



Emergentism revisited

Mind the gaps!

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INTRODUCTION

The “**explanatory gap**”⁸ is proposed to be the “hard problem” of consciousness research and has generated a great deal of recent debate.

Arguments brought forward to reveal this gap include the **conceivability of zombies**⁴ or the “super-neuroscientist” **Mary**⁷. These are supposed to show that the facts of consciousness are not a priori entailed by the microphysical facts.

Similar arguments were already proposed by **emergence theories**³ in the context of the debate between *mechanism* and *vitalism*. According to *synchronic emergentism*, the property of a system is emergent, when it cannot - in principle - be deduced from a complete description of the system’s components.

Here, I argue that apart from phenomenal properties there are many other properties that, even though they are clearly physical, are not reductively explainable either. The explanatory gap of consciousness is therefore only a part of a much more general problem.

WHAT IS AN EXPLANATORY GAP?

In a **reductive explanation**, the description of the *explanandum* (E*) should follow from a description of the *explanans* (E), i.e. the higher-level properties of a system should be deducible from an analysis of its lower-level properties. In other words: **Given the explanans E it should be inconceivable that the explanandum E* does not occur.**

Many hold that we have a reductive explanation with the chemical theory of water, but not with a physical or functional theory of qualia⁸.

In the case of water the reductive explanation goes like this: Stage 1 tells us that water is the kind of thing that boils and freezes. Stage 2 contains the story about the H₂O molecules that undergo a phase transition.

We need **bridge principles** between the macrophysical (stage 1) and the microphysical (stage 2) descriptions.

Bridge principles are **identity claims**, such as water = H₂O; heat = molecular kinetic energy.

But: Identity claims are **not a priori** (nor a priori deducible), but are derived from **empirical correlations**.

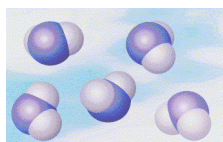
If bridge principles are not a priori deducible, the non-occurrence of E* is not inconceivable.

Thus, there is no principal explanatory asymmetry between, e.g. ‘water’/‘H₂O’ and ‘pain’/‘brain states’.

While some conclude that therefore, there is no principal explanatory gap of consciousness², I argue that **insofar as phenomenal properties are not reductively explainable, properties like water or motion are not reductively explainable either.** What we need is a different type of explanation.

MIND THE GAPS: THEY ARE EVERYWHERE!

THE WATER EXAMPLE : Liquidity is not entailed by microphysics

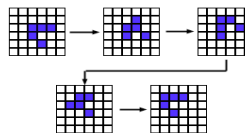


While the explanans is about an **aggregation of discrete H₂O molecules**, the explanandum refers to a **liquid as a continuous substance** that is not composed of discrete components.

⇒ **One cannot move from a microphysical description alone to the conclusion that water is liquid.**

Insofar as ‘liquidity’ is not entailed in the microphysical description of H₂O, it is an **emergent property**, i.e. it is not reducible.

THE “CONWAY’S GAME OF LIFE”- EXAMPLE: The emergence of motion



- A living cell with 2 or 3 neighbors remains alive.
- A dead cell with exactly 3 neighbors is born.
- All other cells die (from loneliness or overcrowding), or else remain dead.

A ‘glider’

At the physical level, there is no motion, there are only individual cells whose spatial location is fixed. Motion, as we see it when a ‘glider’ moves across our computer screen, is not entailed in a description of the individual cells and the rules of the game. **Motion emerges with the higher-level description of and the application of a different spatio-temporal scale to the game**⁵. Neither of the two descriptions are more or less “real”.

CAN WE EXPLAIN THE EXPLANATORY GAPS?: “PERSPECTIVAL REALISM”¹⁰



Every judgement that can be gained about a part of the world is based upon the application of discriminatory capacities/concepts¹².

A mereological system can be described ‘from above’ or ‘from below’ and with respect to **different spatio-temporal scales**. In other words: We can change our perspective towards things. In a description ‘from above’ form is emphasized, while in a description ‘from below’ matter is accentuated¹. **Different descriptions of the same thing** can both be regarded as **real**, given that their **utility** is well defined⁶.

Thus, it is inadequate to view the world exclusively from a causal-physicalist perspective¹¹. We will not get a **full** understanding of consciousness (nor of other phenomena) if we focus solely on this perspective.

However, the solution to the ‘explanatory gaps’ cannot simply consist in noting that we have different stances, and that within these stances, different patterns emerge. This would be an ‘*empiristic circle*’. **Our stances themselves, and the concepts associated with them, call for an explanation.** ⇒ In order to close the ‘explanatory gaps’ we have to show why it is **possible** as well as **sensible** to change from one stance/concept to the other.

CONCLUSIONS

The facts of consciousness are not a priori entailed by the microphysical facts. But the facts about water, heat, or motion in the “game of life” are not a priori entailed by the microphysical facts either! ⇒ **The explanatory gap is not unique to phenomenal states.**

If we want to explain consciousness, we have to see the explanatory gap of consciousness as part of a broader problem, namely the fact that we can classify things from **different perspectives** with the help of **different concepts**.

What we need is **not a reduction** of one concept to the other, but a systematic and rational **reconstruction** of these concepts **and** the transitions between them.

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