

Ethical considerations in neuroimaging data science and beyond: the case for introspection*

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* at least a little bit more, some of the time, for some of the people

Do we need Ethics?

- Intuitively, yes
 - How would we know what's right, if we didn't at least occasionally stop to think about it?
- But...
 - Unclear to what extent our moral views reflect deliberative reasoning
 - Most people seem to get by okay without having read Mill or Kant
 - The major ethical frameworks have been around a long time; unclear that cultural norms track them very well, if at all
 - It's not even clear *ethicists* are any more moral than the rest of us

Do ethicists steal more books?

Eric Schwitzgebel

If explicit cognition about morality promotes moral behavior then one might expect ethics professors to behave particularly well. However, professional ethicists' behavior has never been empirically studied. The present research examined the rates at which ethics books are missing from leading academic libraries, compared to other philosophy books similar in age and popularity. Study 1 found that relatively obscure, contemporary ethics books of the sort likely to be borrowed mainly by professors and advanced students of philosophy were actually about 50% more likely to be missing than non-ethics books. Study 2 found that classic (pre-1900) ethics books were about twice as likely to be missing.

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Do ethics classes influence student behavior? Case study: Teaching the ethics of eating meat



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ABSTRACT

Do university ethics classes influence students' real-world moral choices? We aimed to conduct the first controlled study of the effects of ordinary philosophical ethics classes on real-world moral choices, using non-self-report, non-laboratory behavior as the dependent measure. We assigned 1332 students in four large philosophy classes to either an experimental group on the ethics of eating meat or a control group on the ethics of charitable giving. Students in each group read a philosophy article on their assigned topic and optionally viewed a related video, then met with teaching assistants for 50-minute group discussion sections. They expressed their opinions about meat ethics and charitable giving in a follow-up questionnaire (1032 respondents after exclusions). We obtained 13,642 food purchase receipts from campus restaurants for 495 of the students, before and after the intervention. Purchase of meat products declined in the experimental group (52% of purchases of at least \$4.99 contained meat before the intervention, compared to 45% after) but remained the same in the control group (52% both before and after). Ethical opinion also differed, with 43% of students in the experimental group agreeing that eating the meat of factory farmed animals is unethical compared to 29% in the control group. We also attempted to measure food choice using vouchers, but voucher redemption rates were low and no effect was statistically detectable. It remains unclear what aspect of instruction influenced behavior.

Objectives

- My goal is not to:
 - Make you more ethical
 - Care more about ethical considerations (not necessarily, at least)
- It's to:
 - Provide a very brief overview of issues, frameworks, and applications
 - Offer some practical suggestions
 - Given your existing ethical orientation/level of concern, are there actionable strategies that might improve your/others' QoL at least *a little bit*?
 - Use up an hour of time on our schedule

Neuroimaging ethics: what are the issues?

- Privacy and confidentiality
- Informed consent and incidental findings
- Diversity and inclusivity
- Implications of neuroimaging technology (e.g., decoding)
- Research integrity and reproducibility
- Stewardship of public resources
- Etc...

Cross-cutting themes

- These are all serious issues deserving of careful study
- Problem: we only have 1 hour
- Solution: we won't talk about any of them
- Instead, I'll focus on some cross-cutting themes
 - Ethical/moral problems are common in research
 - What kinds of considerations do we draw on to make moral decisions?
 - Are the kinds of justifications we provide defensible?
 - What can we do to improve (however slightly) our decision-making?

Ethical/moral problems are everywhere

- Might intuitively seem like decisions with a moral aspect are relatively infrequent
 - E.g., when writing IRB proposals, or considering robbing a bank
- Most of us solve or pre-empt several moral dilemmas before breakfast every day
 - True even if we just stick to research-related problems
- We often don't realize this, because we solve most of our moral problems easily; almost automatically

Examples

- Your advisor wants you to drop some analyses from a paper on the grounds that “it will tell a cleaner story.” You think these analyses qualify the conclusions in important ways.
- A colleague points out serious problems in your paper draft. Addressing them would leave you with null results.
- A female student tells you her male advisor is making inappropriate comments. You're worried about the personal and departmental consequences if you get involved.

Examples

- You're not sure you *need* to scan 200 new subjects like you say in your grant proposal, but you worry no one will fund you if you just say you're going to re-analyze existing data.
- You know that the analysis code you're releasing with your study isn't actually capable of reproducing all of the analyses, but it would take you a long time to fix it and clean it up.
- A potentially important study you want to conduct requires you to deceive your participants in a way that you think might genuinely disturb them.
- You have a p-value of .06.

Can ethical systems help?

- Naively, we might expect that major ethical theories have something to tell us about how we might approach such problems
- Do they?
- Let's very briefly review some of the major players

Can ethical systems help?

- Deontology: Certain actions are just inherently good or bad
 - Okay... but no fixed set of rules is sufficiently flexible to work in practice
 - And even if there *are* moral laws, how would *we* know we're following them?
- Utilitarianism: Seek to maximize well-being in the population—possibly including future generations
 - Okay... who gets to define well-being? How would we measure it?
 - How could we possibly compute what actually maximizes well-being?
 - Examples that elicit strong deontological view are easy to construct
- Relativism: The good is that which our (e.g., sociocultural) context deems good
 - Okay... so if we lived in a society where pedophilia was embraced, would that really make it good?
- Pragmatism: The good is that which people find useful
 - Okay... what if I find it really *useful* to lie, steal, and cheat my way into fame and fortune?
- Skepticism: Haha, fools! You think there are moral laws or truths, but that's absurd!
 - Same as above
- This is obviously a gross simplification of all these views, and there are also others (e.g., virtue ethics)

Can ethical systems help?

- In a broad sense, the answer is obviously yes
- We appeal to these kinds of principles all the time
 - “People have a fundamental human right to privacy.”
 - “Having a diverse faculty means different perspectives and backgrounds are represented, which promotes better ideas and increases well-being.”
 - “These are the standards my community follows. If you don’t like that I only reported 1 out of 3 measures, maybe you’re in the wrong field.”
- And we often justify the same action in different ways...
 - “If we don’t take privacy concerns seriously, people won’t participate.”
 - “Diversity is inherently a good thing.”
 - “I have a mathematical model that argues that some degree of p-hacking actually promotes convergence on truth in the long run.”

Mind the gap

- But in another sense, maybe ethical theories aren't so helpful
- The gap between ethical theories and daily practice is vast
 - “What is morally good” is different from “how can I know what to do?”
 - To be fair, proponents of various ethical systems recognize this!
- So how do we *actually* navigate day-to-day moral problems?
 - Who knows
 - We don't have that kind of time
- What we *do* know is how people justify their decisions

A common theme

- Many of the ethical problems that arise in science pit our own interests against those of others
 - The course of action that benefits me personally as a scientist/person is not the one that benefits other people. It may even hurt them.
 - This is true everywhere to some degree, but is particularly salient in a domain like science.
- How do we justify our actions when we believe an action to be wrong in some normative sense, but do it anyway?
 - This scenario seems to concern a *lot* of scientists.
 - Few people will say “I did it because it benefits me”

Common self-justifications

- “It’s not my job to worry about”
- “Everyone else does the same thing”
- “There aren’t enough hours in the day”
- “If I don’t do this, someone worse will”
- “I have no power to effect any real change”
- “I’m not rewarded for doing the right thing”
- “It would have negative consequences for my career”
- “I can’t think about it; it would be too overwhelming”
- “I agree that that’s important, but I have other priorities”

Are these good justifications?

- Sure, much of the time
- But sometimes they're not
 - Do we feel reasonably confident they're good when we offer them?
 - One reason for skepticism: we seem to construct many of our justifications awfully quickly
 - We could be fooling ourselves...
- How would we know when our justifications are unsound?
 - Think like a scientist!
 - Collect evidence
 - Ask questions

Some questions to ask

- “Do I have any evidence for this assumption I’m making?”
- “Is my assessment of how severe the consequences will be if this happens accurate?”
- “I’m focusing a lot on the worst-case scenario; but how likely is that to actually happen?”
- “Are there other courses of action I’m not considering that would better align my own incentives with those of the people around me?”

You get to be selfish!

- This isn't an appeal to altruism
 - Not: "Hey, have you ever considered doing the right thing?"
- Rather: consider that *you* might be losing out because you've framed a problem suboptimally, or are making faulty assumptions
- Basically: think scientifically about your moral problems!

An example for ECRs

- Many, many ECRs have had thoughts like the following:
 - “I know that X and Y aren’t great practices, but if I don’t do them, I won’t be able to publish this paper in a good journal, and then I won’t get an academic position.”
- Is that a reasonable way to frame the issue?
- If this is you, here are some questions you might want to ask yourself:
 - How *much* do you think X and Y increase the likelihood of publication?
 - Is there a cost to aiming very high? What happens if you *don’t* get published in *Science*?
 - What if you just submitted the version of the paper you believe in most to a “worse” journal, and used the time savings to publish more papers?
 - How much difference do you think this one paper will really make to your job prospects?
 - Do you worry that you might *lose* some jobs because hiring committees see X and Y?
 - What impact do you think publishing work with QRPs will have on your reputation?
 - Do you want to spend the next 30 years working next to folks who hire you on the strength of X and Y? What kind of work do you think you’ll do when you get there?
 - Let’s say your worst fears are realized: you don’t get an academic job. Is that really so bad? Do your highly-paid friends in industry seem very miserable to you?

A meta-ethical example

- “This is just one small decision on one day in one life on one planet. Would it really make me a [bad|good] person if I get it [wrong|right]? Can I even be expected to get it right given the limited information? It’s a lovely day; maybe I should just go for a walk and not worry about it.”

Conclusions

- Ethical/moral problems arise frequently in science (and life)
- People have different intuitions, beliefs, and ethical systems
 - That's okay!
- A little bit of dispassionate reflection on our feelings, motives and assumptions can sometimes be helpful
 - Not because it's "the right thing to do"
 - Because it may help you find ways that better align *your* belief system and goals in life with the demands and constraints of the world around you