

**DOES  
NEUROSCIENCE  
UNDERMINE  
RESPONSIBILITY?**

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# COMMON CLAIMS

- Many smart people see neuroscience as a **threat** to free will and responsibility.
- Other smart people think neuroscience is totally **irrelevant** to all of these issues.
- My view: When smart people take strong stands on opposite sides of a big issue, and each accuses the other of a silly mistake, they probably **misunderstand** each other.

# THEMES AND THESES

- We need to separate **distinct causal issues**:
  - 1: Does anything cause the will? ( $? \rightarrow W$ )
  - 2: Does the will cause anything? ( $W \rightarrow ?$ )
- Then we need to separate **general** issues from **particular** cases:
  - 1: Neuroscience does **not** undermine responsibility in general for all acts.
  - 2: Neuroscience **does** illuminate responsibility in particular cases.

# THE CHALLENGE OF DETERMINISM

- 1 – Every act is **determined** by a prior cause.
- 2 – Any agent whose act is determined is not **free**.
- 3 – Any agent who is not free is not **responsible**.
- 4 – Any agent who is not responsible should not be **punished**.
- 5 – Any agent who should not be punished but is punished is owed an **apology**.
- 6 – Therefore, **every rapist or murderer who has ever been punished is owed an apology!**

# RESPONSES TO DETERMINISM

- Nobody really accepts the conclusion that we must apologize to serial rapists.
- Different philosophers deny different premises.
- Many people cannot tell **which** premise to reject.
- They fear that neuroscience leads to determinism and the absurd conclusion.

# WHY NEUROSCIENCE CANNOT ESTABLISH DETERMINISM

- Brain scans find only very **imperfect** correlations.
- Neuroscience can't study **all** acts (e.g. war and marriage).

# IS DETERMINISM A THREAT?

If determinism is a threat to responsibility, then the threat comes from **physics** rather than from neuroscience.

Does **physics** lead to a determinism that undermines free will and responsibility?

Not if compatibilists are right.

# CONTRASTIVISM

- Freedom is always freedom **from** some constraint.
- Freedom from
  - any **determining** cause
  - any **excusing** cause
- Normal desire and choice do **NOT** excuse
- The opening argument **equivocates** between two notions of freedom.
  - Determinism **is** compatible with freedom from all **excusing** causes.
  - Responsibility does **not** require freedom from all **determining** causes.

# FROM GENERAL TO SPECIFIC

**Conclusion:** Neuroscience does *not* undermine responsibility in **general** for all acts by revealing their causes.

Any questions?

**Next Part:** Neuroscience *does* raise questions about traditional criteria for responsibility and about responsibility for **particular** acts by finding causes of those acts.

# A CASE STUDY

Peder (from Burns & Swerdlow 2003):

- A 40-year old male corrections officer turned schoolteacher, married twice, had only minor use of pornography since high school and no personal or family history of sexual deviance.
- In 2000, he started collecting pornography, including child pornography. He reported resisting urges and feeling that his acts were unacceptable.
- Later in 2000, he made “subtle” sexual advances and inappropriately touched his stepdaughter.

# A CASE STUDY (continued)

- His stepdaughter eventually informed his wife, and he was found guilty of child molestation and ordered to go either to jail or to a twelve-step program. He chose the program.
- While in the program, he solicited sex from female staff and clients, so he was expelled.
- Just before sentencing, he reported headaches, suicidal ideation, and fear that he would rape his landlady.
- His doctors ordered a neurologic exam, during which he solicited sex from female staff.

# A CASE STUDY (continued)

- MRI revealed an egg-sized brain tumor displacing the right orbitofrontal lobe.



# A CASE STUDY (concluded)

- The tumor was removed in December 2000, and his sexual impulses disappeared.
- He participated in a treatment program and returned home 7 months later in June 2001, after being officially found to pose no threat to his stepdaughter.
- In October 2001, he developed a persistent headache and began secretly collecting pornography again.
- MRI revealed the tumor had regrown.
- It was removed again in February 2002.

# NO TRADITIONAL EXCUSE

- Peder acted voluntarily = as a result of conscious choice or will.
- He acted with mens rea = knowledge and intent
- He was not insane on the usual cognitive tests, since he appreciated that his acts were wrong.
- He did not lack control at the time of his crimes.
- Thus, he meets the standard legal criteria for the highest level of criminal responsibility.

# NOT FULLY RESPONSIBLE

Intuitively, Peder does **not** seem completely responsible — but why?

- Maybe because he had greater difficulty conforming to law and morality.
- Maybe because of how his desires and acts were caused (by a tumor  $\neq$  his self).
- Compare hypnosis.
- So responsibility is removed or reduced because of the special cause of his acts.

# SOME LESSONS

- This neural case suggests that the traditional list of excuses needs to be **expanded**—how far?
- These new excuses should **not** be expanded so far as to include **all** neural causes.

# FROM FREEDOM TO EFFICACY

Conclusion: Neuroscience raises new issues about responsibility for this **particular** act.

Any questions?

Next Part: Do our wills cause **anything**?

# A NEW CHALLENGE

Friedrich Nietzsche (1844-1900):

“The inner world is full of phantoms and will-o’-the-wisps; the will is one of them. The will no longer moves anything, hence does not explain anything either—it merely accompanies events.”



# HOW THIS ISSUE IS NEW

- In addition to asking about **causes** of our wills ( $? \rightarrow W$ ), we also need to ask about **effects** of our wills ( $W \rightarrow ?$ ).
- Neuroscience might raise questions about will in general, but most neuroscientists focus on **conscious** will—so I will, too.

# WHY CONSCIOUSNESS MATTERS

- IF causation by conscious will is necessary for complete responsibility,
  - AND IF neuroscience rules out causation by conscious will,
  - THEN neuroscience rules out complete responsibility.
- 
- SO, FIRST: Is causation by conscious will necessary for complete responsibility?

# APPEAL TO LAW

- The Voluntary Act Requirement in MPC 2.01:
  - (1) A person is not guilty of an offense unless his liability is based on conduct that includes a voluntary act or the omission to perform an act of which he is physically capable.
  - (2) The following are not voluntary acts within the meaning of this Section:
    - (a) a reflex or convulsion;
    - (b) a bodily movement during unconsciousness or sleep;
    - (c) conduct during hypnosis or resulting from hypnotic suggestion;
    - (d) a bodily movement that otherwise is **not a product of the effort or determination** of the actor, either **conscious or habitual**.

# APPEAL TO CASES

- Imagine someone plans to kill a rival by running him over at 9:00 as the rival jogs by his house. It is 9:00 now, but the driver thinks it is 8:00, so the driver decides to go buy breakfast. As he backs out of his driveway, he runs over and kills the jogger by accident.
- The driver freely **willed** to kill the jogger, had that will at the time he killed, and killed him in the intended way at the intended place and time.
- Still, the driver's will did **not cause** the accident or the death, because only his intention to buy breakfast caused him to leave then.

# APPEAL TO CASES

- Is the driver responsible for murder?
- No (only for negligence).
- Thus, responsibility for murder requires more than a free will to commit murder.
- It also requires that the will causes the act.
- Any questions?

# DRAWING OUT IMPLICATIONS

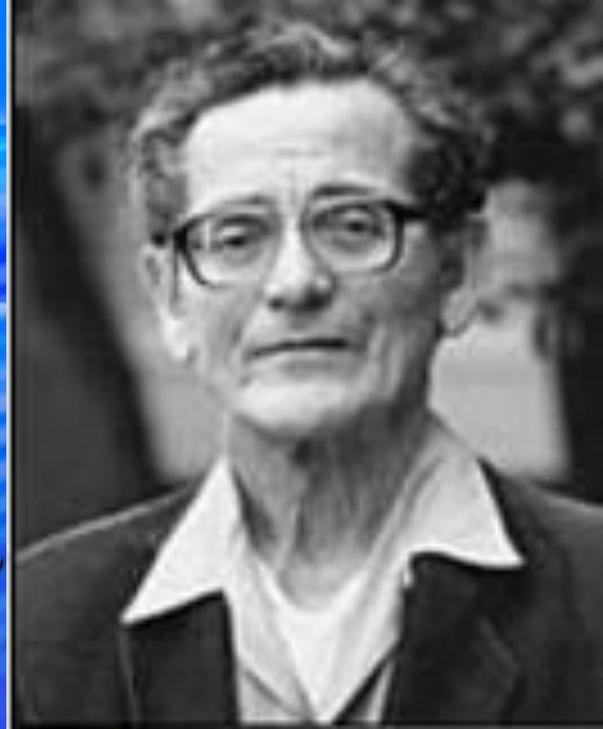
- IF causation by conscious will is necessary for complete responsibility,
  - AND IF neuroscience rules out causation by conscious will,
  - THEN neuroscience rules out complete responsibility.
- 
- SO NEXT: does neuroscience rule out causation by conscious will?

# THE PROBLEM OF TIMING

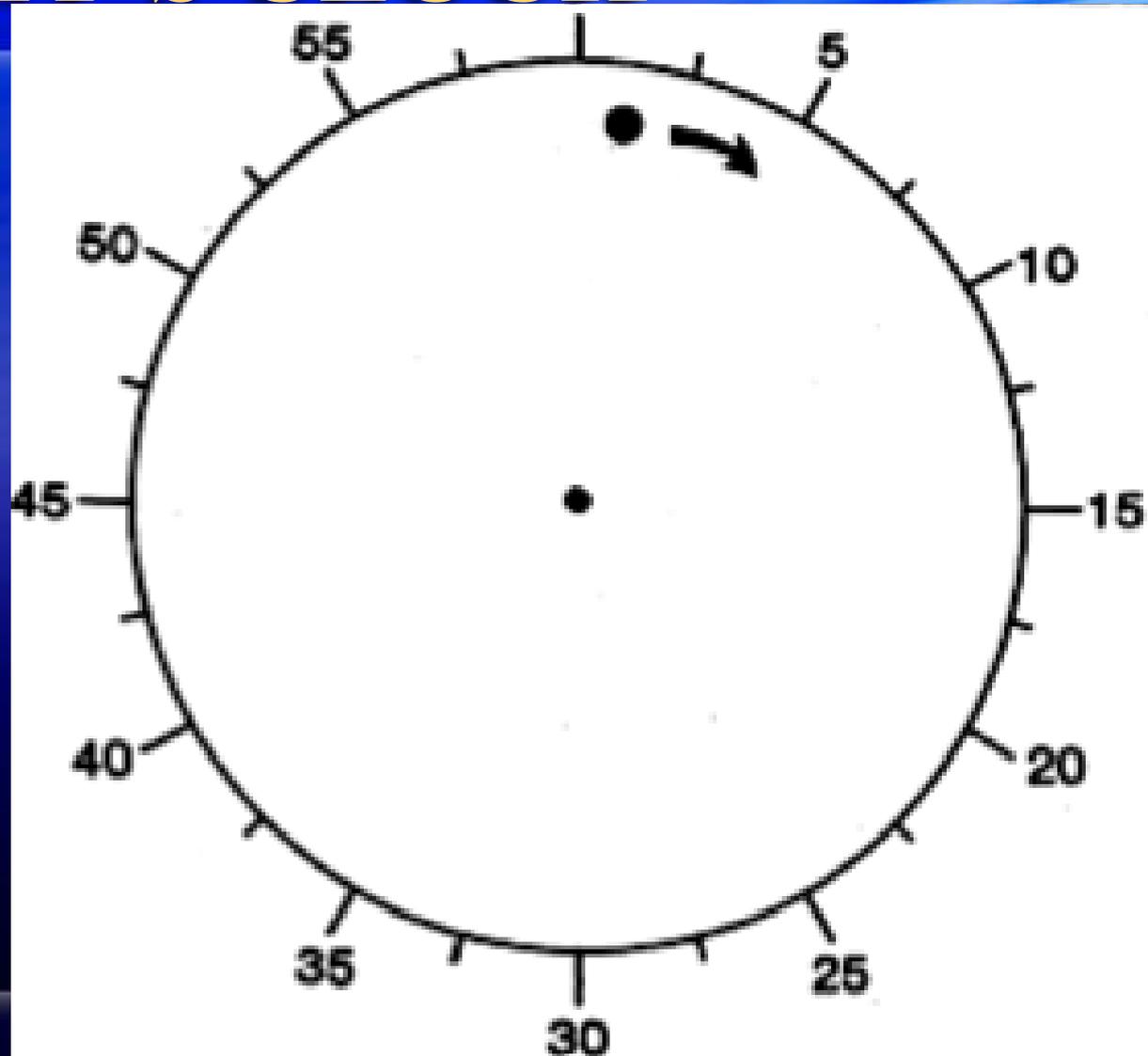
- A cause cannot come after its effects.
- If conscious will comes after the initiation of a bodily movement, then conscious will cannot cause the initiation of that movement.
- So, does neuroscience show that conscious will comes too late to initiate the bodily movement?

# BENJAMIN LIBET

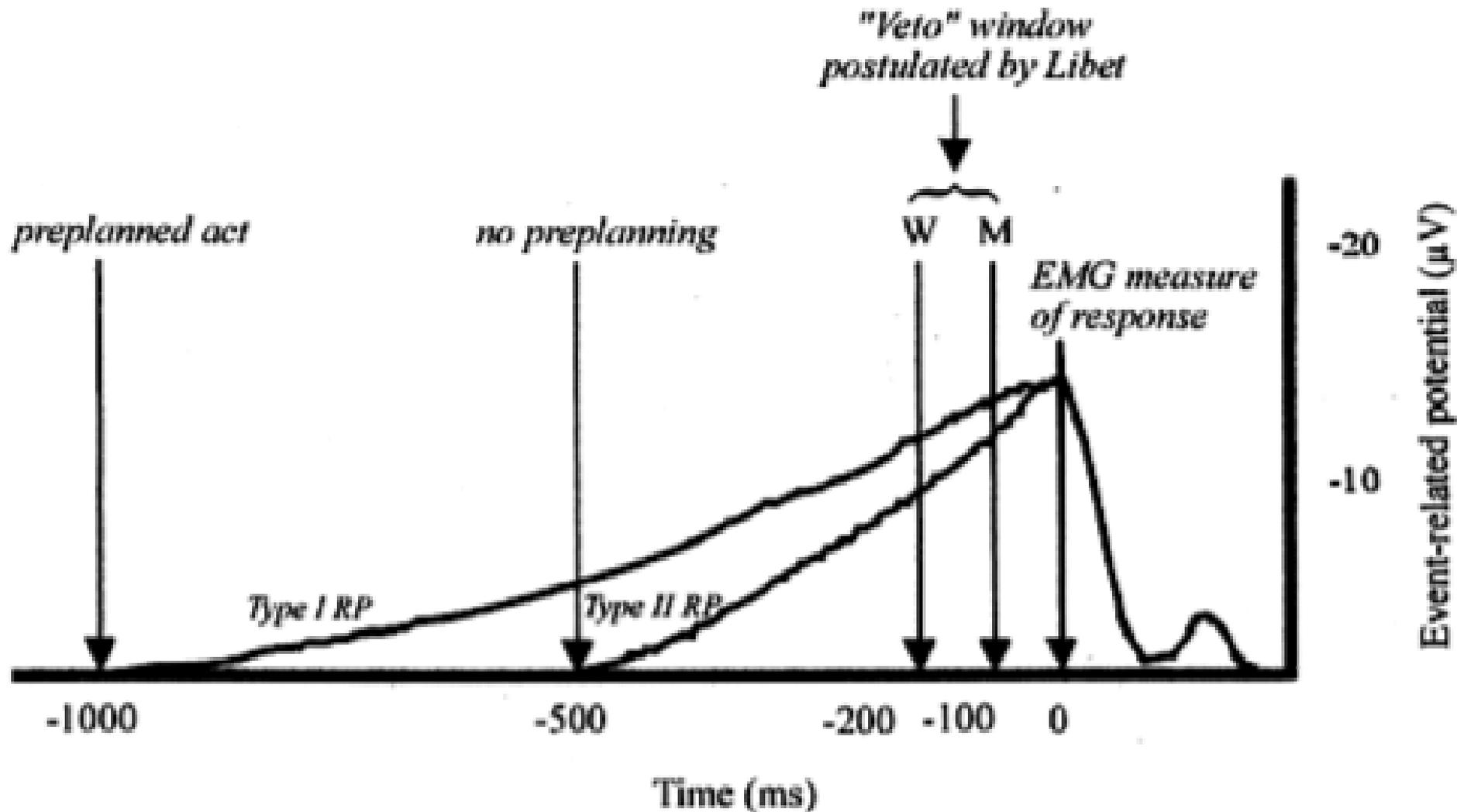
Benjamin Libet (1916-2007) was a Physiologist who studied consciousness and human action. He received the first virtual Nobel Prize in Psychology in 2003 for the following experiments.



# LIBET'S CLOCK



# LIBET'S RESULTS



# VETO POWER

- Libet concludes that conscious will does **not** cause initiation of bodily movement.
- Libet still thinks that our conscious will can play a **different role** in action.
- Instead of initiating actions, our conscious will makes us aware of what is happening, so we have time to **veto** it, if we want to.
- We have “**free won’ t**” instead of “free will”.

# WHAT LIBET DID NOT SHOW

- Our wills are or are not free = uncaused.
- Our conscious wills never affect our acts (compare distal will and later effects).
- Our consciousness of proximal will to act right now plays no role in the action.

# WHAT LIBET *DID* SHOW

In at least *some* cases,  
a *conscious proximal* will (CW)  
to move right now does *not*  
*initiate* the brain activity (RP) that  
begins the process that causes  
the action (M).

# ALTERNATIVES

- *Common* View =  
RP causes CW, and then CW causes M  
(RP → CW → M)
- *Epiphenomenon* View = RP causes M  
*directly*, without CW as a necessary  
middle step in the causal chain  
(RP → M).

# HOW TO TEST CAUSAL INTERPRETATIONS

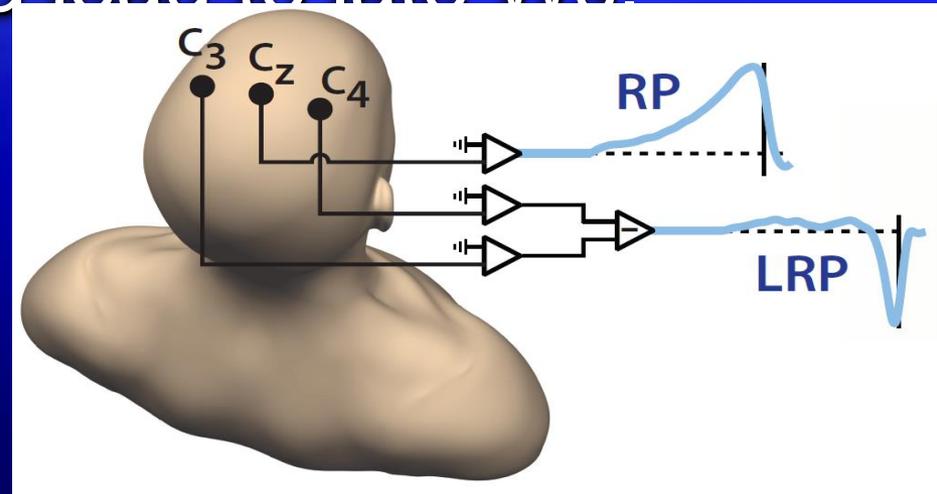
- *Covariation*

- *Manipulation*

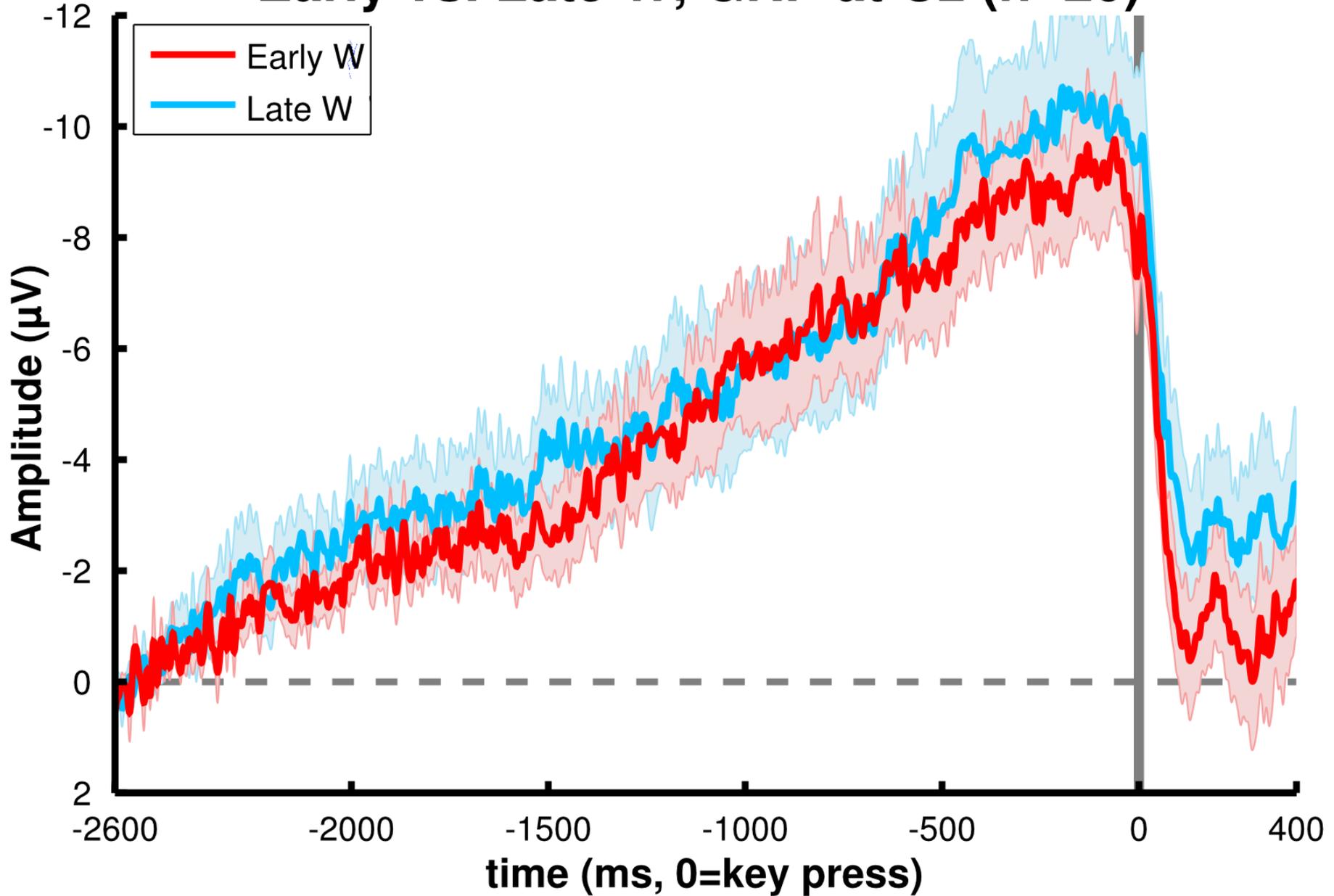
# Concomitant Variation

- If RP causes W, as in the common view,
- early RPs should lead to early Ws,
- and late RPs should lead to late Ws.

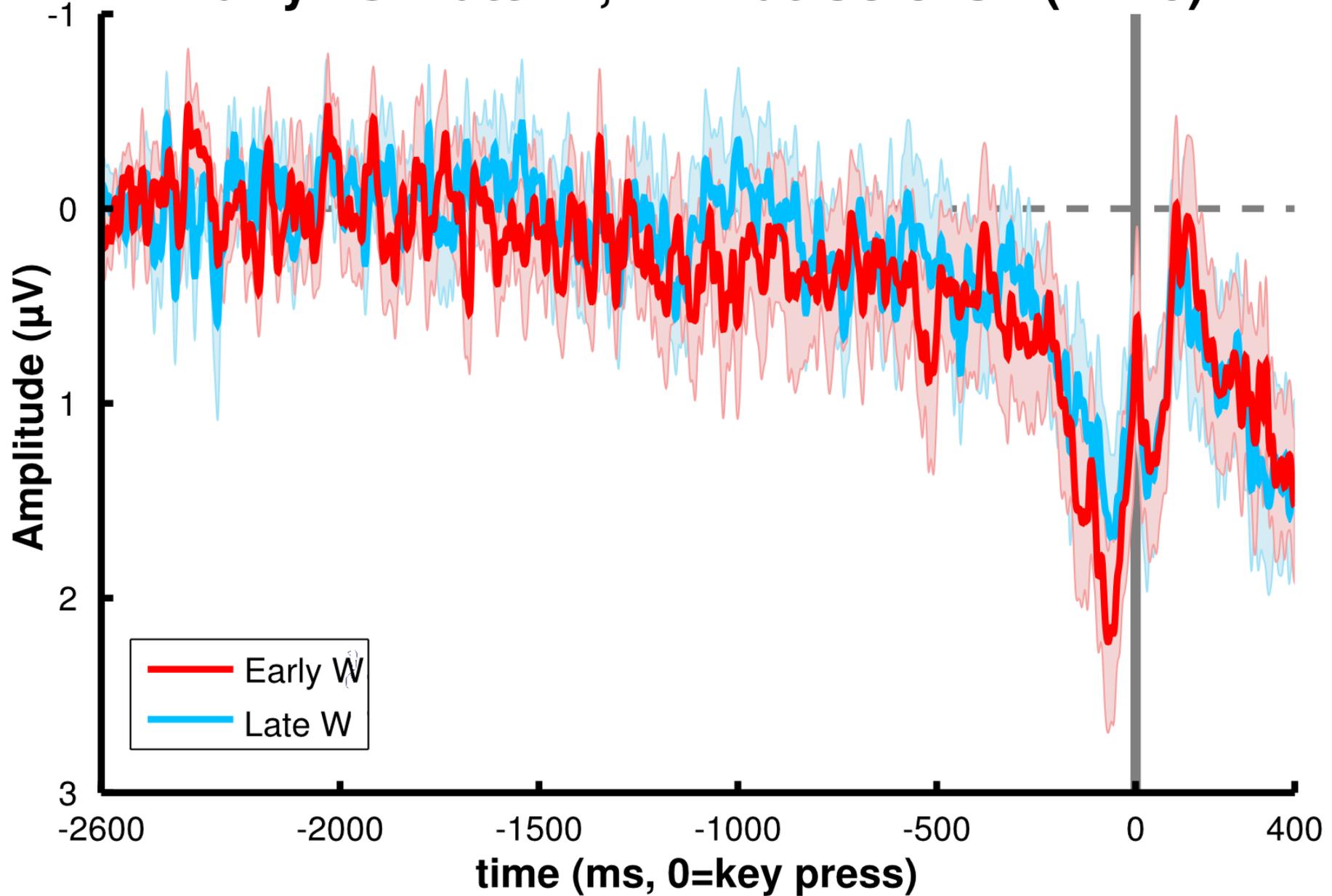
- Similarly for LRPs:



# Early vs. Late W, GRP at Cz (n=20)



# Early vs. Late W, LRP at C3 & C4 (n=20)



# MANIPULATION

How can we get

**W without M and**

**M without W?**

# MANIPULATION

How can we get

**W without M and**

**M without W?**

# HYPNOSIS!

# WHAT THE EVIDENCE SUGGESTS

- Neither RP nor LRP causes W.
- So, if RP causes M, RP causes M directly — without any causal role for W = conscious will.
- So, the common interpretation can't be correct.

# IMPLICATIONS FOR RESPONSIBILITY

- Even if true, the epiphenomenal view would **NOT** undermine all responsibility, because:
- Nothing in Libet's research suggests that human conscious will **never** has **any** effects.
- The acts in Libet's studies were odd:
  - The intention is to make a bodily movement.
  - There is no reason to do them at a particular time instead of earlier or later.
  - They have no good or bad consequences.

# MINIMAL ACTS

The acts by Libet's subjects are more like minimal acts done unthinkingly:

- *State v. Utter* 1971: military-trained father kills son when surprised from rear
- Provocation: quick unthinking violence in response to words or threat

# CONCLUSIONS

- Neuroscience does NOT undermine responsibility in general.
- Neuroscience DOES raise fascinating questions about particular cases.
- What do these cases imply for other cases? Let's talk about some of them.

# THANKS

- For your interest
- For inviting me
- For listening
- For your patience
- For your questions