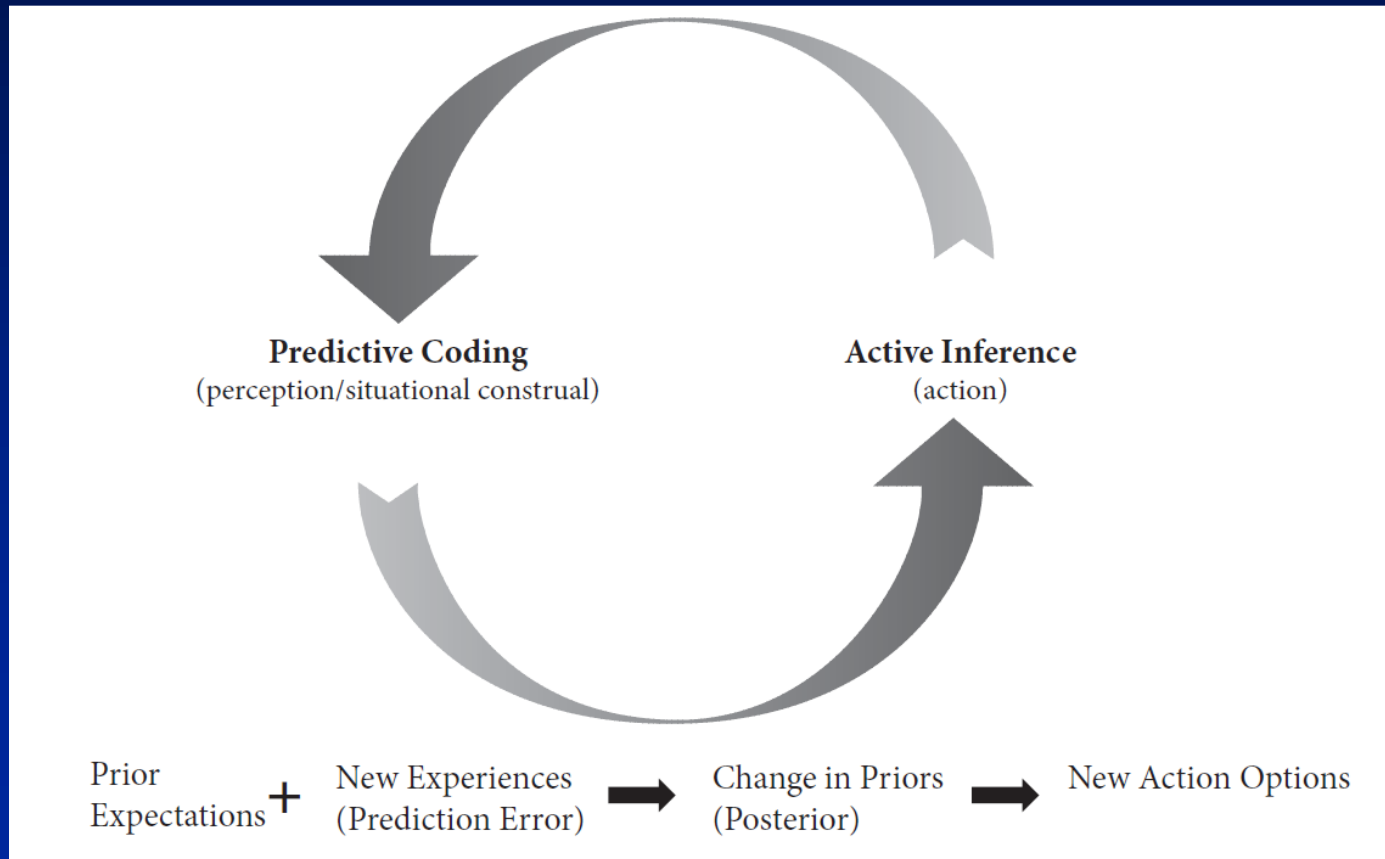
# Treatment: Update Based on Computational Neuroscience

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- Predictive processing (perception based on predictions) is ubiquitous
- Transference = expectations = priors (beliefs and expectations),  
which generalize (via situational conceptualization)
- Corrective emotional experiences = prediction errors
- Change = updating priors
- Resistance = difficulty in updating priors
- Therapeutic alliance: through MF learning can create  
new implicit patterns of relating— the foundation for change
- Experience alone (MF learning), or MF + MB learning,  
**will** work, but understanding alone (MB only) can't  
easily overcome years of MF habit learning



# Computational Neuroscience Framework in Psychotherapy: Predictive Coding and Active Inference



Perceptions are based on predictions,  
which are based on prior knowledge  
Perceptions are also influenced by the  
action options available

Perceptual content itself is strongly  
influenced by the personal consequences  
of the action options available

The actions we take influence what we perceive  
The actions selected are influenced by  
the anticipated sensory consequences  
of the action

action can be a cognitive act  
the sensory consequences can  
be interoceptive (emotional)



# Implications of Active Inference for Repression and Repetition

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- A fundamental principle of brain function is that the mind/brain seeks to minimize prediction error
- We want our environments to be predictable so that we can enjoy ourselves and stay on an even keel emotionally
- This may explain **Repression**: we unconsciously anticipate the negative emotion that would be induced by a thought and therefore don't select it
- This may explain **Repetition**: we tend to choose actions, including situation selection (or creation), that minimize prediction error
- Repeating a known bad situation avoids prediction error, which is consistent with this fundamental principle of brain function
- The negative emotional consequences are known and not surprising, i.e. they don't produce PE



# Implications of Active Inference for Psychoanalysis and Psychotherapy

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- Maintaining the internal working model (RMP) as is leads to repetition and the “Same Old Story” (Lynne Angus)
- Updating the prior requires increasing the precision (salience) of the prediction error
- Regarding recurrent maladaptive patterns, the prediction error is the **hidden feeling (intolerable emotion)**, which is exposed when defenses fail
- When defenses prevail, the precision (salience) of the prediction error is low, preventing updating of the prior
- Experiencing and transforming intolerable emotion may be the best way to update the model, alter predictions/expectations, **change action options (which link to anticipated distress)** and prevent repetition



# **Repetition Compulsion:**

## **Origins of Freud's Hypothesized "Death Instinct" Observations Not Explained by the Pleasure Principle**

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- Recurring dreams about trauma
- Child repeatedly throws favorite toy away, getting upset and reels it back in
- Patients in analysis who unknowingly repeat unpleasant experiences rather than remember them, e.g. being defiant and critical with parents and now with doctors
- Fate neurosis: repeatedly experiencing a repeated pattern of misfortune in life, e.g. repeatedly betrayed by friends



# Freud's Concept of the Death Instinct

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- Widespread destruction in WWI, which ended in 1918
- Proposed in 1920 in “Beyond the Pleasure Principle”
- An innate and unconscious tendency toward self-destruction postulated to explain aggressive and destructive behavior not satisfactorily explained by the pleasure principle
- Humans are driven toward death and destruction:  
“The aim of all life is death.”
- There is “no use in trying to get rid of men's aggressive inclinations;” at best they can be merely diverted



# Death Instinct – Reconsidered

## Origins of the Cold War

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- Historical review of the Cold War (1947-1991); USA vs USSR
- For years the world was on the brink of nuclear war
- “Every action done by either the United States or the Soviet Union could be explained as a matter of security and need for protection” (Fleming (1961), The Cold War and its Origins: 1917-1960)
- Attachment to loved ones and their protection was the origin of aggressive actions in that case



# Death Instinct – Reconsidered

## Oxytocin – Not Just a “Love Hormone”

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- Oxytocin triggers feelings of love and protection
- Also promotes a feeling of bias and coordinated strategic action toward people in an “outgroup” -- those who are perceived as different from a group (the “ingroup”) with whom we heavily identify
- Oxytocin now thought to increase attention to (salience of) both positive and negative social cues



# Death Instinct – Reconsidered

## Minimizing Expected Free Energy (PE)

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- Prediction error is an example of **expected free energy**
- Free energy is a mathematical principle of information physics
- Free energy is like entropy or randomness
- Living systems minimize entropy or expected free energy to optimize their adaptation to the world
- Aging and death occur due to breakdown and failure of regulatory systems; death is not the aim of life
- Similarly, we try to update our internal working model of the social world to optimize predictability and adaptation



# How Are Actions Selected?

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- Two mathematical terms determine which actions have the highest value (lowest expected free energy)
- Instrumental: maximize current positive emotion by minimizing the deviation between expected and preferred outcomes (if what you expect is very bad, least bad option is preferred)
- Epistemic: maximize information gain, which increases confidence in which future actions will lead to preferred outcomes later (therapist encourages new actions)



# Revisiting Pleasure Principle and Death Instinct in Light of Computational Neuroscience

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- **Positive emotion** (pleasure principle) **does** factor in to action selection
- Minimizing expected free energy (avoiding entropy) links to fundamental forces that **maintain life and prevent death**
- Freud was onto something a century ago when he tried to explain the motivational basis of human actions in terms of pleasure and life/death issues!



# Recurrent Maladaptive Patterns (RMPs): Conclusions

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- RMPs are foundational in psychoanalysis (Psa) and psychodynamic psychotherapy (PDT)
- They are patterns of behavior that aim to avoid intolerable distress
- They are what we are trying to treat
- RMPs are ubiquitous but not recognized by other psychotherapy modalities as important targets of intervention
- Psa and PDT therefore offer something of great value
- Survival of Psa /PDT is threatened by perceived lack of scientific rigor
- Reconceptualizing fundamental concepts in more empirically tractable terms will promote understanding across modalities and enable realization of Freud's dream!



# Recurrent Maladaptive Patterns (RMPs): Conclusions

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- Computational neuroscience is the leading model for understanding how the brain processes information
- Understanding the mind based on fundamental principles of brain function increases the likelihood that newer psychological conceptualizations will have enduring value
- RMPs and their treatment can be reconceptualized in these terms
- Putting Psa and PDT on a stronger empirical footing may ensure their survival and potentially reinvigorate their standing in the mental health field



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