Perception and Skepticism: From Eden to the Matrix

David Chalmers

Two Issues

- I'll explore the relationship between
  - perceptual content: how does perception represent the world; and
  - external-world skepticism: how can we know about the external world?

The Edenic Model of Perceptual Content

- Edenic redness: primitive redness, as it was in the Garden of Eden
- In color experience, we're presented with an Edenic world of primitive color qualities

The Fall From Eden

- We ate from the Tree of Science, and discovered that we do not live in Eden
- Objects don't have primitive color qualities
- Just complex surface reflectances and a causal chain to color experience

Colors After Eden

- After the fall from Eden, apples are still red.
- We identify redness not with Edenic redness, but with ordinary (imperfect) redness: a surface reflectance.
- Ordinary redness is identified as that physical quality that is causally responsible for our experiences of redness.

Imperfect Realism

- There is are no perfect colors: colors exactly as presented in experience.
- But there are still imperfect colors: properties that play the color role.
- Our experiences are not perfectly veridical, but they're imperfectly veridical.

Two Layers of Content

- Perceptual experience has perfect and imperfect veridicality conditions:
  - Edenic content, presenting primitive colors
  - ordinary content, representing imperfect colors in virtue of their roles

Inverted Earth

- Inverted Earth cases: (what we call) red experiences are caused by (what we call) green things.
- On Inverted Earth, 'red' refers to (what we call) green, and red experiences represent imperfect greenness.

Categorical and Structural Grasps

- Intuitively, we have a categorical grip on (perfect) colors: a direct grasp of their intrinsic nature.
- After the fall, we have a structural grasp of (imperfect) colors: grasping them in virtue of the roles they play.

Color Primitivism and Color Functionalism

- We've gone from color primitivism (directly grasping perfect colors) to color functionalism (grasping imperfect colors in virtue of their roles).

Color Skepticism?

- If color primitivism is correct, the skeptical hypothesis that our color experience is systematically illusory is natural: coherent and even plausible
- If color functionalism is correct, the hypothesis is less natural and perhaps not coherent: if 'red' picks out the normal cause of red experiences, the normal cause of red experiences can't be a property distinct from redness

From Color to Space

- What holds for color also holds for space.

Space in Eden

- In Eden, there were perfect spatial properties: Euclidean distances, perfect squares, and so on.
- Then we ate from the Tree of Science (relativity, quantum mechanics)
- We no longer have perfect spatial properties, just imperfect properties that play their role.

Relativity and QM

- Relativity: nothing is absolutely square, just square relative to a reference frame.
- Quantum mechanics: 3-dimensional space isn't primitive, but arises derivatively from a high-dimensional configuration space.

No Transparent Grasp

- We don't have a transparent grasp of spatial properties and relations
  - left vs right
  - absolute size
  - shape and relative size
- One can bring this out with spatial Twin Earth cases.

Twin Earth

- Oscar on Earth uses ‘water’ for H2O, Twin Oscar or Twin Earth uses ‘water’ for XYZ
- Bert on Earth uses ‘red’ for reflectance1, Twin Bert on Inverted Earth uses ‘red’ for reflectance2.

Twin-Earthability

- So ‘water’ and ‘red’ are Twin-Earthable: a functional/phenomenal duplicate can use a corresponding term (nondeferentially) with a different referent.
- Correspondingly, we do not have a transparent grasp of water or of redness: we’re related to them opaquely, in virtue of the roles they play.

Spatial Twin Earth

- We can also construct Twin Earth cases for
  - ‘left’ and ‘right’
  - ‘one meter’
  - ‘square’

Mirror Earth

- On Mirror Earth, everyone has left-right inverting contact lenses, and left-right inverting motor effectors.
- My brain-twin on Mirror Earth deals with a left-right inverted environment.
- He says ‘The cup is on my left’ when it’s on (what I call) his right.
- Plausibly: he speaks truly and perceives veridically. ‘Left’ for him refers to rightness.

‘Left’ and ‘Right’

- ‘Left’ and ‘right’ are Twin-Earthable.
- We don’t have a transparent grasp of the relations to-the-left-of and right-of.
- N.B. there’s no absolute left and right in physics.
- Arguably there’s not even absolute left and right in phenomenology.

Doubled Earth

- On Doubled Earth, everything is twice as large as on Earth but otherwise isomorphic.
- My doubled twin says ‘That’s one meter long’ when things are (what I call) two meters long.
- Plausibly: he speaks truly and perceives size veridically.

Twin-Earthable Size Terms

- So ‘one meter’ is Twin-Earthable.
- We don’t have a transparent grasp of one-meter-long.
- N.B. There’s no absolute size units in physics, and arguably no absolute size units in phenomenology.

Lorentz Contractions

- Special relativity tells us there are Lorentz contractions.
- When objects travel at 0.87 times the speed of light, they contract by a factor of 2 in the direction of travel. [Relative to our reference frame.]

Lorentz Earth

- Lorentz Earth is just like Earth but traveling at 0.87 times the speed of light relative to us, with everything compressed 2:1.
- Where Albert sees a square, Compressed Albert sees (what we call) a 2:1 rectangle.
- Compressed Albert says ‘That’s a square’, and speaks truly.

Twin-Earthability

- So ‘square’ is Twin-Earthable: Albert’s term refers to squares, Compressed Albert’s to 2:1 rectangles.
- So is ‘same length’.
- We don’t have a transparent grasp of squareness, or of the equal-length relation,

Spatial Functionalism

- All this suggests *spatial functionalism*.
- We don't have an absolute or categorical grasp of spatial properties, but instead refer to them in virtue of the roles they play, especially in causing spatial experiences.

Spatial Primitivism

- We have a phenomenology as of absolute shape, e.g. Edenic squareness.
- The world doesn't have absolute shapes and Edenic squares.
- But it still has imperfect squares: things that play the relevant role in causing our experiences.

Quantum Mechanics

- Spatial functionalism is also suggested by quantum mechanics.
- On the most common view, 3/4-dimensional space isn't fundamental but derives from fundamental high-dimensional configuration space.
- It's plausibly picked out in virtue of its role in causing spatial experience.

Spatial Skepticism?

- If spatial primitivism is correct, the skeptical hypothesis that our spatial experience is systematically illusory is natural: coherent and even plausible
- If spatial functionalism is correct, the hypothesis is less natural and perhaps not coherent: if ‘square’ picks out the normal cause of square experiences, the normal cause can’t be a property other than squareness.

Skepticism and Spatial Primitivism

- I suggest: our Cartesian skeptical intuitions are typically tied to an underlying spatial primitivism.
- First: Cartesian skeptical hypotheses turn on the hypothesis that spatial experiences and beliefs are incorrect.
- Second: That hypothesis typically turns on an underlying spatial primitivism.

Skeptical Scenarios

- Consider an evil-demon, brain-in-vat, or Matrix scenario
- Given spatial primitivism, these are hypotheses where spatial experience is nonveridical: there are not objects located where they seem to be.
- Given spatial functionalism, these are much less clearly hypotheses where spatial experience is nonveridical.

Spatial Functionalism and the Matrix

- E.g. if we're in a Matrix, our experiences as of squareness will be systematically caused by a certain computational property: call it virtual squareness.
- Given spatial functionalism, 'square' then refers to virtual squareness.
- Our experiences of squareness will be veridical iff they have objects with virtual squareness - which they plausibly do.

The Matrix as Fall from Eden

- A Matrix scenario is analogous to the Galiliean and Einsteinian falls from Eden:
  - After Galileo, red is a reflectance property
  - After Einstein, square is a relative property
  - After the Matrix, square is a virtual property

The Intuition of Error

- The intuition that a Matrix scenario is an error scenario is explained by its being one where Edenic content is incorrect and our experiences are not perfectly veridical
- It's a skeptical scenario by the Edenic standard.
- But so is quantum mechanics.

Objection 1

- Spatial primitivism is the correct view of the contents of spatial experience and spatial expressions.
- Response: OK, but then our spatial beliefs are already falsified by relativity and QM. (We've already fallen from Eden.)
- So we needn't be skeptics, just error theorists.

Objection 2

- Even given spatial functionalism, there will be further constraints, so 'square' won't refer to a virtual property in the Matrix.
- Response: What are the constraints? Do they require transparent grasp of some aspects of space?
- See the argument of 'The Matrix as Metaphysics'.

Objection 3

- There will still be some skeptical scenarios, e.g. recent envatment hypotheses.
- Response: Yes, this reasoning doesn't allow us to rule out temporary/local illusions or random hallucinations. But systematic permanent error can be excluded.

Structuralism

- All this suggests a picture on which our grasp on instantiated external qualities (after the Fall from Eden) is fundamentally structural, in virtue of their nomic/causal roles and their relations to our experience.

Structuralism and the Fall from Eden

- Our experiences have Edenic content and structural content.
- Falsifying the Edenic contents of our experience means that our experiences are not perfectly veridical.
- But vindicating its structural content suffices for our experiences to be imperfectly veridical.

Structuralism and Skepticism

- A structuralist reply to skepticism.
- Classical skeptical scenarios are scenarios in which the most important structural contents (if not the Edenic contents) of our experiences are vindicated.
- So their possibility does not undermine the (imperfect) veridicality of our experiences.

Conclusions

- Precisely because we transparently grasp fewer features of the world than we might have thought, we are less open to illusion and deception.
- An analysis of perceptual content and perceptual concepts is central to understanding our epistemic contact with the external world.