

Consciousness: from philosophy to neuroscience

Thursday 30.9.2021
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<https://www.ini.uzh.ch/~kiper/consciousness.html>

Caveat

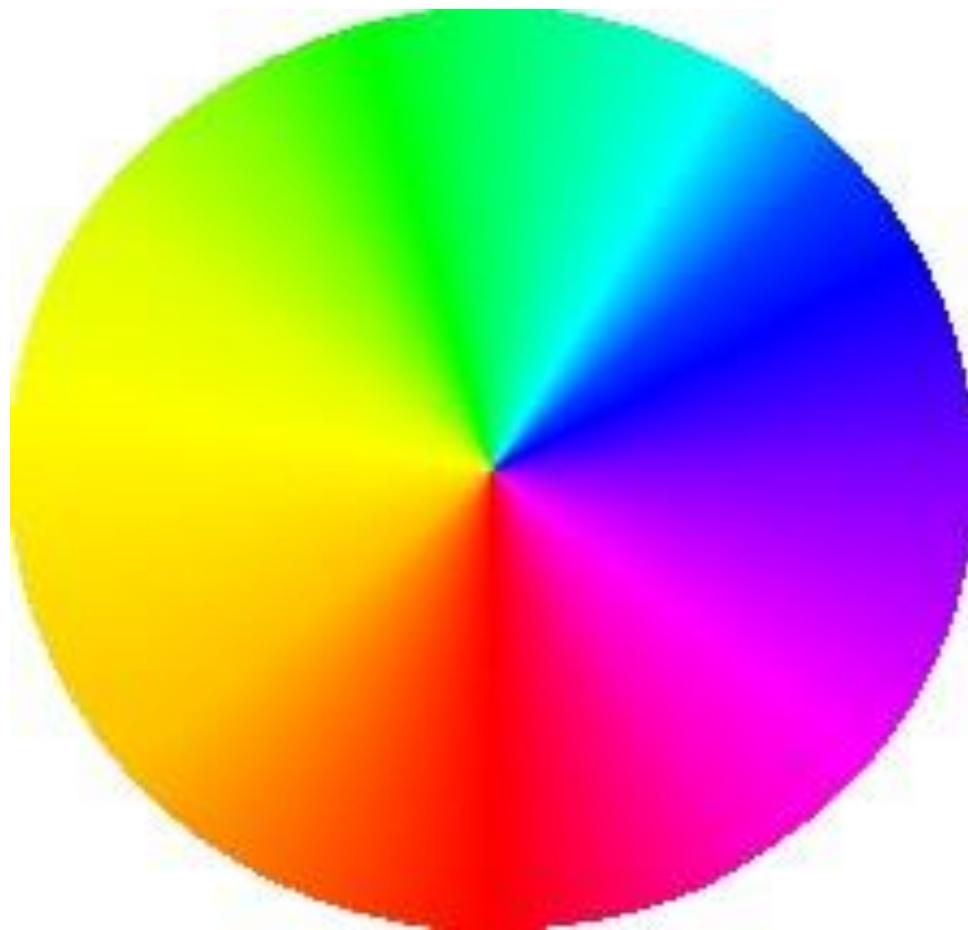
- Different people have different definitions of consciousness
- This course is about *one particular meaning* of consciousness, because it is this meaning that poses the scientific challenge and makes consciousness such an intractable problem
- Coming to this course, you might have a different definition and therefore different expectations. If the definition of consciousness we deal with in this course is not the one you care about, feel free not to take it. You may, however, consider staying at least long enough to find out whether you may not still be interested in what we have to offer.

Indirect definition

- G. Tononi (2008):
- „Everybody knows what consciousness is: it is what vanishes every night when we fall into dreamless sleep and reappears when we **wake up...**“

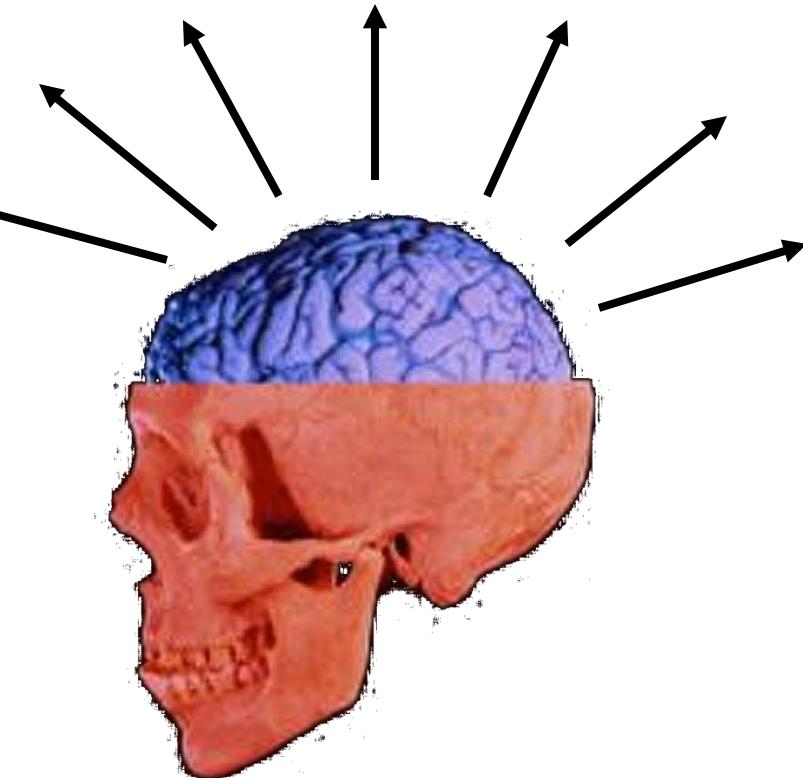
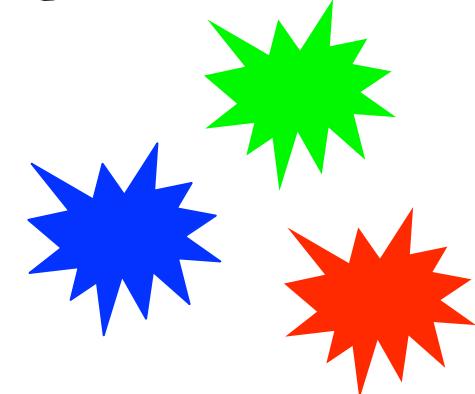
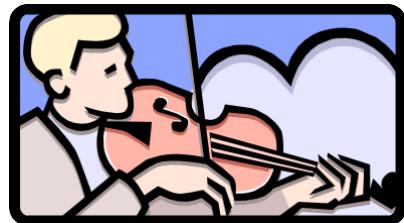
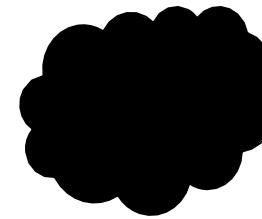
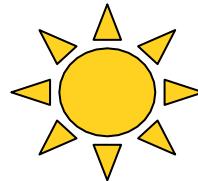
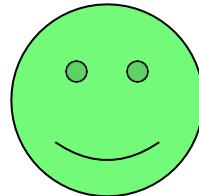
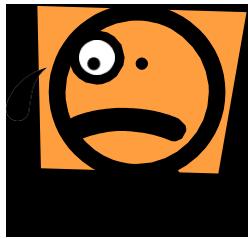
Consciousness = Qualia

- The critical meaning of consciousness is “**phenomenal experience**”: the having of states with a qualitative character („qualia“).
- A state is conscious whenever **there is something it is like to be** in that state.



Consciousness = Qualia = there is something it is like to...

- ...see the color red
- ...have a headache
- ...be in love
- ...hear a trumpet
- ...stroke a cat
- ...eat a candy
- ...get stung by a bee
- ...dream
- ...be surprised by a compliment
- ...think about your taxes
- ...have an orgasm
- ...etc
- ...etc



Qualia: There is something it is like...

- Here are three quotes by philosophers explaining the expression "there's something it is like".
- The first one is by Th. Nagel, who popularized the phrase.
- »...the fact that an organism has conscious experience *at all* means, basically, that there is something it is like to *be* that organism... [F]undamentally an organism has conscious mental states if and only if there is something that it is to *be* that organism—something it is like *for* the organism.«
- Thomas Nagel (1974) "What is it like to be a bat?" The Philosophical Review LXXXIII, 4:435-50

Qualia: There is something it is like...

- »Consider your visual experience as you stare at a bright turquoise color patch in a paint store. There is something it is like for you subjectively to undergo that experience. What it is like to undergo the experience is very different from what it is like for you to experience a dull brown color patch. This difference is a **difference in** what is often called '**phenomenal character**'. The phenomenal character of an experience is what it is like subjectively to undergo the experience. If you are told to focus your attention upon the phenomenal character of your experience, you will find that in doing so you are aware of certain qualities. These qualities — ones that are accessible to you when you introspect and that together make up the phenomenal character of the experience are sometimes called '**qualia**'.«
- The Stanford Encyclopedia of Philosophy (SEP) (1997/2013) "Qualia"

Qualia: There is something it is like...

- »The subject matter is perhaps best characterized as “the subjective quality of experience”. When we perceive, think, and act, there is a whir of causation and information-processing, but this processing does not usually go on in the dark. There is also an internal aspect; there is **something it feels like** to be a cognitive agent. This internal aspect is conscious experience. Conscious experiences range from vivid color sensations to experiences of the faintest background aromas; from hard-edged pains to the elusive experience of thoughts on the tip of one’s tongue; from mundane sounds and smells to the encompassing grandeur of musical experience; from the triviality of a nagging itch to the weight of a deep existential angst; from the specificity of the taste of peppermint to the generality of one’s experience of selfhood. All these have a **distinct experienced quality**. All are prominent parts of the inner life of the mind.«

Qualia: There is something it is like...

- »We can say that a being is conscious if there is *something it is like* to be that being, to use a phrase made famous by Thomas Nagel. Similarly, **a mental state is conscious if there is something it is like to be in that mental state**. Equivalently, we can say that a mental state is conscious if it has a ***qualitative feel***—an associated quality of experience. These qualitative feels are also known as phenomenal qualities, or ***qualia*** for short. The problem of explaining these phenomenal qualities is just the problem of explaining consciousness. This is the really hard part of the mind–body problem.«
- David Chalmers (1996) "The Conscious Mind. In Search of a Fundamental Theory". Oxford University Press: Oxford

Convention

- In this course, we use the word „consciousness“ as a synonyme for the word „qualia“.
- Personally, I will also use the word „experience“ as a synonyme for „consciousness“ / „qualia“
- If you use these words differently, please state so clearly and state what you mean by them.

Properties of consciousness

Consciousness/qualia: features

- phenomenality, „what-it-is-likeness“ - *essential!*
- subjective, first-person perspective
- structured into sensory modalities, emotions, sensations, pains, thoughts
- immediately given, familiar
- private
- ineffable/incommunicable
- non-transferable?
- unity
- degrees of intensity/vividness
- incorrigible/infallible?
- intentional (but not always)
- pleasure/unpleasure distinction („valence“)
- center/periphery of attention

Qualia are subjective

- Consciousness = qualia are subjective.
- They only exist as **had by a subject**.
- Through consciousness, a subject experiences the world from a unique, „ego-centric“ perspective, the so-called 1st-person perspective.

Consciousness is structured

- ...into sensory modalities, emotions, moods, sensations, pains, thoughts/cognition
- They are all **different kinds of qualia**
- Are thoughts really conscious?
- Are there other things not listed that are experienced consciously?

Are qualia private and ineffable?

- Consciousness = qualia are private, they're **only accessible by the subject** who has them; they cannot be shared with others; another person cannot experience my qualia, and I cannot describe them to another person so that this person can know or experience them (they are "ineffable" = indescribable and incommunicable)
- Example: try to communicate what it is like to see red to a blind person (who has never had „red qualia“) so that this person consciously experiences red

Are qualia private and ineffable?

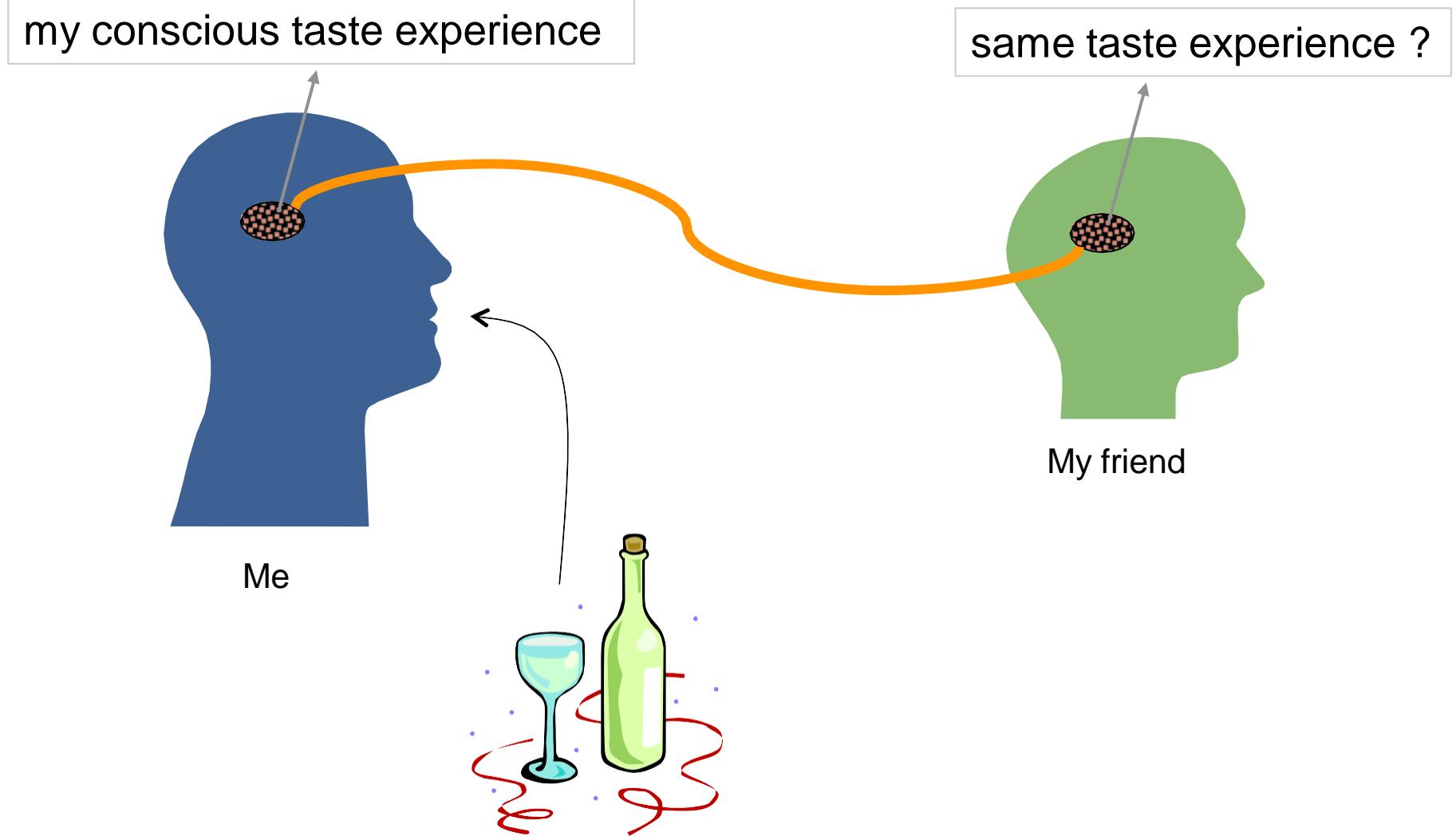
- V.S. Ramachandran:

"The epistemic barrier for communicating qualia is only a natural-language problem. If we skip the language translation and use a neuron bridge, one person can experience another person's qualia"

Privateness of qualia?

- Could my friend experience my qualia, let's say the taste of a certain wine, if she was hooked directly to my brain, maybe through a neuron bridge, as Ramachandran suggests?

Privateness of qualia?



Privateness of qualia?

Several issues are important to answering this question:

- only a bridge of neurons is probably not enough: relevant parts of my friend's brain would have to be identical to my brain.
- ...but which parts?
- would the **whole brain** have to be "copied"?
 - if so, would this mean that I become the **same person** as my friend?
 - if so, what features of the brain would have to be copied? The pattern of connections between the neurons? The structures of the synapses? Or would a molecule-by-molecule copy be necessary? Would we even have to copy the quantum states?
- or is it possible that only a certain localized brain region completely determines my qualia, so that only this **particular brain region** would have to be identical in my friend?
- or might we even have to copy the **whole body**?

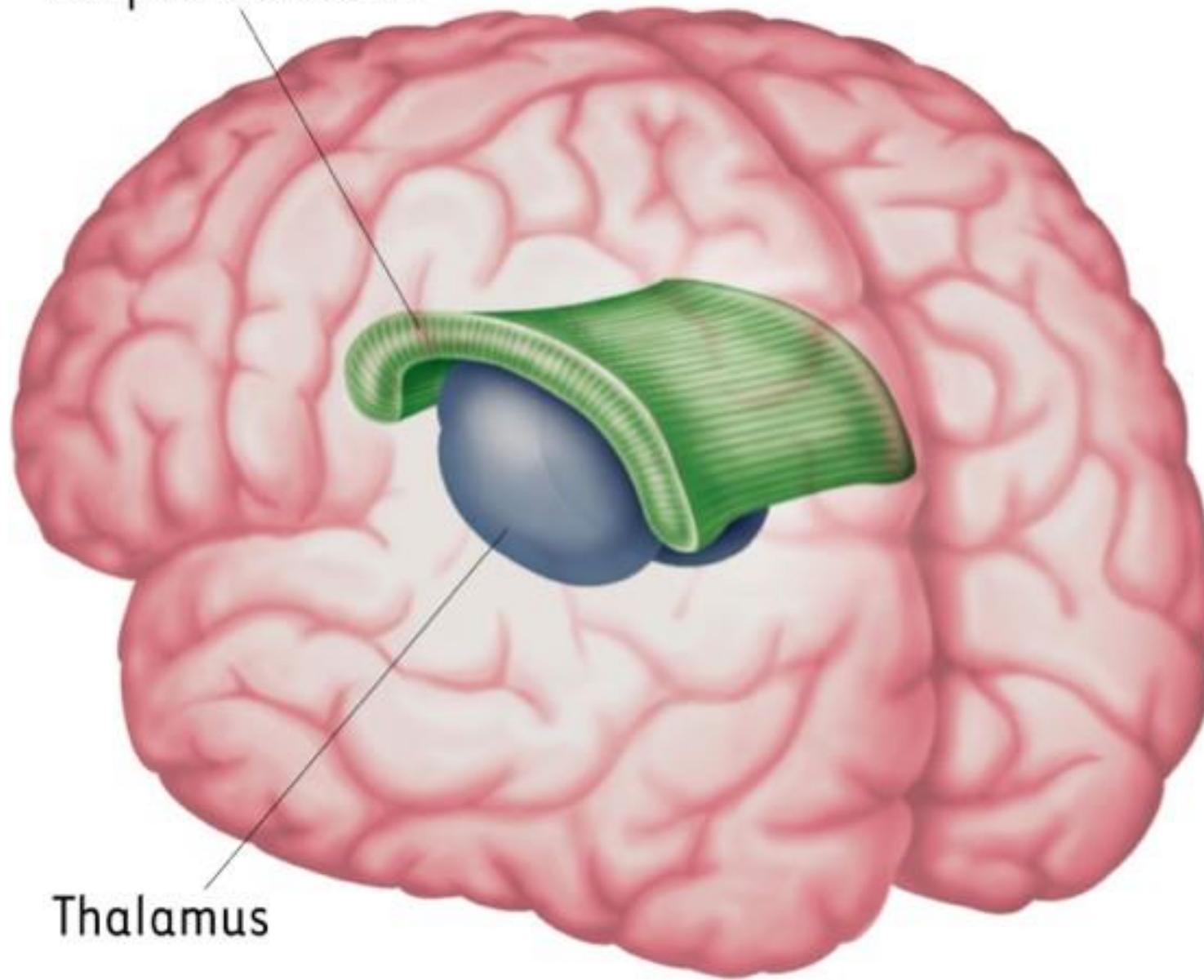
Privateness of qualia?

- Is it even possible that only a certain conscious experience can be copied (e.g. the taste of a particular wine)? Could my friend and I have the **same qualia of the wine, but different other qualia?** For example, is it possible that we experience the same taste of wine, but my friend likes this taste, whereas I don't like it?
- Or can we only have the same qualia of the wine if *all* our qualia, if *all* our conscious experience is the same?
- Finally, what does it mean for two individuals to have the same qualia? Does it mean they have to be identical in some sense to be able to experience the same qualia?

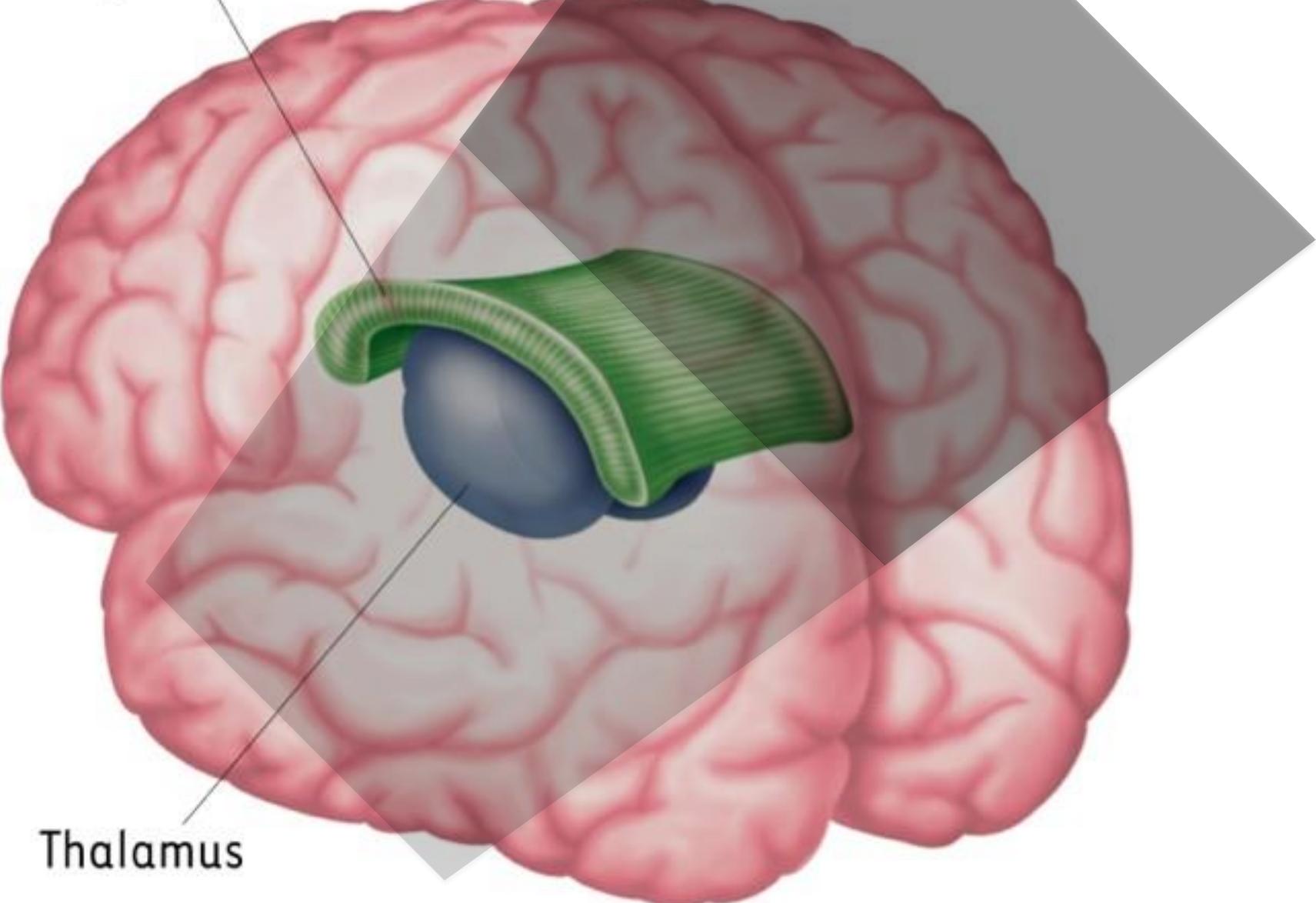
Is consciousness united?

- Consciousness gives us one unified „picture“ of the world. There is only one, undivided consciousness. It seems that consciousness is necessarily unified and indivisible.
- Or can we think of it any other way?
- Cf. Split-brain patients

Body of
corpus callosum



Thalamus



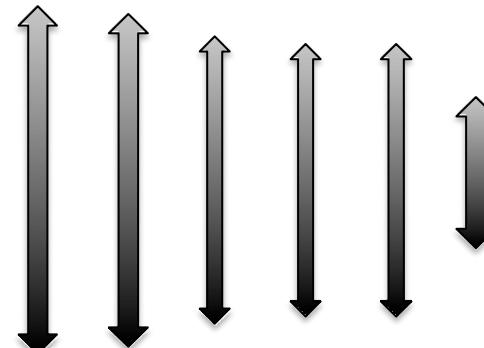
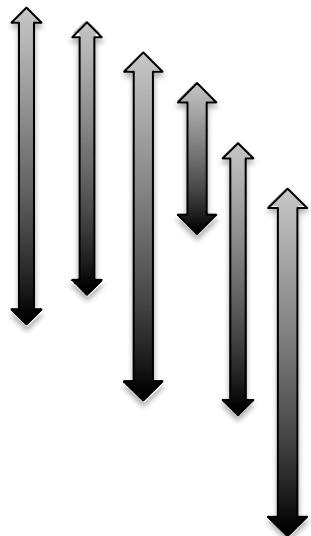
Body of
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Thalamus

Consciousness/qualia: degrees of intensity/vividness

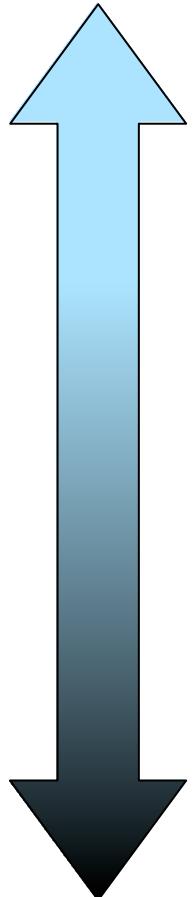
Qualia seem to come in degrees of intensity

- Do some have higher maximum or average intensities than others?
- Do some have wider ranges of intensity than others?
- Can you order them according to one of these criteria?
Which one makes the most sense to you?



Consciousness/qualia: **maximum** or **average** degrees of intensity/vividness

intense, vivid



vague, diffuse, weak

pains

memories

inner speech

sensory impressions

(colors, sounds, smells, touches, tastes)

thoughts

emotions (happiness, sadness, anger, fear...)

orgasms

sense of self

mental images

hunger, thirst moods

itches, tickles

Some qualia have valence

- There is a fundamental bipolar dimension about some of our conscious states: the continuum from pleasurable to unpleasurable
- Classic example: emotions, feelings („emotional valence“)

Consciousness and related concepts

- **Awareness**: unclear usage. Sometimes used to define consciousness („phenomenal awareness“, „conscious awareness“)
- **Mind**: the totality of informational states and processes in the brain, including conscious and non-conscious states/processes
- **Cognition**: in a broad sense everything that is occurring in the brain between sensory input and behavioral output, but mostly used more narrowly in contrast to perception and emotion; includes both conscious and unconscious states/processes
- **Perception**: unclear usage: may or may not include consciousness / qualia
- **Experience**: unclear usage: sometimes used as a synonym for consciousness / qualia (like in this course)

Consciousness and attention

- Conceptual difference: **attention** is a **process**, while **consciousness** is a **state** or property
- **Attention selects**, determines, and modulates conscious experience (→ inattentional blindness, backward masking, attentional feature modulation)
- However, there seems to be conscious experience outside of attention (e.g. the fringes of our visual field)
- Attention may render conscious perception more detailed and vivid, but might not be strictly necessary for conscious perception

Are qualia necessarily tied to a subject / self?

- When there are phenomenal experiences / qualia, must there also be an experiencing subject or self?
- Or is pure, „selfless“ phenomenal consciousness conceivable? (perhaps in meditation?)

Self and consciousness

- Some people think that the self and consciousness are inextricably linked:
- Flohr:
 - the occurrence of higher-order, self-reflexive states are necessary and sufficient for consciousness
 - “Phenomenal states are cognitive events that presuppose a model of the world and of the self”
- Damasio:
- Two problems of consciousness:
 - qualia (“mental images”)
 - the sense of self (the observer and owner of and potential actor on qualia/mental images)
 - “The second problem is intimately related to the first, which is nested within it.”
 - “The creation of a first-person perspective, of subjectivity, is the puzzle on which consciousness hinges, and as far as I can see, accounting for subjectivity is necessary to deal with the matter of consciousness in a comprehensive way.”

Self and consciousness

- Ramachandran:
 - Since qualia are generated *for* someone or something - presumably 'the self' - the problem of the self and the problem of qualia are really just two sides of the same coin. The self, however, may be just a "form of adaptive self-deception or delusion", which we must nevertheless explain.