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“ ... What is the meaning of life? That was all--a simple question; one that tended to close in on one with years, the great revelation had never come. The great revelation perhaps never did come. Instead, there were little daily miracles, illuminations, matches struck unexpectedly in the dark; here was one. ”

Virginia Woolf: To the Lighthouse (1927)

In search of the **meaning of life**

3

Dame Antonia S Byatt (1936-2023)

Erasmus prize: into the writer's brain

4

Aristotle's radical idea:

Hedonia

- Pleasure (*hedús*, sweet taste of honey)
- Essential for survival: food, sex & social

Eudaimonia

- A life well-lived, embedded in meaningful values, together with a sense of engagement
- Subtle and complex – lack of well-being in mental health is devastating
- Difficult to reliably induce and measure but social, music, meditation & psychedelics may offer new avenues

Key ingredients of joy and thriving

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Brain anatomy is hierarchical

... here be dragons

But how is hierarchy orchestrated?

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Seeing sense

Annie Cattrell's sculptures of the five senses are on display at the Royal Institution in London.

Martin Kemp

The mission of the Royal Institution, founded in 1799, focuses on the aspiration to "diffuse knowledge, and, through philosophical lectures and experiments, apply science for the common purposes of life". Visual representation has always been central to this aim, not least through the popular dissections delivered by Michael Faraday in the nineteenth century. Faraday was appointed to a book-order before rising to become the greatest hands-on scientist of his generation. Among the real wonders that Faraday demonstrated at the Royal Institution were the first labelled 'photogenic drawings' (early photographs) by William Henry Fox Talbot. Their natural display in January 1839 was triggered by the startling French announcement at the Academy of Sciences two weeks earlier of Louis-Jacques Mande Daguerre's 'invention' of what came to be called photography. Finally, the exhibition 'From Wilton' by Annie Cattrell, the Royal Institution's artist in residence last year, includes photographs (direct responses) in

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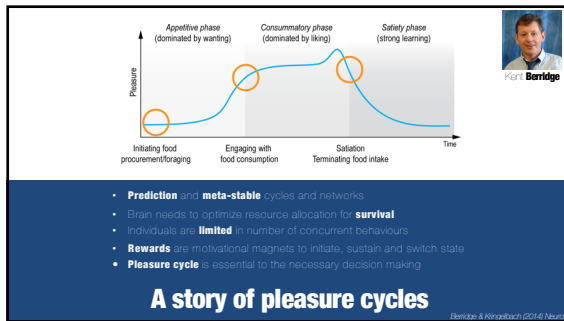
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“ ... in order to more effectively treat affective disorders, we need to develop a better understanding of hedonic processing in the human brain ”

Pleasure is at the heart of what makes us human, but at the same time it is also one of the most important factors keeping us from staying healthy. Understanding the underlying brain mechanisms of pleasure can help us better treat **anhedonia** which is a common problem of affective disorders.

Hedonia: Research objectives

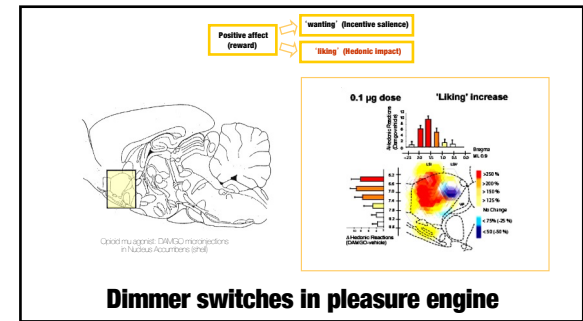
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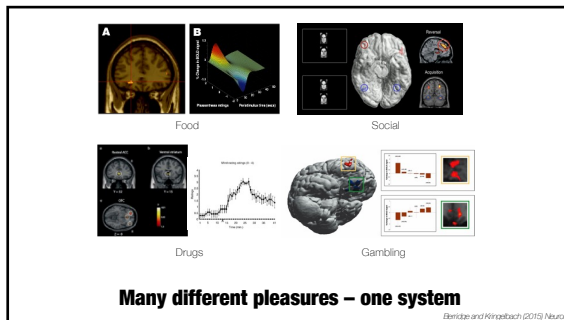
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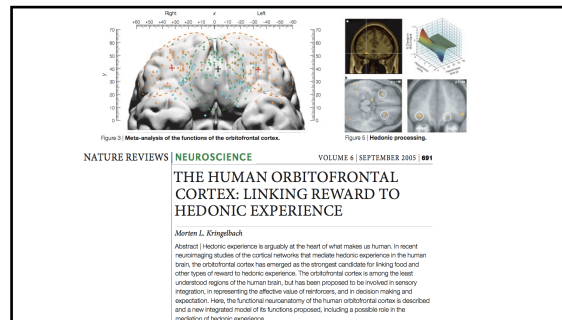
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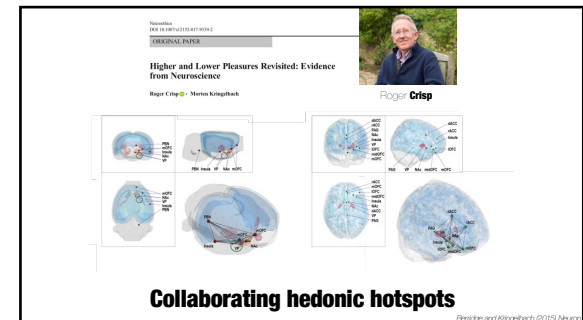
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- The Centre convenes and fosters an **interdisciplinary team** of neuroscientists, philosophers, psychologists, social scientists, physicists, biologists, musicians, anthropologists and artists
- The **collaborative goal** is to clarify underlying psychological, cultural and philosophical issues and connect these discussions to investigation of the neural mechanisms of **meaningful, flourishing** brain states
- The research uses **precise neuroscientific paradigms** as well philosophical and psychological analyses in collaboration with international partners

Vision for Centre

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- **Meaning** exists when an object/event brings something to mind other than the object/event itself
A.D. Patel (2006)
- Meaning can emerge from many things, including
 - **Sensorium** : Proust's Madeleine & sharing food
 - **Nurturance** : Parenting is highly meaningful
 - **Music** : Improvisation is reproducible flow
 - **Psychedelics** : Described by people as among five most meaningful experiences
 - **Meditation** : A route to deep insights, and for example protective of depression relapse

Emergence of meaning-making

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Centre Advisory board

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Centre Team

Centre Artists-in-Residence

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Orchestration of hierarchy

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Discovering brain orchestration with information theory

Dietsch, Volume 8, MemoryBrain (2021) Nature Human Behaviour

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Perspective

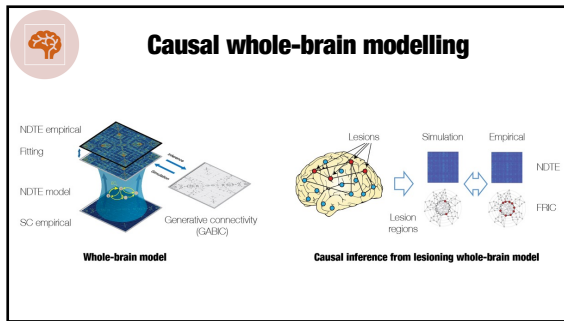
Great Expectations: Using Whole-Brain Computational Connectomics for Understanding Neuropsychiatric Disorders

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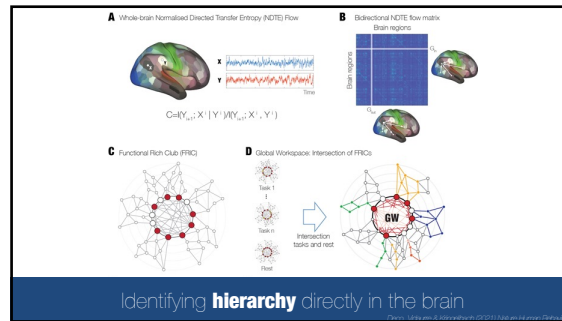
Slow brain but distributed network dynamics

The **human brain** is very slow, taking 10-20ms between neurons, with:
 Non-trivial connection topologies, non-linear coupling, transmission delays, weighted coupling strengths and heterogeneity
 So how can the brain ensure time-critical survival?

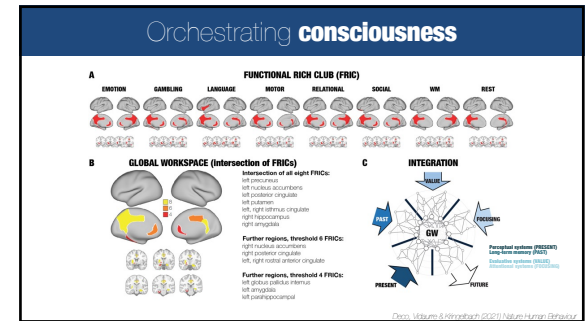
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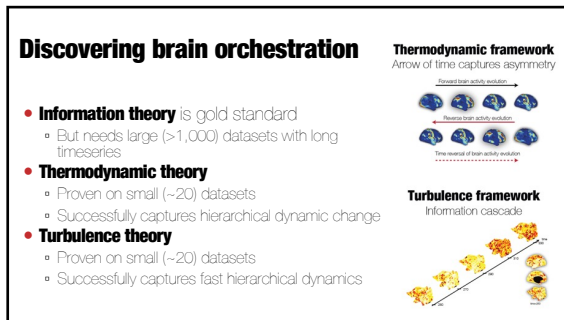
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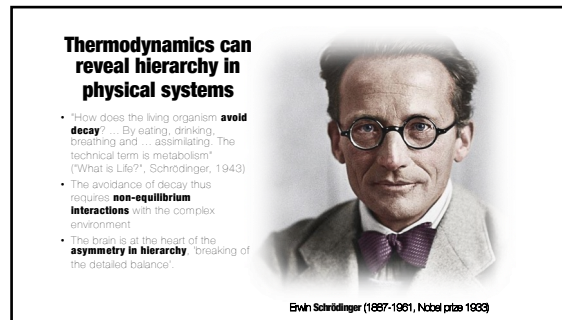
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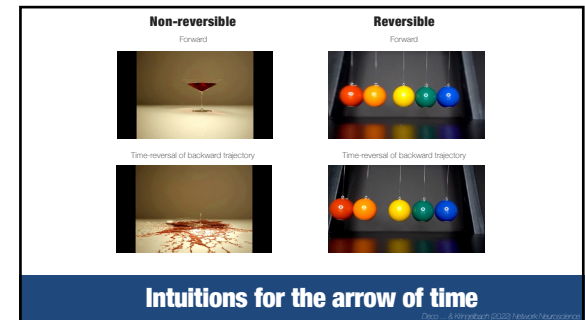
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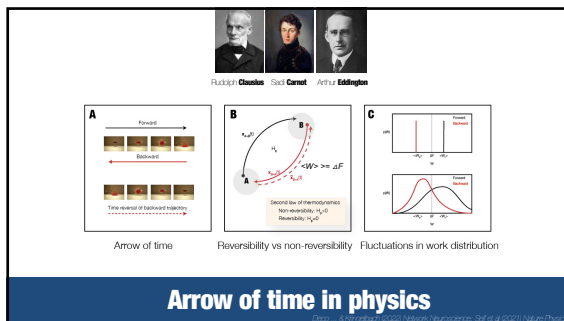
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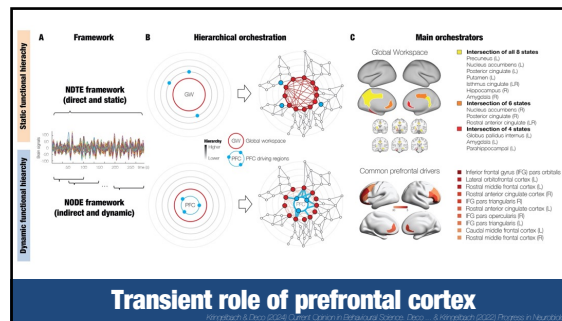
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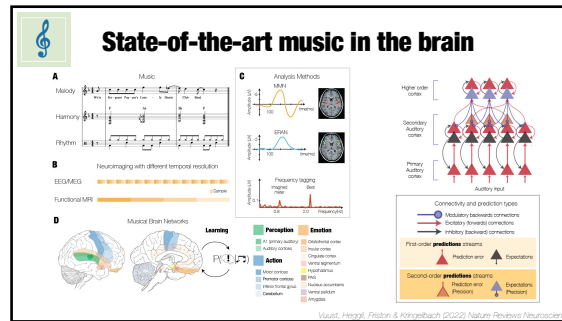
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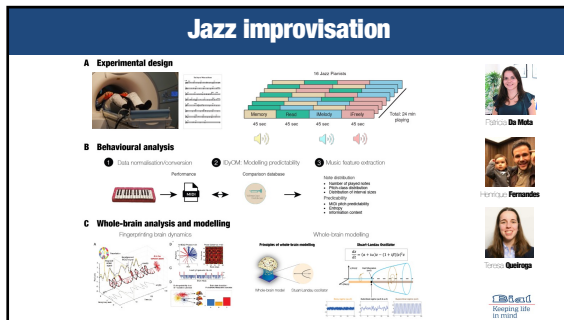
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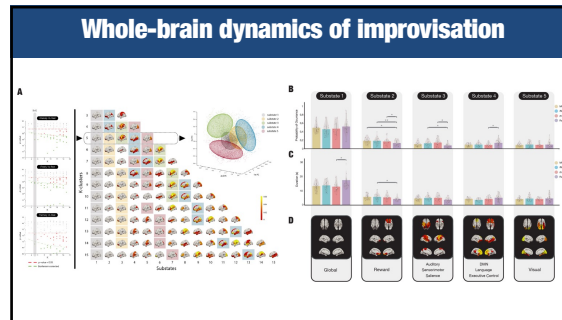
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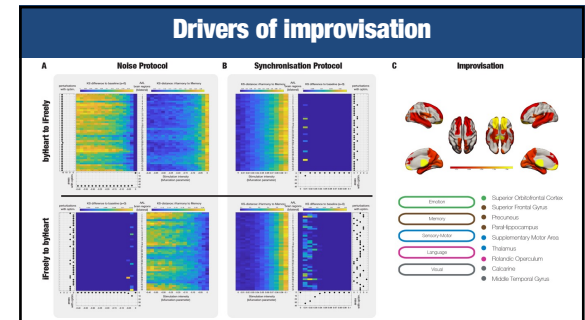
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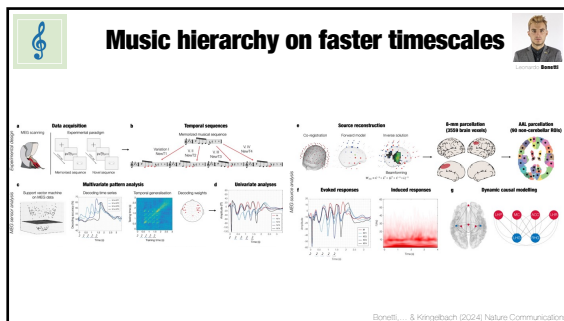
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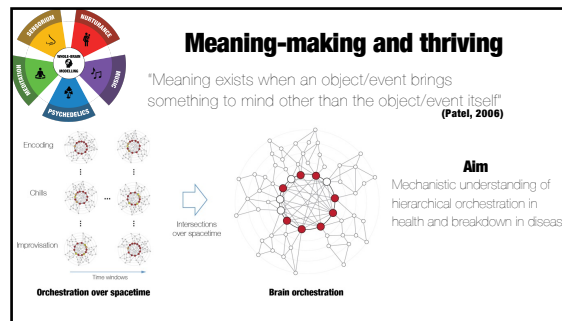
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REBUS and ANARCHIC brain hypothesis

Psychedelics work by modifying the brain's hierarchical processing in a dose-dependent manner

(Carhart-Harris and Friston, 2019)



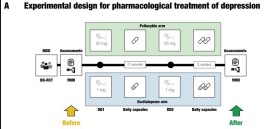
Robert Carhart-Harris Karl Friston

A leading hierarchical hypothesis

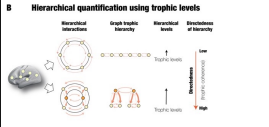
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Flatter hierarchy for psychedelics

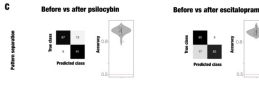
A Experimental design for pharmacological treatment of depression



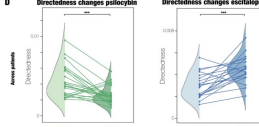
B Hierarchical quantification using trophic levels



C Before vs after psilocybin Before vs after escitalopram



D Directedness changes psilocybin Directedness changes escitalopram



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Effects of Ayahuasca Ingestion and Music on Changes in Hierarchy of Brain Dynamics among Santo Daime

Collaboration with Prof. Jan Raemaekers (Maastricht)

Katarina Jerotic

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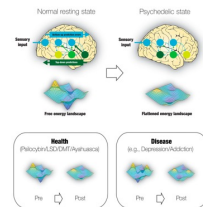
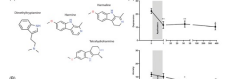

Psychedelia

DOI: 10.1126/science.1244818

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES

Psychedelia: The interplay of music and psychedelics

Katarina Jerotic^{1,2,3} | Peter Vuontis¹ | Morten L. Kringsdal^{1,2,3}

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- **Flourishing brain states** can now be identified
- Flourishing requires a working **hedonia** system
- **Whole-brain modelling** of neuroimaging of many types of flourishing states can identify causal networks
- Triangulation can serve as a **target constellation** for rebalancing the brain in disease
- This may help develop new **treatments** including behavioural treatments and music

Conclusions

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Empathy Museum

http://empathymuseum.com



EMPATHY

WHY IT MATTERS, AND HOW TO GET IT

ROMAN KRZNARIC

Clara Foley

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Caminhando em seus sapatos...

São Paulo, Brazil 27th August – 25th September 2022

A Mile in My Shoes, our partners in Brazil opened the Brazilian version of *A Mile in My Shoes* complete with shoebox at a new site in the gardens of Casa das Rosas, a public cultural centre at Avenida Paulista. This is a collection of 40 stories in Portuguese.



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