

Toward a Scientific Theory of Free Will

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Debating Free Will... But What Is It?

- Exemption from causality ?
- Souls/minds causing behavior ?
- Decide on your own ?
 - Acting against external pressure ?
- Morally responsible choices ?
- Legal, political freedom?

A Scientific Theory of Free Will

- Nothing supernatural
- Nothing non-causal
 - *Causal but not deterministic*
- Compatible with known facts, e.g. evolution
- Goal: explain “new” kind of action control found among humans
 - *Conscious thought, rational thought, reasons, deliberate choice*
 - *Moral, economic factors*
 - *Responsible autonomy*

What is Free Will?

Autobiographical Narratives

- Write account of experience, you took action, either:
 - Of own free will
 - Not of your own free will
 - ...Then coded for differences

Free Will Narratives Results

- Free actions associated with more...
 - Deliberate choice
 - Positive outcomes, goal attainment
 - Long-term goals (but not short-term)
 - Also delayed benefits
 - Reflection, conscious thought
 - Consistent with own moral values
 - Acting against external pressures
 - Less harm to own social group

Social / Cultural Definition

- Responsible autonomy
 - Cf. computer or robot

How is Free Will Scientifically Possible?

- Conceptual issues...

Philosophers' Arguments about Free Will

- Yes or no? All or nothing?
- Free will or determinism?
 - Or both??

Determinism

- Pierre Simon LaPlace (*1749-1827*)
- If we could know the precise situation of every particle in the universe now, plus all the laws of nature, we could calculate the future with **complete accuracy** and precision
- Thus, there is only one possible future, and it is already *determined*

The Wrong Debate: Determinism Vs. Free Will

- Misunderstandings of free will
 - Causation by soul
 - Exemption from causality
- Misunderstanding of determinism
 - As merely causation
- Causality is not the enemy
- Many kinds of causation
 - *Free will is just another kind of causing*

Uselessness of Determinism

(Causal Inevitability of the Sole Possible Future)

- Unworkable as basis for psychological theory, for understanding mind
- Psychological phenomena involve multiple possible alternatives...

Against Predestination: Things That Might Happen Yet Might Not

- Threat, danger, opportunity, affordance
- Success, failure, competition
- Choice among alternatives, control
- Moral judgment, responsibility
- Contingencies, planning, revising
- Negotiation, compromise
- Promise, obligation, commitment

Uselessness of Determinism *cont'd*

- FIRST, it is unworkable as basis for understanding mind & human behavior
- **Situation structure** contains possibilities
- **Agency, control** inherently based on multiple possibilities

Uselessness of Determinism

- SECOND, it is unworkable as basis for living daily life:
- “We cannot choose to act as if we have no choice.”

-- J. Sherman

Reductionism...

- Can the laws of physics explain everything that happens in the universe?
- Can psychology be fully explained by brain activity, brain activity by chemical reactions, chemistry by physics?

Reductionism

- Can the laws of physics explain everything that happens in the universe? (No)
- Can psychology be fully explained by brain activity, brain activity by chemical reactions, chemistry by physics? (No)

Brain Science vs. Free Will

- The brain works like a deterministic machine
 - *Neurons are biochemical items that operate in lawful fashion*
- The brain causes human behavior
- Therefore there can be no free will

Emergent Causality

- Anderson: 'More is different'
- How do chemical causes emerge from physical ones? Or biological from chemical?
- Meaning as nonphysical connection
- Free will only within culture?
 - *If so, then physical processes alone will not explain free will*

Anderson's hierarchy of sciences

- Sociology, Economics
- Psychology
- Physiology
- Biology
- Chemistry
- Physics

Brain Science vs. Free Will

- The brain works like a deterministic machine
 - *Neurons are biochemical items that operate in lawful fashion*
- The brain causes human behavior
- Therefore there can be no free will
- *(This REDUCTIONIST argument does not allow for emergence of new causal processes at higher levels of organization)*

“What if, somewhere deep in the brain, there are mysterious events that operate **independently** of the ordinary laws of physics and that are somehow tied to the will of the brain’s owner? In light of the available evidence, this is **highly unlikely**...there is not a shred of scientific evidence to support the existence of causally effective processes in the mind or brain that **violate the laws of physics.**”

- *Greene & Cohen, 2004*

*“There are only molecules.
Everything else is sociology.”*

- James Watson

Chemicals: Atoms / Molecules

Oxygen

Carbon

Hydrogen

Nitrogen

Calcium

Phosphorus

Potassium

Sulfur

Sodium

Magnesium

Copper, Zinc, Selenium, Molybdenum, Fluorine,

Chlorine, Iodine, Manganese, Cobalt, Iron

Lithium, Strontium, Aluminum, Lead, Vanadium,

Arsenic, Bromine

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Social Scientist's Task(s)

- Explain how (and why) humans developed new form of action control
- Explain how people negotiate situations that have multiple possible outcomes
- Explain how human social systems operate on the basis of each person's **responsible autonomy**.

Self-organization of pattern from chaotic randomness

- Physical reality (from Big Bang)
 - *But entropy*
- Life
 - *Negative entropy: strives toward order*
- Agency / Social organization
 - *Imposes order*
- Free will / Cultural organization...
 - *Cooperates with giant social system*

Evolution of Agency

- Plant vs. animal life
 - *Brains*
- Animal behavior: classical vs. operant conditioning
 - *Fixed vs. voluntary behavior*
- Agency 2.0 (“free will”)
 - *Socially meaningful reasons*
 - *Cultural animals*

Social Animal, Cultural Animal

- Humans are social animals
 - Like many other species
- Also cultural animals
 - Far more than any other species
 - Essence of what we are, uniquely

Culture

- New & better way of being social
- Culture is humankind's **biological strategy**
 - *And a highly successful one*
- But interfacing has advanced hardware requirements
 - *Culture requires a powerful, complex brain*

What makes us human

- *The distinctively human traits are those designed to enable us to create, sustain, and function in **culture***
 - E.g., evolved capabilities for language

Evolution of Free Will

- For functioning in culture
- Payoff: improved survival, reproduction
 - Because of cultural environment
- System can function only if people cooperate to some degree
 - *Free will is for following rules!*
- Free from Skinnerian, Pavlovian laws of stimulus-bound behavior
 - *Freedom is partial at best*

*Free will
is for following
rules!*

(Free will is for enabling individual animals to pursue enlightened self-interest in a social environment with many rules.)

Evolution of Free Will

- For functioning in culture
- Payoff: improved survival, reproduction in a cultural environment
- System can function only if people cooperate to some degree
 - *Free will is for following rules!*
- **Free from instinctual & animal-learning processes of stimulus-bound behavior**
 - *Freedom is partial at best*

Evolved for culture

- **Responsible autonomy** is what society needs, for social systems to function
 - Take care of self, function independently within rules & system
- New form of agency required
 - Moral agent
 - Economic agent
 - Information agent
- How did that emerge? How does that operate?

The Reality Behind the Idea: Our Contribution

- Self-control
- Decision making
- Initiative
- ...Common underlying energy resource, fluctuating availability
 - *Note does not lend itself to yes-or-no answer to free will question*
 - *The 'real' free will, or the source of the illusion*
 - *There is something real to study; can debate whether it qualifies as truly free will*

Self-Regulation / Self-Control

- Overrides response
- How the self controls itself
- Distinctively human trait: central to human evolution as cultural animals
- Widely and powerfully predictive of success in human life

Ego Depletion: Implications

- Self-control consumes energy
- The same energy is used for many different acts and kinds of self-control
- Even small, brief acts of self-control begin to deplete it

Summary: Effects of Depletion on Decision Making

- Depletion increases decision deferral, inaction
- Depletion reduces compromise choice, fosters preference for extreme options (less integrative trading off)
- Depletion increases asymmetric dominance (letting the easy choice, over the decoy, trump the harder tradeoff choice)

Thus:

Making choices depletes the same resource that is used for self-regulation.

Same for intelligent thought.

One common energy resource is used for self-regulation, for intelligent reasoning, and for effortful decision making.

Self-Regulation and Rational Choice: A Link?

- Both seem to deplete energy resource
 - *Consistent with free will notion*
- Suggests common mechanism
- Perhaps evolution selected one, then piggy-backed the other onto same system
 - Self-regulation first: alter behavior to follow rules, usually a group's rules
 - Rational choice means you can make your own rules and follow them

Depletion --> Passive

- Executive function requires energy for active initiative
- Thus initiative also uses the same energy

Stephan Lau: Subjective Freedom



Feeling of Freedom:

When do people say their choices were freest?

- Process Model
 - Having more options
 - Not knowing what will happen (uncertain)
 - Multiple reasons for each option
 - Conflicting reasons
 - No time limit (option to defer)
 - Options are more equal in quality
 - High effort in choosing

Feeling of Freedom

- Outcome Model
 - Getting a good result, easily

Lau & al. Data on Causes of Feeling Free

- Outcome model wins over and over
 - No support for process model
- More effort to choose leads to less freedom
- Uncertainty, conflict reduce feeling free
- Football/soccer game: feel freer after winning than losing, regardless of other factors
- Freer choosing between two good options than between two bad ones

Conclusion: Subjective Freedom

- People report feeling free when decisions are easy and lead to a good outcome
- No support for process model of freedom

Effects of Belief in Free Will

Effects/Consequences of Disbelief in Free Will

- More cheating, stealing (*Vohs & Schooler, 2008*)
- More aggression, less helping (*Baumeister, Masicampo, & DeWall, 2009*)
- Less punitive toward strangers (*Shariff et al., 2014*)
- More conformity (*Alquist et al., 2013*)
- Less counterfactual thinking (*Alquist et al., 2015*)
- Less learning moral lessons from own misdeeds (*Stillman et al, 2010*)
- Less gratitude (*Mackenzie et al., 2014*)

Implications

- Believing in free will makes people behave in ways that support cultural rules and values
- Fits the view that belief in free will is pragmatically useful for society and culture
- Free will beliefs promote responsible autonomy, which is vital for society

What *Causes* People to Believe Vs. Disbelieve in Free Will?

- Why do human cultures believe in free will?

Beliefs about Free Will

- Human social life is only possible based on shared assumptions
 - Responsible autonomy is a helpful one
- Trust: must assume other can overcome natural, selfish impulses to fulfill social obligation
- Cultural system only functions if most people obey rules
 - Rule of law as major predictor
 - Responsible autonomy again

Twilight of the Idols, Friedrich Nietzsche

“Men were considered ‘free’ so
that they might be judged and
punished...”

Why People Believe in Free Will

- So they can blame their neighbors for their misdeeds
- Blame is for social punishment, which establishes a sense of moral responsibility
 - Useful for society for people to feel moral responsibility

Data: What Causes Free Will Beliefs?

- Contemplating bad actions by others increases belief in free will
 - *Though not if directed at bad people*
- Immoral acts elicit free will beliefs more than morally good ones.
 - *Likewise, bad people more than good people*
- Reading about bad acts makes people dislike research on automaticity
- Countries with higher murder & crime rates have higher belief in free will
 - *Also imprison more*

Implications

- Shows *why* people believe in free will
- Extends past work on motivated attributions of responsibility on an individual level to free will as a general construct
- Suggests a way to *increase* (rather than decrease) free will belief

Conclusion

- If free will exists, this is it.
 - *Unlikely that free will exists but is something else than this set of processes by which we make moral decisions and act like responsible, autonomous, civilized beings.*
- Forget about issues of non-causality, determinism
 - Causal theory with mechanism
- Reality behind the idea of free will involves distinctively human form of action control
 - *Responsible autonomy*
- Beliefs in free will support behaviors useful to society & culture
- Free will beliefs are increased by impulse to hold people responsible for misdeeds

THE END

Might *and* Might Not

- Violates determinism
- Essential to human psychology: many phenomena & processes are based on that
- Can probability theory have any basis in empirical facts of deterministic universe?

Free Will as Another Kind of Cause

- Issue is not whether causality was involved
- Rather, issue is whether person was able to act properly, with responsible autonomy
- Must be able to take care of self within the rules
 - Free will is for following rules
- Autonomy within system constraints
 - Cf. games

Summary Thus Far

- Social scientists interested in free will should downplay issue of escaping causality
- Instead, focus on emergence of responsible autonomy

CANINE REGULATIONS

MUST BE ON LEASHES

L.A.M.C. 53.56

MUST BE LICENSED

L.A.M.C. 53.28

**MUST PICK UP DEFECATION
BY OWNERS**

L.A.M.C. 53.49

(Free will is for enabling individual animals to pursue enlightened self-interest in a social environment with many rules.)

(Responsible autonomy...)