

Perturbance: Unifying research on emotion, intrusive mentation and other psychological phenomena with AI

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SFU

Phenomena/Lit.'s to Unify

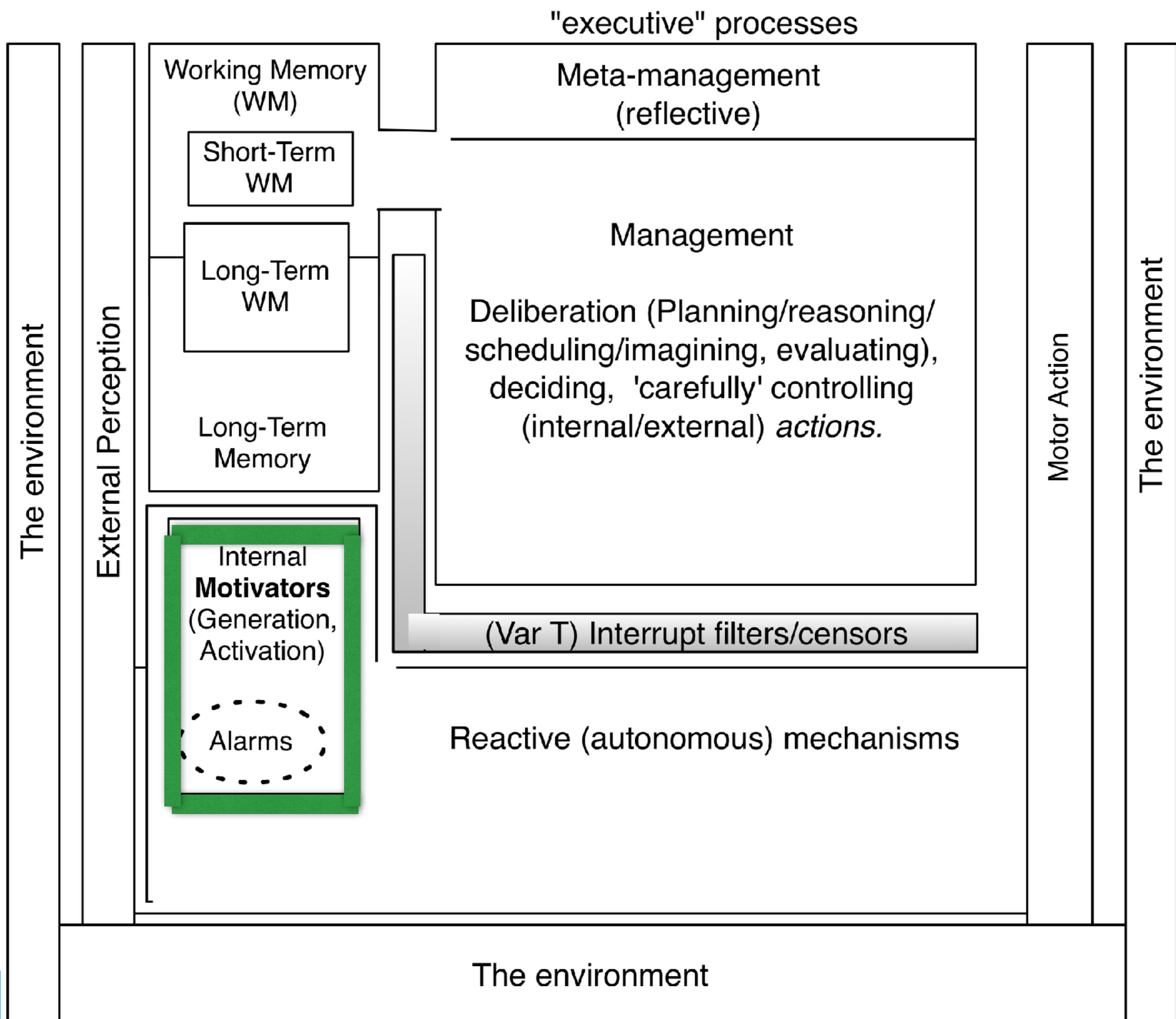
- Some “Emotions”
- “Intrusive thinking”, “Obsession” / OCD
- “Rumination”, “worry”
- Pain
- addictions
- **Insomnia**, depression, anxiety, mania, etc.
- Memory: Effects of testing ‘memory’
- Some mental effects of *experiencing* art

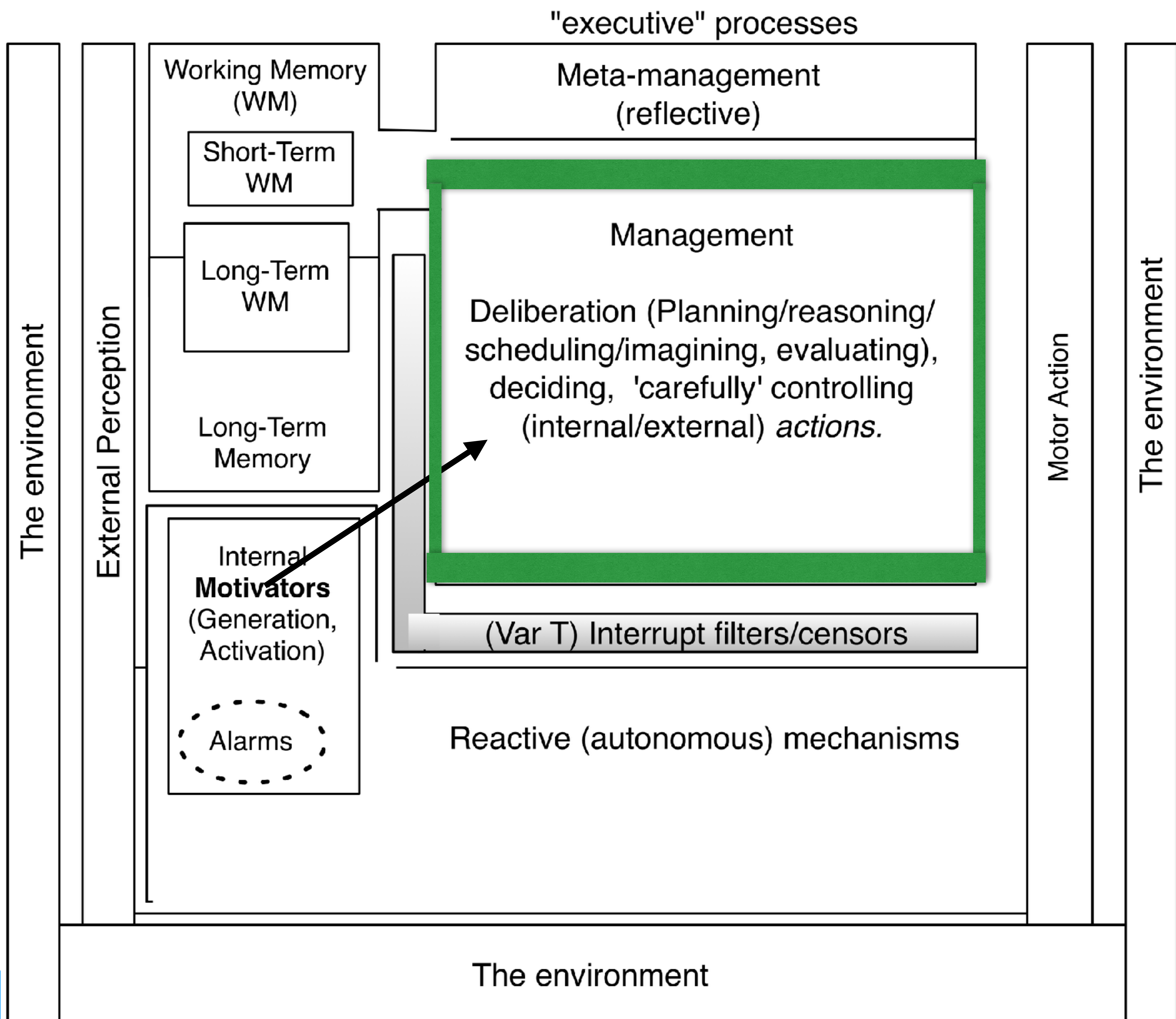
(One of) Sloman's (Beautiful!) Theses

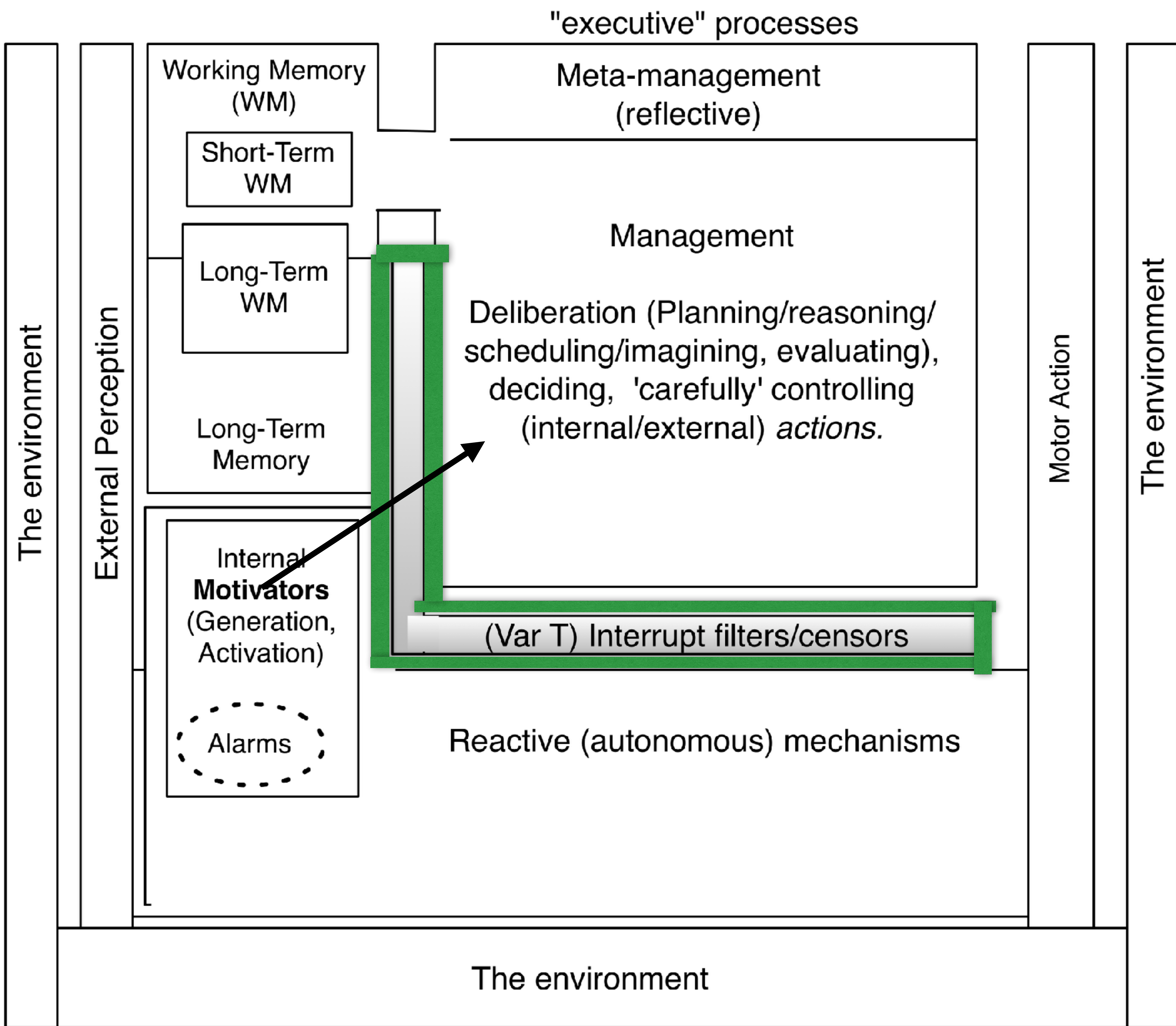
- These types of emotion will **emerge** as a bi-product of **motive processing mechanisms** in autonomous agents.

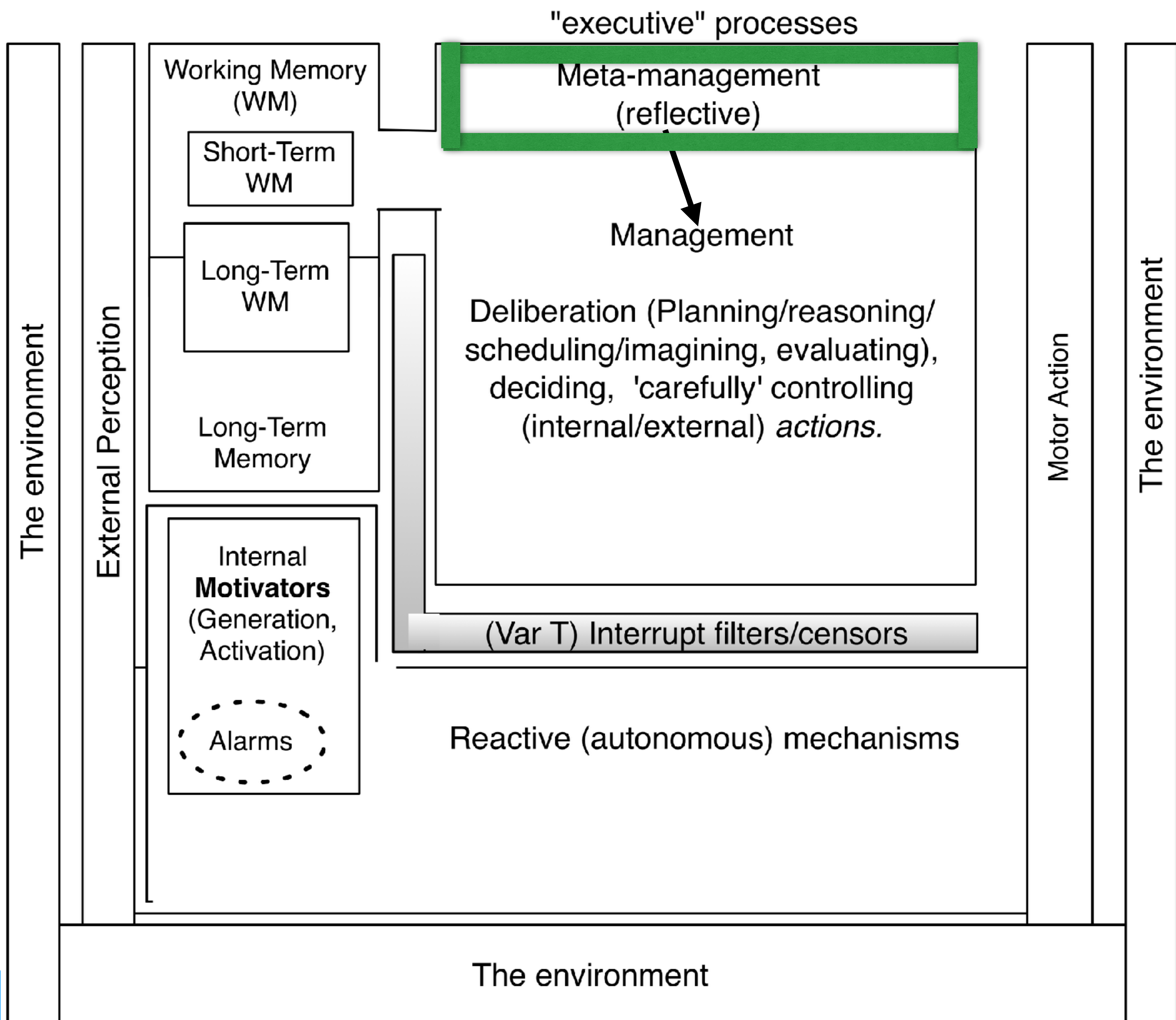
• Key concepts:

- **Motive processing** (mechanisms)**
- Attention (mechanisms)
- **Emergence**





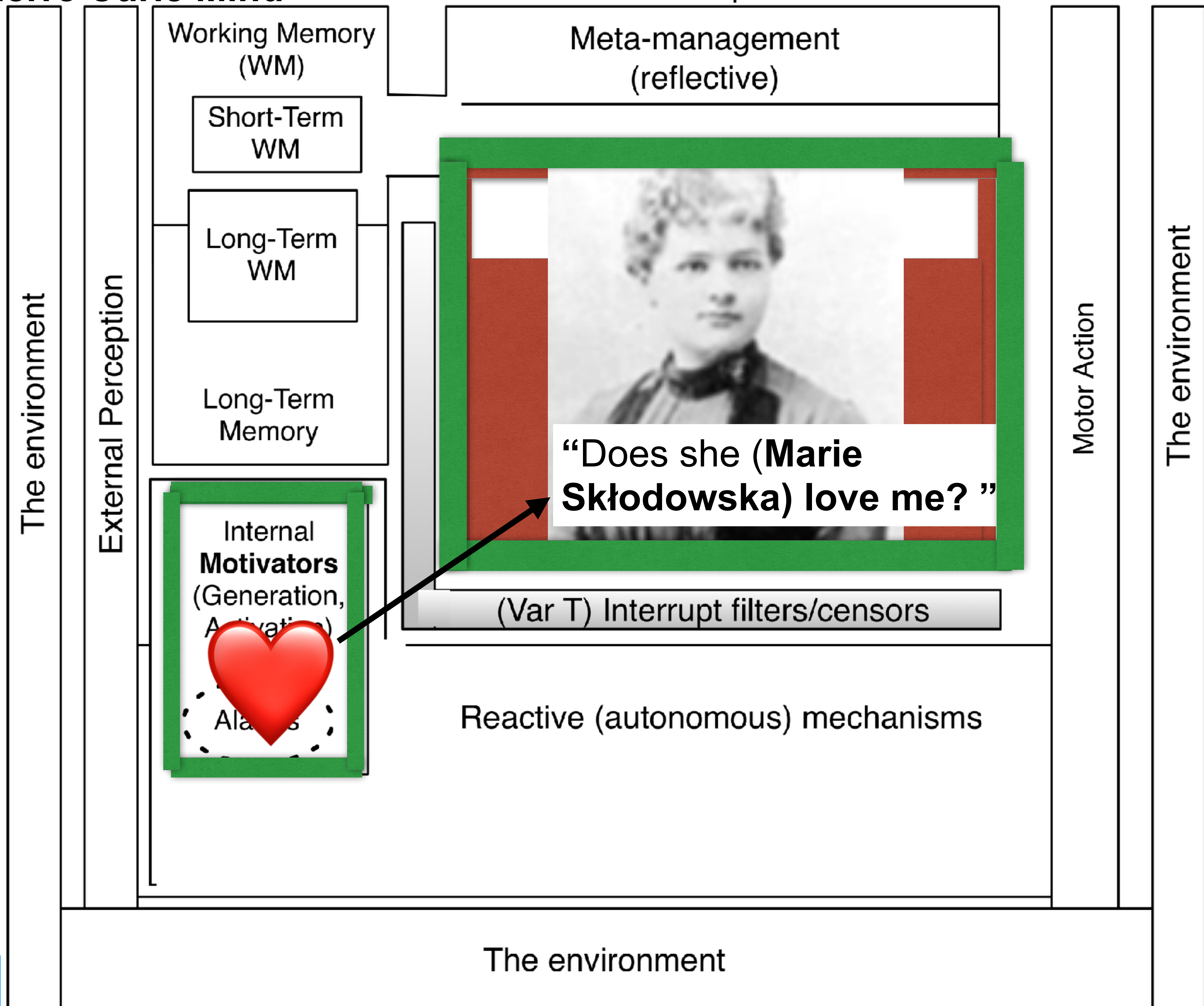




Emotion Producing Circumstances

- Losing your full purse 🤯
- Your parents' pension having been wiped out (corp. bankruptcy due to exec. fraud) 🤯/😞/😡
- Falling in love 😊
- & Deciding to leave your spouse & children 😞
- Finding you've got cancer
- ...

Pierre Curie Mind



“But these are not emotions”

- **1992: Enter “Perturbance”**

1995-2008

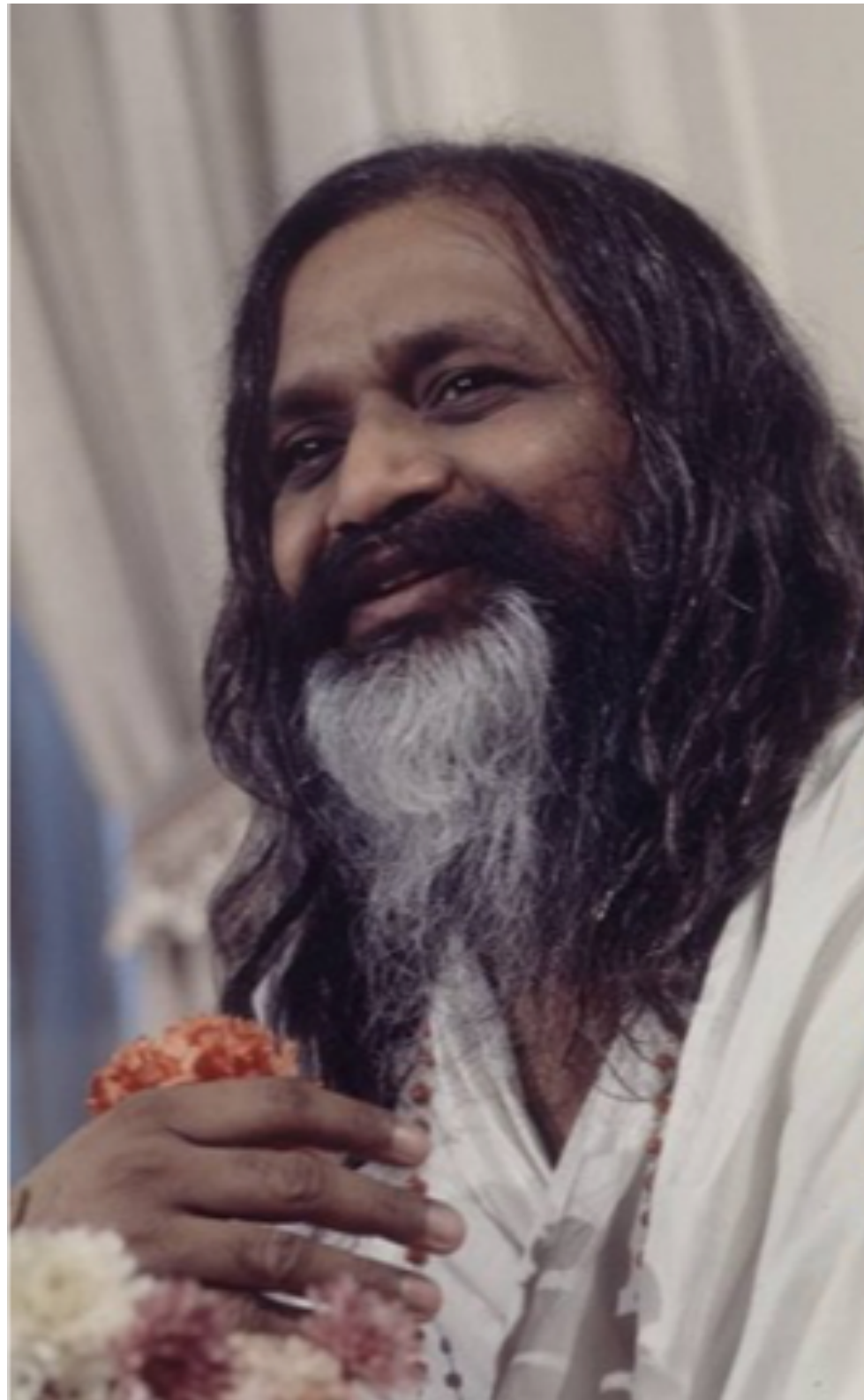
(example progress)

- Architecture-based 'emotion' concept distinctions
 - Primary 'emotions' (Alarms)
 - Secondary 'emotion'
 - 'Tertiary Emotion' = **Perturbance**. [This talk]
 - loss of control of *executive functions*, not of *attention*.
- Several Ph.D theses
- Work on attachment
- Software Libraries (SIMAGENT, etc.)

2010+

- Perturbance (concept, relabelled as 'tertiary emotion') virtually ignored
- Why is the Perturbance/ H-CogAff beauty asleep?

Focusing Phenomenon



“Whatever we put our attention on will grow stronger in our life”
Maharishi Mahesh Yogi

- “Where your attention goes, energy flows”
- “Focusing Illusion” Kahneman et al.
- “Anchoring and Adjustment”
- “Familiarity increases liking” (“Mere exposure effect”)

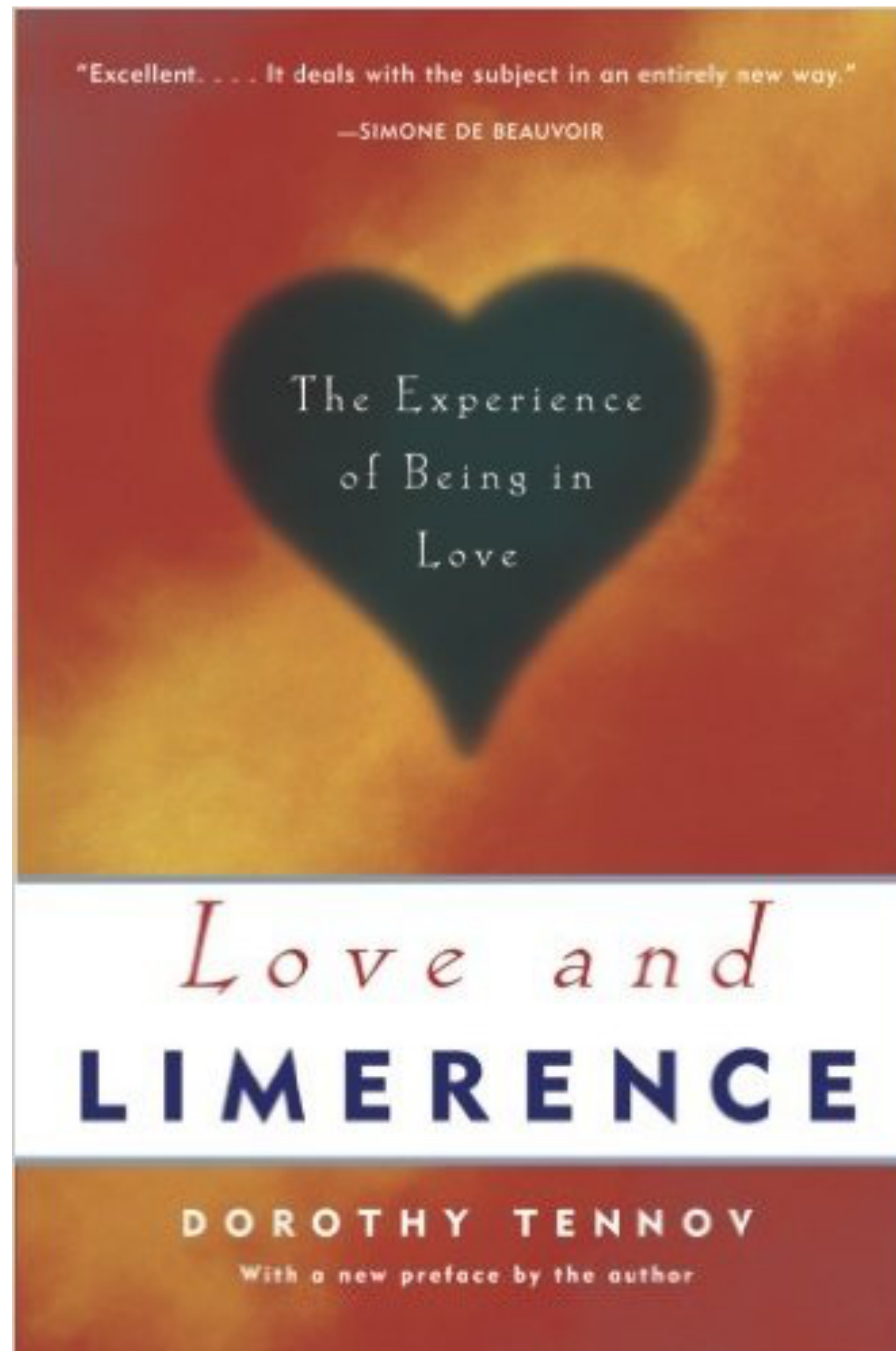


- ?
- ??
- ???

BENVOLIO: Be ruled by me. Forget to think of her.



ROMEO: O, teach me how I should forget to think!



“this book offers insight into love, **infatuation**, madness, and all flavors of **emotion** in between.”

Unlike “Emotion”

Yay! :)



BUT

- Ignored :(
- Frijda yes,
- No C of perturbation

Unanimous!

Focus on Limerence Because...

- ↑ Clearly perturbant (attention, motive processing, ↑ insistence, intensity)
- ↑ Clear evolutionary significance/functions
- ↑ Clear **commitment** phenomenon (Aubé, 200x; Attachment: Dean Petters).
- Intermediate/LT Consciousness (Donald, 2001)
 - Often lasts months, sometimes years
- ↑ 'Intense' and ↑ **Memorable** (though infrequent)
- → Happiness/misery (meaning, purpose, etc.)
- ↑ Limerent (Potential) Participants on Campus

How Can I Tell You?

Wherever I am girl,

I'm always walking with you

I'm always walking with you

But I look and you're not there

Whoever I'm with,

I'm always walking with you

I'm always walking with you,

And I'm sad that you can't hear

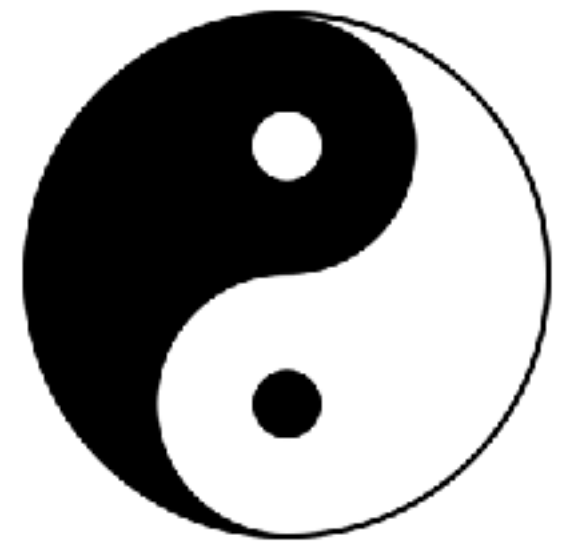


“Repetitive Thought” (‘RT’)

- “Intrusive thinking”
- “Obsession” / OCD
- “Rumination”, “worry”;
- Transdiagnostic:
 - **insomnia**,
 - depression (“depressive rumination”, etc),
 - anxiety (“anxious rumination” , etc.),
 - mania, etc.
- Pain, addictions, etc. (earlier slide)

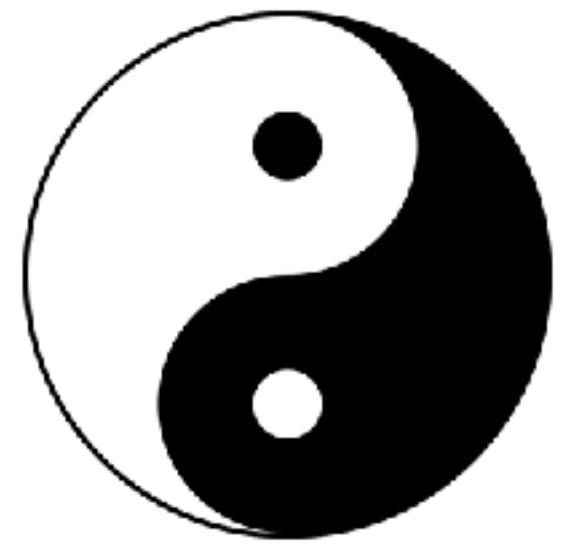
Watkins (2008)
**“Constructive and
unconstructive repetitive
thought”**

Watkins' RT Concept's Supposed Advantages



- atheoretical
- clearer
- non-evaluative
- more inclusive
- ↑ correlated w measures of worry&ruminatation

Watkins' RT Concept's Actual Disadvantages



- atheoretical: **Problem!** Cf. physics, chem.
- clearer: **Atheoretical** → ↑ **Ambiguity.**
- non-evaluative: **What about normal IP?**
- more inclusive: **(a) Not; (b) undifferentiated.**
- ↑ correlated w measures of worry&ruminatation;
begs question (psychology's obsession).

Big Software Development Projects Involve System Architects Who

- Study sys. requirements
- Design the entire architecture
- Consult with/to Components Developers
- Do not implement mechanisms themselves
- “Architecture dominates mechanism”

Future Research

- Today 99% (??) of research papers about [all forms of] RT are empirical!
- Remedies/Goals
 - Equal amount of publication/effort from designer stance.
 - 80% (?) of empirical work: Use Arch.-based theory
- Empiricists: use architecture-consultants
- Beware of Math envy

Future Research (Driven)

- AI: Engage psychologists **successfully**:
 - Empirical research
 - Attention, consciousness, motivation²
 - Applications (“Affective redirection”, insomnia, emotion)³.
- Problem of motivator identity.
- Problem of motivator development (cf. J Mitchell’s talk). [tree]^{4*}
- How is insistence managed?

Why Perturbance (C)

- Requires the designer stance
- Promising **research programme**
- Specified in terms of whole minds
- The generative power of motive processing constructs
- Framework to explain emotion episodes
- Promise of emergence (parsimony)

CogAff Project History (Part1)

- A.S. 1978: Computer Revolution in Philosophy
- A.S. 1981: **Why** robots will have emotions*
- A.S. 1981: You don't need a soft skin to have a warm heart: Towards a computational analysis of **Motives and Emotions***
- A.S. (1987) **Motives, mechanisms and emotions**
- AS. (1991/3) Prolegomena to a Theory of Communication and Affect *

1994; 1997

Related Work

- Simon (2017-50). **Motivational & emotional*** ...
- Mandler on plans
- Oatley & Johnson-Laird
- Kruglanski (2016) and Baumeister (2016) papers on importance of motivation for various problems of psychology (including emotion)
- Pessoa (2014, Cognitive Emotional Brain)