

Ecology of the Brain

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Question

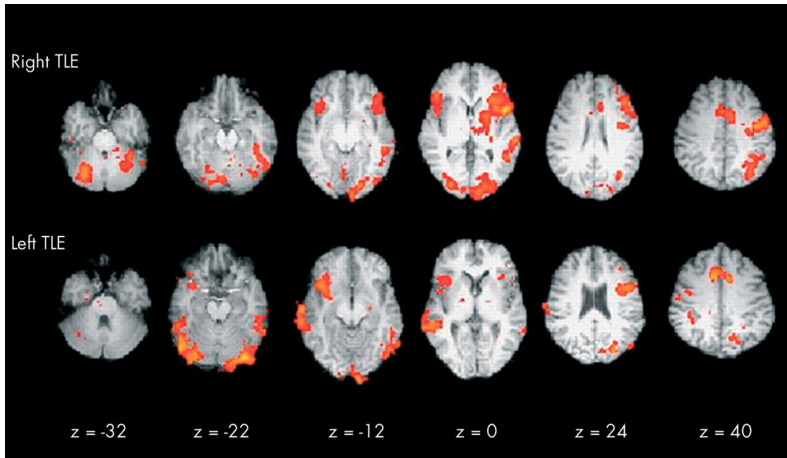
How is it possible for stressful circumstances to destroy hope and opportunity in one individual and build character in others?

psychiatry as a clinical neuroscience discipline

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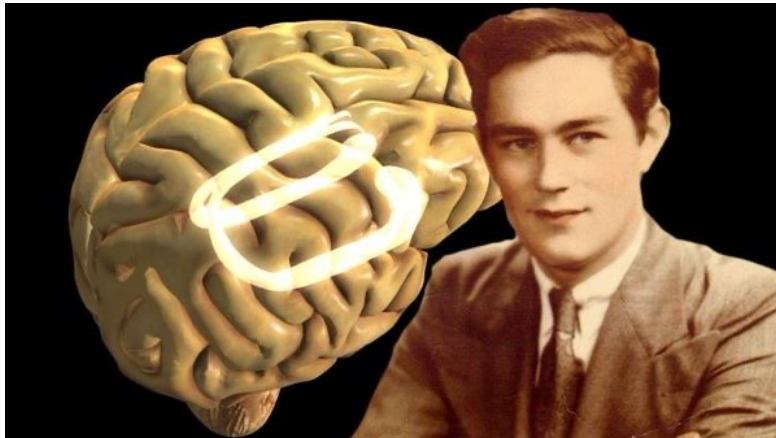
- The neurocentric view of mind
- Summary of Fuchs' proposals
- Discussions
- Summary

The neurocentric view of mind



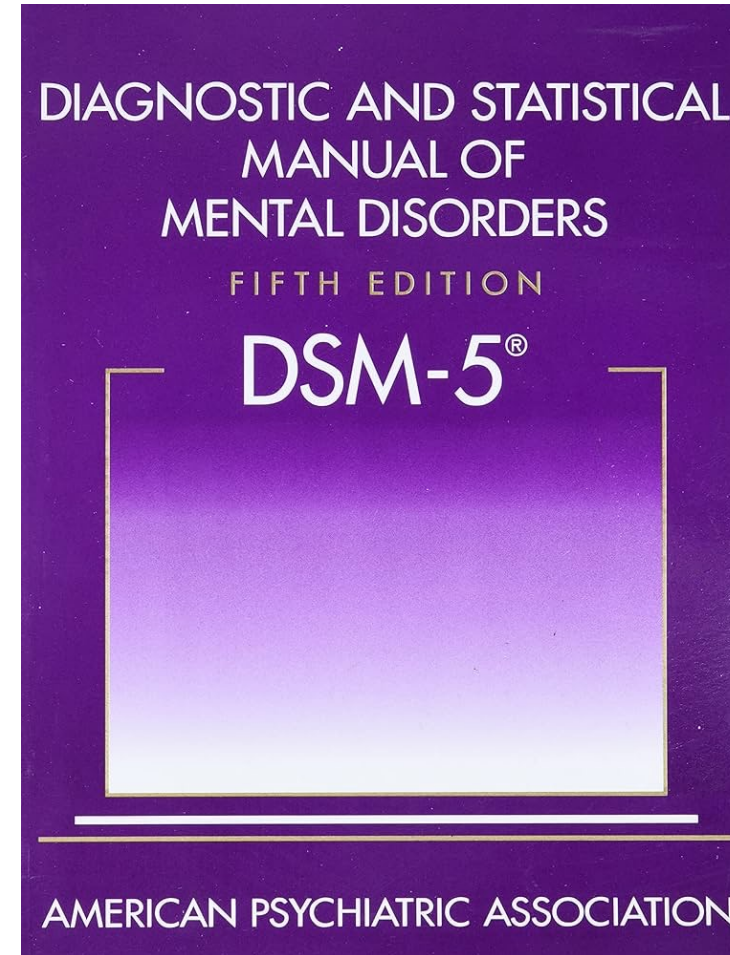
fMRI

Source: <https://jnnp.bmj.com/content/75/1/6>



Henry Molaison

Source: <https://observer.com/2016/08/inside-the-brain-of-the-worlds-most-famous-amnesiac/>



DSM-5

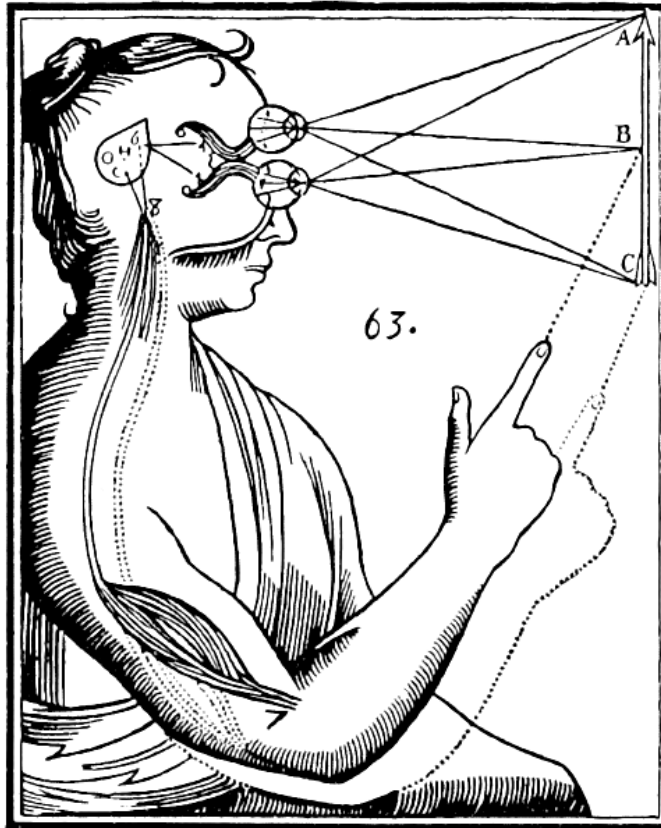
Source: <https://www.amazon.co.jp/Diagnostic-Statistical-Manual-Mental-Disorders/dp/0890425558>

Summary of Fuchs' proposals

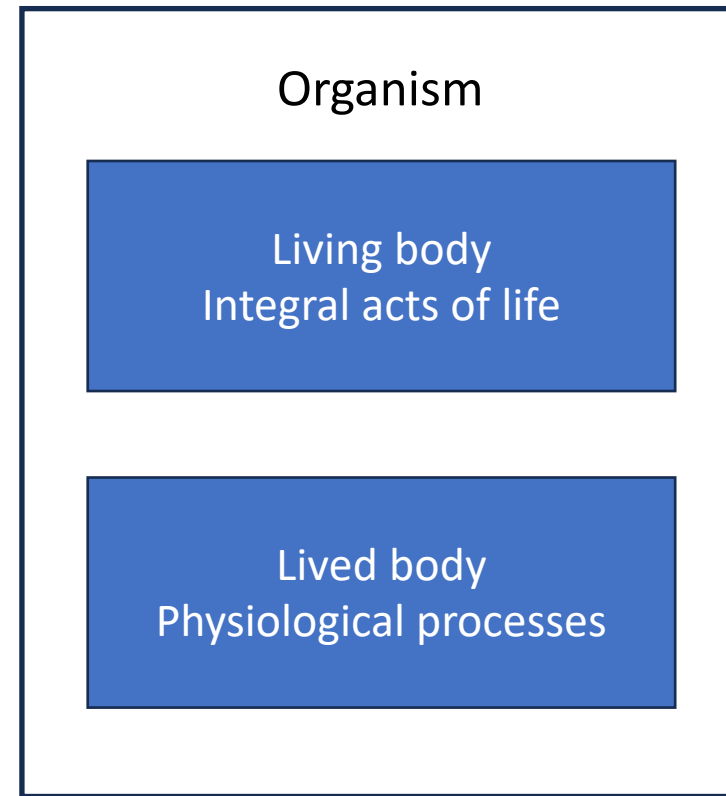
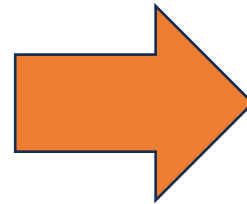
Brain as the organ of relations

1. Lived-living body (leib-korper) problem
2. Vertical and horizontal circularity
3. Embodied interaction
4. Use in psychiatry

1. Living-lived body problem



Mind-body problem



Living-lived body problem

2. Vertical and horizontal circularity

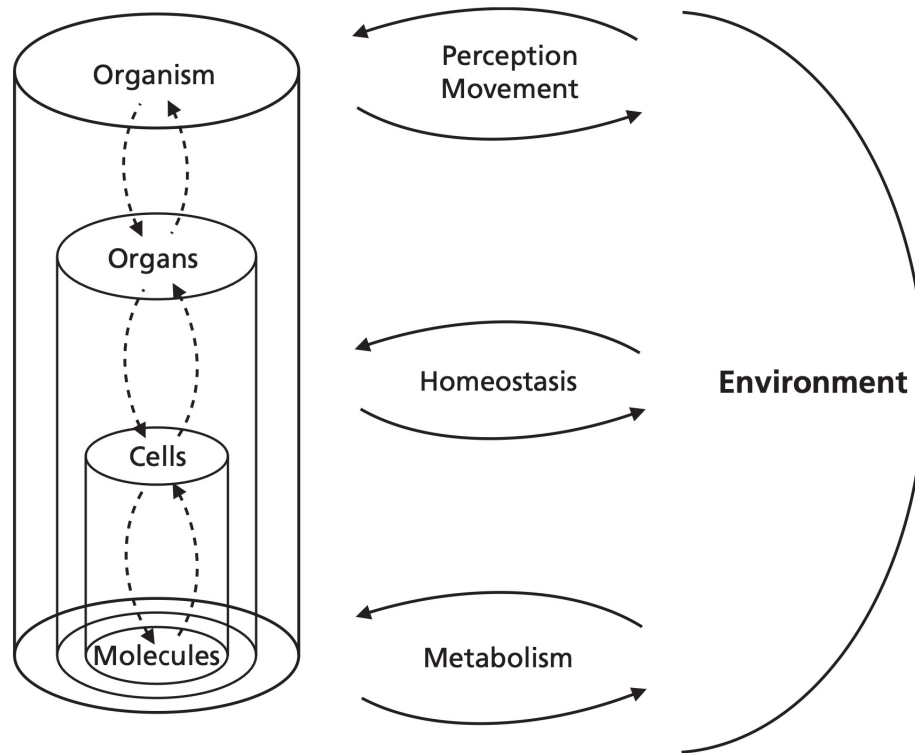


Figure 3.5 from the book

Vertical:

- Bottom-up forming causality
- Top-down selecting causality
- e.g. speaking

Horizontal:

- Interplay within the same level for equilibrium
- e.g. sugar intake, self-organization, intersubjectivity

3. Embodied interaction

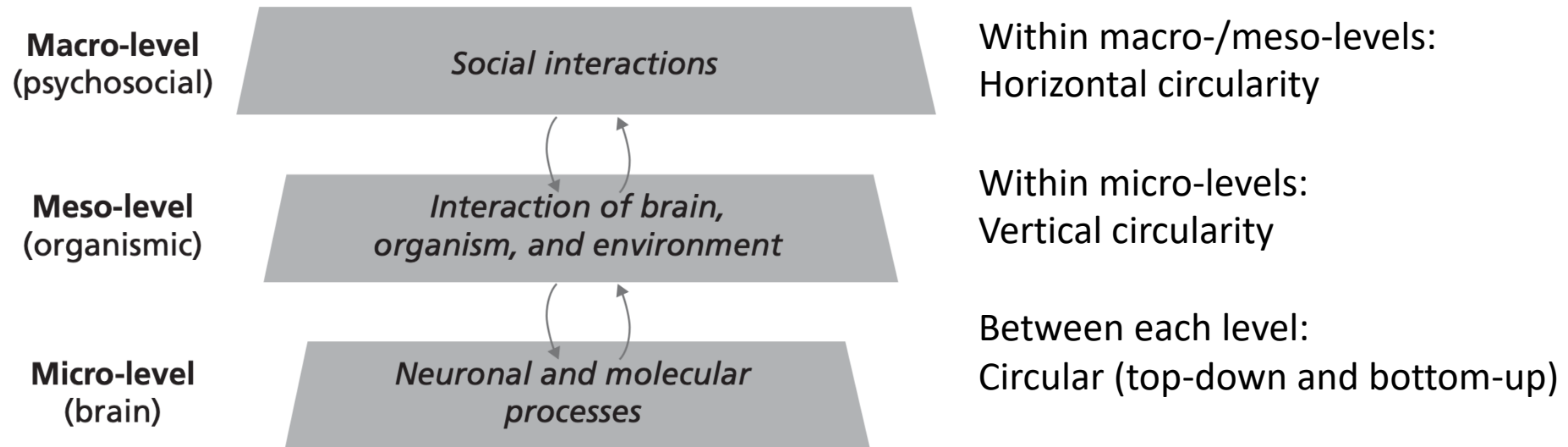
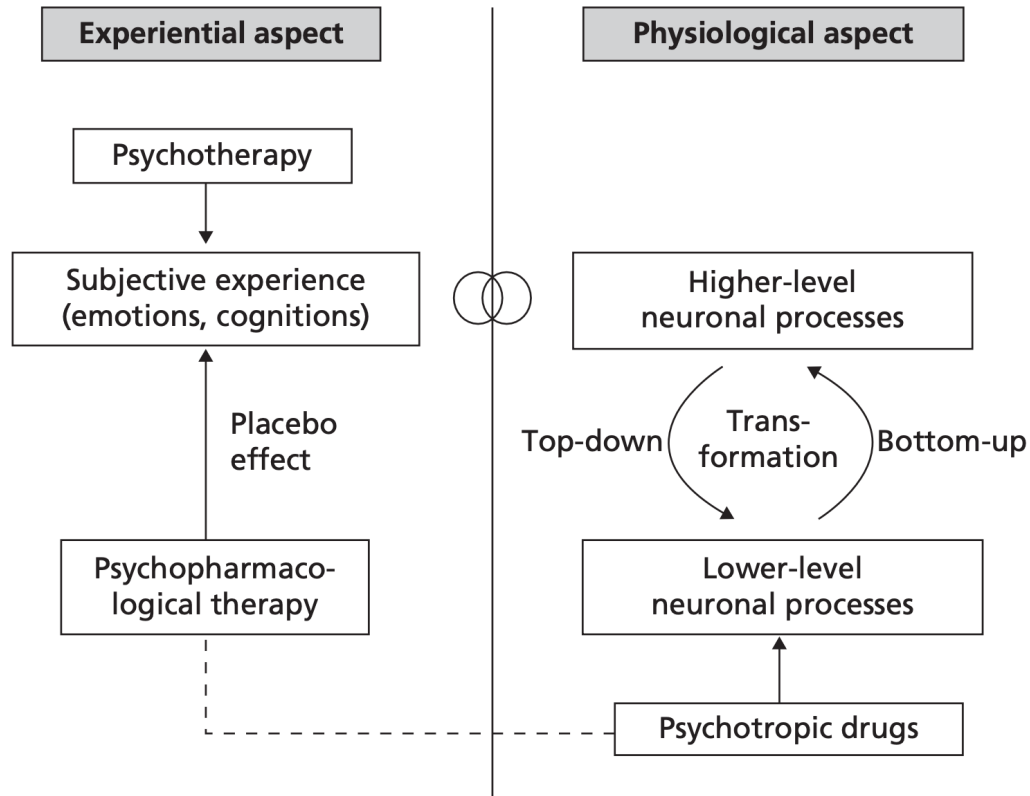


Figure 7.1 from the book

4. Use in psychiatry



No direct efficient causality between subjective experience and higher-level neuronal processes

Figure 7.2 from the book

Discussions

1. Is the question really answered?
2. One possible answer

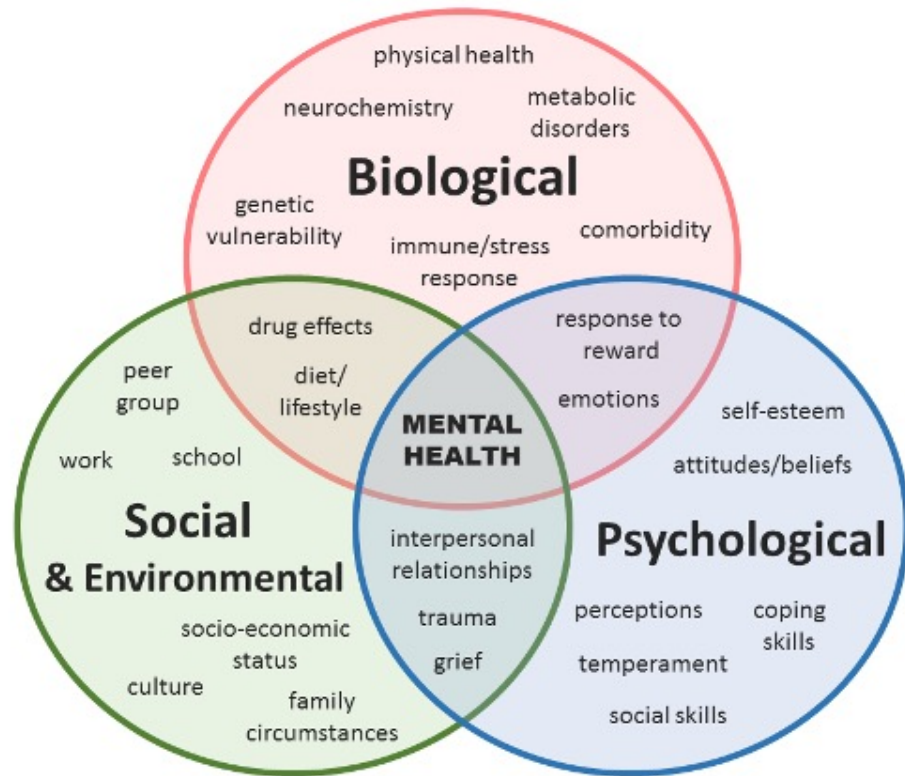
How is it possible for stressful circumstances to destroy hope and opportunity in one individual and build character in others?

psychiatry as a clinical neuroscience discipline

1. Is the question really answered?

- A. Biopsychosocial model vs. vertical and horizontal circularity
- B. Still, it fails to describe how consciousness works in the language of science: The Poverty of embodied cognition (Goldinger et al.)
- C. Conclusion: no, but it enable us to see new answers

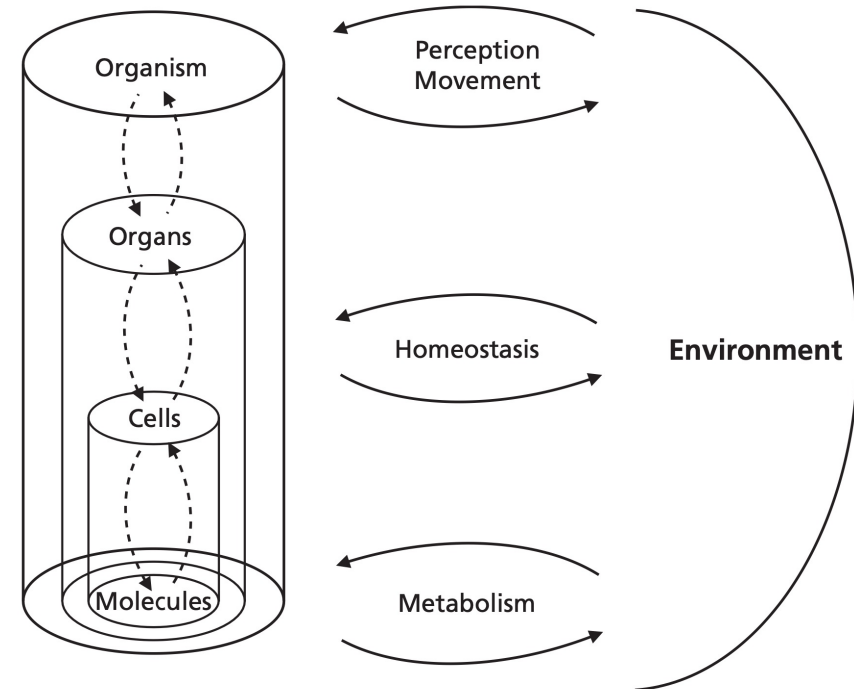
A. Biopsychosocial model vs. vertical and horizontal circularity



Biopsychosocial model

Source:

<https://www.open.edu/openlearn/science-maths-technology/exploring-the-relationship-between-anxiety-and-depression/content-section-2>



V. & H. circularity

Figure 3.5 from the book

B. Still, it fails to describe how consciousness works in the language of science

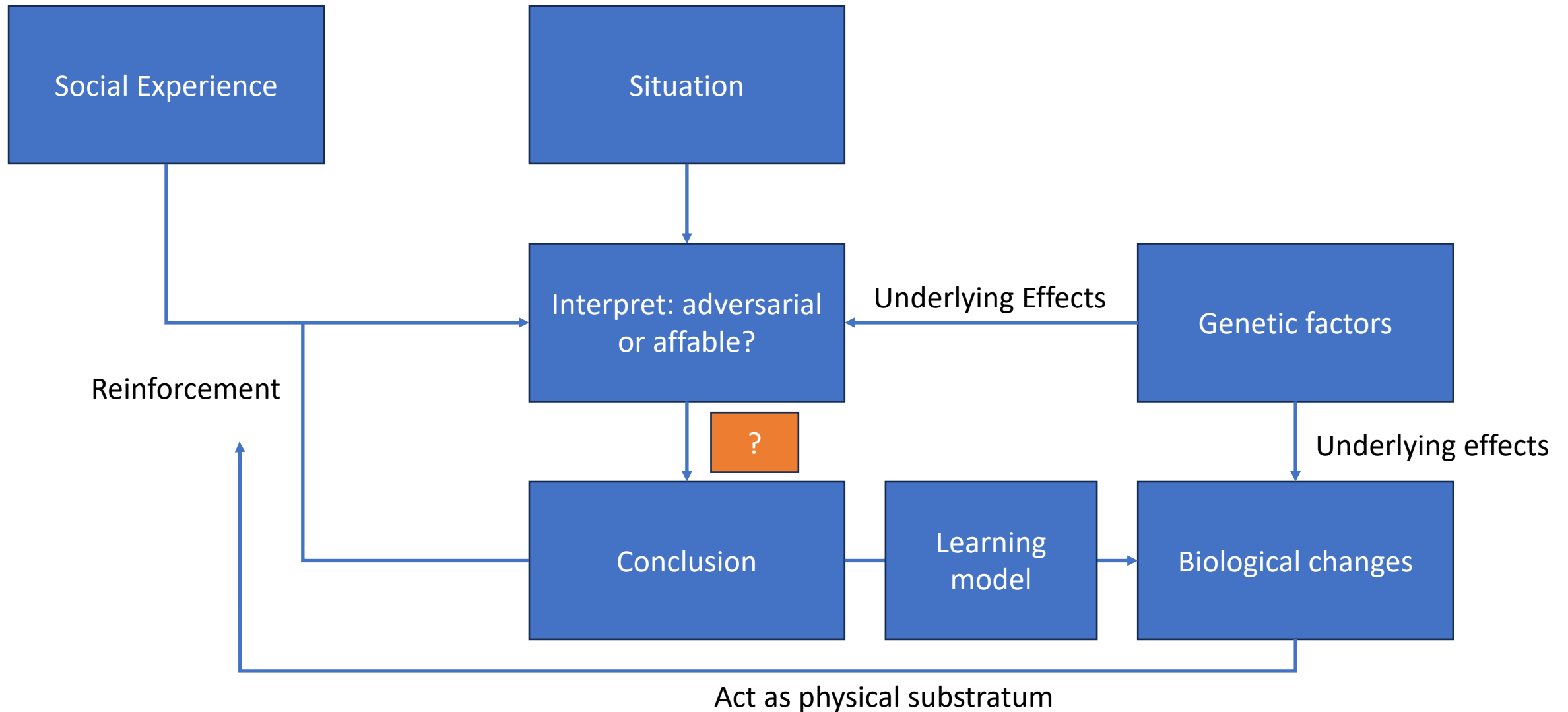
- Cognition is influenced by the body. As a scientist, what can you do with this claim? What are the new insights EC could offer to classic cognitive findings?
- EC hypothesis are extremely challenging to incorporate into a formal model and is therefore limited to broad, qualitative predictions. How might we write an equation that expresses embodiment? How can the environment (such as the affordances of various objects) be parameterized?
 - We already have many impressive models
 - The issue regarding models has immediate relevance, as it determines how we can proceed
- Not everything can be explained under the umbrella of EC

Reference: Goldinger et al. *The Poverty of Embodied Cognition*

C. Conclusion: no, but it enable us to see new answers

- Fuchs' model has overcome the eclecticism of biopsychosocial model by depicting how factors are interrelated
- By such, we could narrow down the question: how can we quantify the vertical and horizontal relationships between consciousness and brain?

One possible answer



Summary

- Be careful of neurocentric vision
- By adopting Fuchs' view on cognition, we are opened to more possible answers of consciousness
- But it failed give us actual answers that could make the notion be examined in the language of science
- Afteall, the importance of embodiment is unquestionable, and it shows us what we need to further investigate into in order to ignite the real Copernican shift in cognitive science