



Санкт-Петербургский
Государственный
Политехнический
Университет

Институт прикладной
математики и механики

КАФЕДРА ТЕЛЕМАТИКА

Семинар по специальности на английском языке

тема

The Beginning of Infinity

Workshop

Лекция 14

9 December
2020 г.

The Reach of Explanations

Closer to Reality

The Spark

Creation

The Reality of Abstractions

The Jump to Universality

Artificial Creativity

A Window on Infinity

Optimism

A Dream of Socrates

The Multiverse

A Physicist's History of Bad Philosophy - История плохой философии

Choices

Why are Flowers Beautiful?

The Evolution of Culture

The Evolution of Creativity

Unsustainable

The Beginning

Предел (достигаемость) объяснений

Ближе к реальности

Искра

Создание

Реальность абстракций

Переход к универсальности

Искусственное творчество

Окно в бесконечность

Оптимизм

Мечта Сократа

МультиВселенная

История плохой философии

Выбор

Почему цветы красивы ?

Эволюция культуры

Эволюция творчества

Неустойчивый

Начало

Explanation - Statement (заявление) about **what is there**, what it does, and how and why.

Creativity - The capacity to create **new explanations**.

Relativism- The conception that statements cannot be objectively true or false, but can only be judged (оценен) relative to some **arbitrary standard**.

Instrumentalism -The conception that science **cannot describe** reality, only **predict** outcomes of observations.

Evolution (Darwinian) -Creation of knowledge through alternating variation and selection.

Reductionism - The conception that science should always explain things by analysing them into **components** (higher-level explanations cannot **be fundamental**).

Infinite (mathematical) - A set is infinite if it can be placed in one-one correspondence with **part of itself**.

Infinite (physical) -A concept meaning something like 'larger than anything that could in principle be encompassed (охвачен) **by experience**'.

Computation - A physical process that instantiates (реализует) the properties of some **abstract entity**.

Quantum computation - Computation in which the flow of information is not confined to a **single history**.

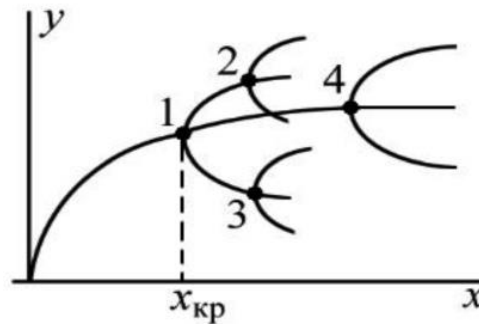
All progress, both theoretical and practical, has resulted from a single human activity: the **quest** for good explanations.

Though this quest is uniquely human, its effectiveness is a fundamental fact that it conforms to **universal laws of reality** that are in fact describe the **available for explanation** essences of Nature.



Must progress of explanations come to an end or is it unbounded?

Answer: That unboundedness of **explanation** progress is the real essence of 'infinity'.



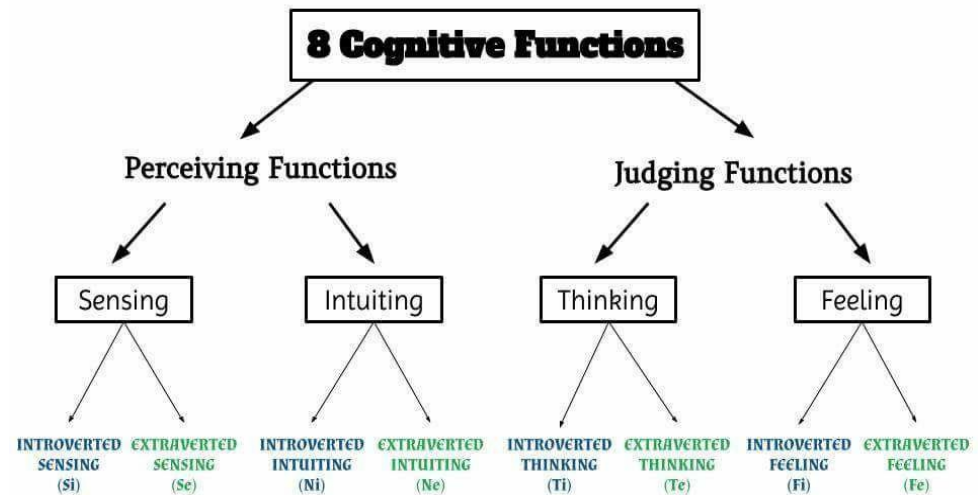
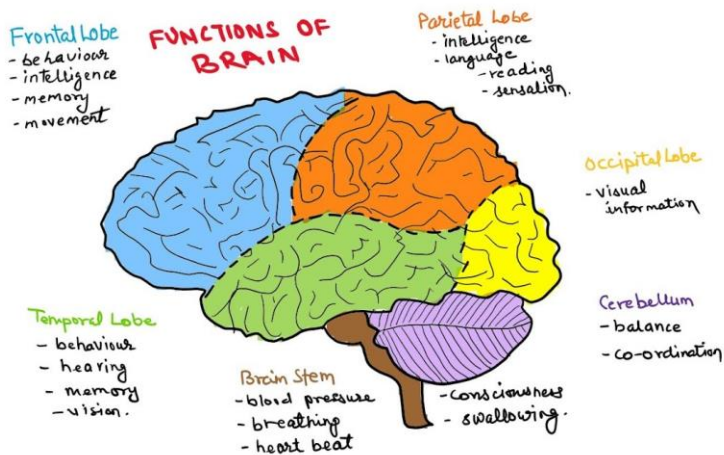
Technical questions: Can human to collect explanations, where explanation can be store and how to exchange ?

Why: Although progress has no necessary end, but it does have a necessary beginning - a causes, or an events with which progress starts.

But If causes, or an events are changes does explanation of reality changes too ?

Facts: They are (causes and explanations) all facets of a commone feature of reality, which defines the beginning of understandinf of cause of infinity

Can AI provide **narrative (using texts)** or **normative (by laws)** explanations of reality (life or mind)?



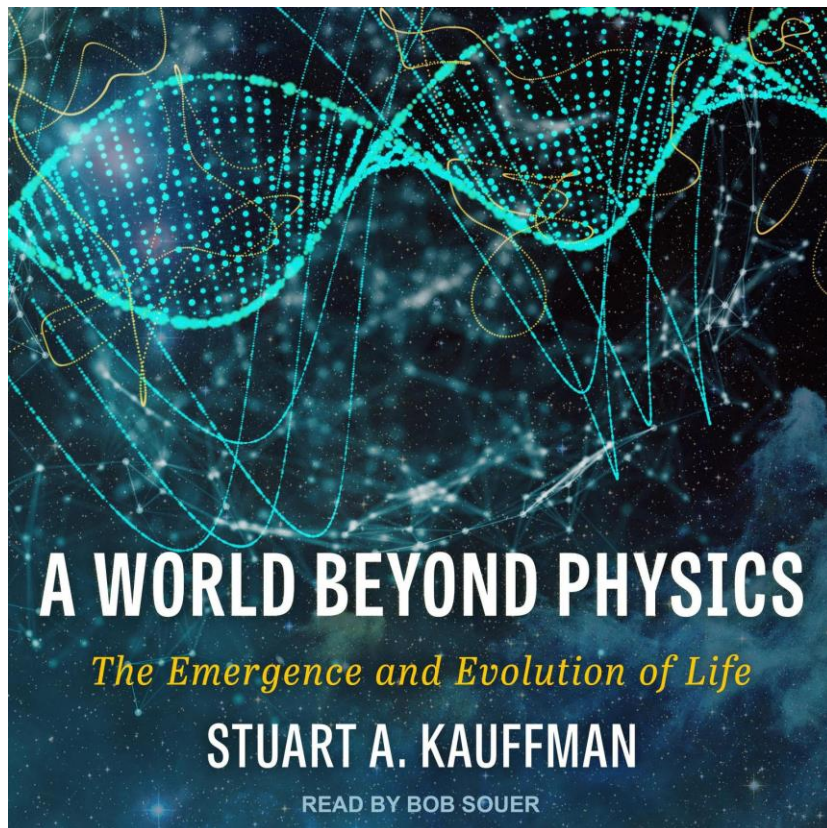
Or provide

- uploading human minds into computers
- superpositioning of cognitive and recursive functions in common operation field of explanations

Narrative – описательный
Normative – «образцовый»

The physical world is not only much bigger but also immensely (безмерно) richer in detail, and diversity. Physics following according to objective laws that human should **understand** in some depth. Which is more awesome: the phenomena themselves or the fact that we have explanations of phenomena ?

human = physics body + mind + esthetic



... so we have to hope that an ethical evolution comparable to the technological revolution will occur at the same time, beautifully synchronized.

