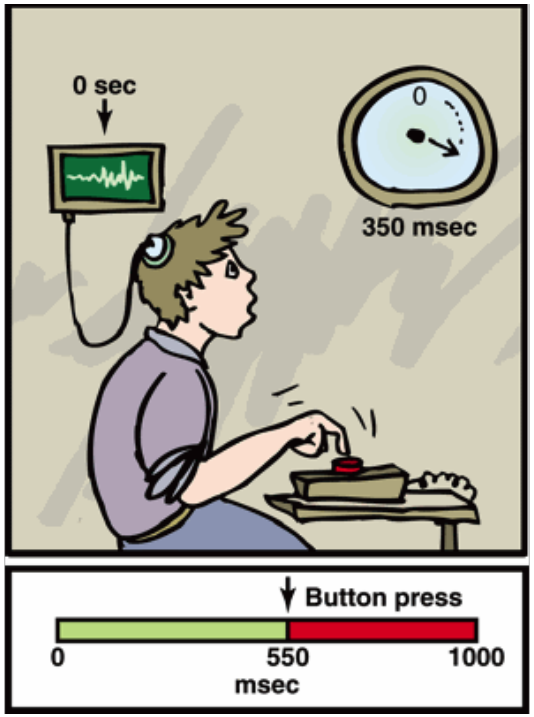


Philosophy of Science

Free will is not a testable hypothesis II

Chapman University. PHIL321. Lecture 24. 12/2/2021.
Kelvin McQueen

Remaining assessment

- **Final paper**: due: Dec 14, worth: 40%.
  - Write a philosophical paper on either (i) do thought experiments transcend empiricism? or (ii) are there laws in social sciences? or (iii) is free will a testable hypothesis? (A bibliography is necessary and must include at least 6 references including references to readings from multiple modules.) 1500-2500 words. Upload to Canvas before deadline.

- **Remaining discussion boards**:
  - W13: due Dec 4.
  - W14: produce an abstract for your final, due Dec 11.

- **Participation**:
  - You can have three unexcused absences. Every subsequent unexcused absence will cost 1%.
  - Participation grades uploaded to canvas after final week.

W13 discussion board posts: due 12/4

- **Post 1**: In your own words, explain whether you think free will is testable and why. 200-300 words.
- **Post 2**: Provide constructive feedback to a post on another student's thread. 100-200 words.

Assignment Rubric Details

Discussion Board Posts

Criteria	Ratings			Pts
Post 1 Response to prompt	**5.0 pts** **Excellent** The post clearly answers the prompt, demonstrates understanding of the reading, and illustrates independent thinking.	**3.0 pts** **Adequate** The post attempts to answer the prompt, demonstrates partial understanding of the reading, but lacks independent thinking.	**1.0 pts** **Inadequate** Does not provide clear answer to the prompt and does not demonstrate understanding of the reading.	5.0 pts
Post 2 Constructive feedback	**5.0 pts** **Excellent** The post responds clearly to another student's post, offers constructive ideas, and is respectful.	**3.0 pts** **Adequate** The post attempts to respond to another student's post, but lacks either constructive ideas or respectful language.	**1.0 pts** **Inadequate** Does not respond to another student's post in way that demonstrates thoughtfulness.	5.0 pts

Total Points: 10.0

Is free will testable?

- Is *libertarian* free will testable?
  - Is either agent-causal or event-causal libertarianism testable?

- Testable:
  - Verifiable and
  - Falsifiable.

- Main claims of the paper:
  - For *now*, free will is *not* testable.
  - For the *near future*, free will is *not* testable.
  - For the *distant future*, there is *no reason to expect* that free will is testable.

Why free will is not testable

- Why free will is **not verifiable**:
  - Consider brain state B, which causally determines action A.

    (1) To verify that B is *not* causally determined by a prior brain state, we must causally isolate B from prior brain states.

    (2) We cannot causally isolate B from prior brain states.

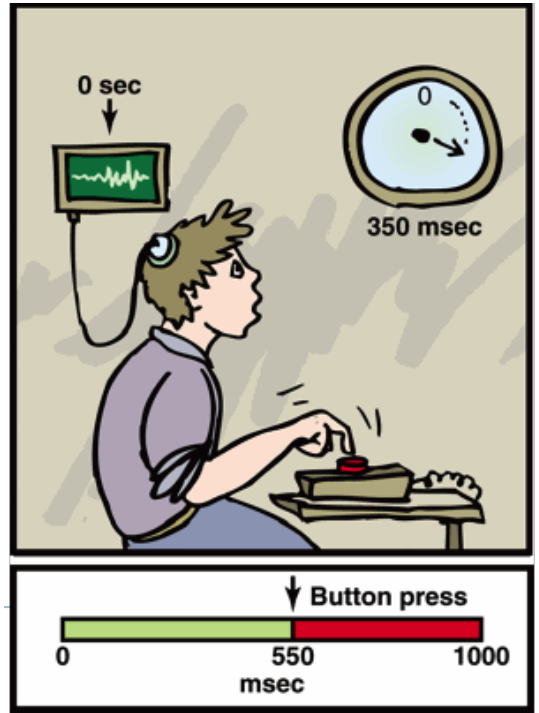
    (3) So, we cannot verify that B is not causally determined by a prior brain state.

- Why free will is **not falsifiable**:
  - *Perfect neuroprediction*: based on the agent's prior brain states, *predict with 100% accuracy* an agent's choice, *before* the agent consciously chooses.

    (1) Perfect neuroprediction is the only way to falsify free will.

    (2) Perfect neuroprediction is not feasible.

    (3) So, falsifying free will is not feasible.



Why is perfect neuroprediction not feasible?

- First argument:
  - Successful models of *complex systems* are typically *probabilistic* (e.g. weather/climate models).
  - Models in neuroscience are probabilistic too (e.g. neural firing is modelled in probabilistic terms) and are *not* trending towards deterministic models.

- Second argument:
  - Complex systems can be *chaotic* (butterfly effects: undetectable microscopic changes regularly cause macroscopic changes).
  - We cannot rule out the possibility that the brain's decision-making faculty is chaotic.

Why is perfect neuroprediction needed?

- The logic of falsification according to Duhem:

  (1) Theory T *and assumptions A* entail prediction P.

  (2) P is false (according to experiment).

  (3) Therefore, T&A is false.

  (4) Therefore, ***either*** T is false ***or*** A is false.

- Let:
  - T = Libertarian free will.
  - P = neuroprediction with 99% accuracy is impossible.
  - A = neuroprediction with 99% accuracy falsifies free will.

- A Libertarian can always reject auxiliary assumption A, and require, say, 99.8% accuracy for falsification.

Falsification and the Duhem problem

- According to Northcott, real-life falsification is only possible when either:

  (i) The scientific community agree on the auxiliary assumptions.

  (ii) The auxiliary assumptions can themselves be tested.

- However:
  - "In the case of the free will debate, this is just what is not possible—hence the empirical intractability. This is because the relevant auxiliary assumptions are themselves rooted in deeply held philosophical commitments, such as **sympathy to naturalism** or its opposite, or the **epistemic primacy to be given to third-person evidence**. And such disagreements are of course not simply decidable empirically. So we are stuck." (p628)