11. Critical thinking in the wild: How to be a productive critical thinker

Throughout this semester, you've acquired the most important tools to be a critical thinker. You've learned how to apply them to textbook examples and use them to evaluate different kinds of arguments. This lecture is about how to use your critical thinking tools in the wild: how to apply them to real debates and arguments, as well as to your own arguments and decision-making.

This means you'll be taking the step from receptive critical thinking skills to productive ones. So far, we've been treating critical thinking as the *ability and disposition to rationally and fairly assess the credibility of claims of all kinds*: ideas, hypotheses, beliefs, convictions, policies, decisions, etc. Critical evaluation is an important part of critical thinking—but it's really just a first step. The next step is using these critical thinking skills to produce new arguments.

Moreover, acquiring textbook critical thinking skills is certainly challenging, but in some ways, all the work you have done so far was the easy part. Applying these skills in the wild, to real claims and unfolding debates, is the harder part. And the even harder part is applying these skills to your own beliefs, arguments, and decisions.

In this chapter, we will give you some general guidelines on how to do this—but it will be up to you to apply them, and how best to do this will depend on the kind of claim or argument, the context, and your audience. For example, if you are trying to convince a team of workmates to adopt a certain course of action, the requirements will be different than if you are defending a claim in an academic context (such as a conference, a publication, a research thesis, or an essay). Adapting your tools to the situation at hand will be up to you.

This means we'll be changing gears. We'll still give you exercises at the end of this chapter and in the tutorials, but most of these won't have right and wrong answers. We will provide some notes, but there won't be any solutions in the way there were in previous weeks.

We've talked about cognitive biases at various points throughout the semester, but in this chapter, we'll give you more background on cognitive biases and the psychology of critical thinking, as well as some stuff to try. Why? Because experiencing these biases is often more effective than reading about them. And because these biases are what makes critical thinking so hard in the wild. We're all vulnerable to these cognitive biases; we also tend to be blind to their effect on our own thinking and decision making. So again, even though these aren't exercises in the usual sense, we do encourage you to try the examples listed in the exercises section.

Intellectual humility and critical thinking

One of the most important lessons we'd like you to come away with from this chapter is the value of intellectual humility. In a nutshell,

> Intellectual humility means realizing (and acknowledging) you might be wrong, admitting when you don't know the answer to a question, and being open minded about positions and opinions that differ from your own.

Because we are often blind to our own biases and limitations, this also means seeking out opposing evidence and views and valuing them. It also means accepting criticism of your own claims and learning from failure.

If you think all of this sounds like we're promoting old-fashioned virtues, consider these three points.

First, while being virtuous certainly has an old-school sound to it, intellectual humility is not a nebulous concept, but the target of a growing research area. Some key findings that are of interest for this chapter include:

- Intellectual humility is associated with openness, curiosity, tolerance of ambiguity, and low dogmatism (Leary et al. 2017)
- Intelligence and cognitive flexibility are possible pathways to intellectual humility (Zmigrod et al. 2019)
- People high in intellectual humility are more attuned to the strength of persuasive arguments than those who are low on measures of intellectual humility (Leary et al. 2017)
- Intellectual humility might be associated with greater general knowledge (but not with greater cognitive ability) (Krumrei-Mancuso et al. 2019)

Second, these findings relate to core aspects of critical thinking, such as having an open-minded and reason-based (rather than outcome-oriented) focus. After all, intellectual humility is about intellectual growth—and that should always be the goal of a critical thinker.

Third, intellectual humility has a practical dimension: it's something employers value and may even look for. Laszlo Bock, formerly in charge of hiring at Google, considers intellectual humility as one of the top attributes successful candidates should have:

> "Without humility, you are unable to learn. […] Successful bright people rarely experience failure, and so they don't learn how to learn from that failure. They, instead, commit the fundamental attribution error, which is if something good happens, it's because I'm a genius. If something bad happens, it's because someone's an idiot or I didn't get the resources or the market moved. ... What we've seen is that the people who are the most successful here, who we want to hire, will have a fierce position. They'll argue like hell. They'll be zealots about their point of view. But then you say, 'here's a new fact,' and they'll go, 'Oh, well, that changes things; you're right." (Thomas Friedman, How to get a job at Google, Feb. 22, 2014)

At the other end of the spectrum, consider the Dunning-Kruger effect, in which people who perform worst on a task tend to be the most confident. Inexperience masquerades as expertise.

Fourth, intellectual humility is the opposite of intellectual arrogance and conceit. We see those at work every day in fake news, clickbait, social media, partisan news and partisan politics. There are numerous reasons why we fall for these sources, but they come back to similar problems. The psychology of critical thinking and cognitive biases can help us see why.

Cognitive biases

Our minds are lazy and gullible, prone to shortcuts and oversimplifications.

> A cognitive bias is a systematic error in thinking, often due to implicit psychological shortcuts.

As Daniel Kahneman, who has done groundbreaking work on the psychology and economics of judgment and decisions making (and received a Nobel Prize in recognition of his work) puts it,

> "A remarkable aspect of your mental life is that *you are rarely stumped*… The normal state of your mind is that you have *intuitive feelings and opinions about almost everything that comes your way*…. Whether you state them or not, you *often have answers to questions that you do not completely understand, relying on evidence you can neither explain nor defend*." (Daniel Kahneman, *Thinking Fast and Slow*, p. 96)

The internet is particularly well suited to the cultivation of cognitive biases: we are constantly flooded with huge amounts of information and it can be hard to distinguish reliable sources from unreliable ones and fake news. Speedreading and focusing on headlines (as in clickbait) rather than carefully reading the actual article don't help. Under those conditions, we are easily misled by things we already believe or would prefer to be true.

As is the case for informal fallacies, there are many different cognitive biases and they are called by different names. Here, we will just touch on a few. Some are already familiar.

> Confirmation (myside) bias: when we already know the conclusion to be true, we easily overlook that the reasons given in its support are invalid. We evaluate the conclusion, not the support offered by the premises.

Other examples are *framing* or being misled by *emotionally charged language* (as discussed in Chapter 9).

Here are a few more:

> Availability bias is the tendency to think that the examples that come readily to mind are more representative than is actually the case.

Sometimes, the examples that easily come to mind are in fact rare and improbable occurrences. They seem more widespread than they are because for some reason or another, they are impressive and appeal to us. They might also be particularly frightening. Consider a person who is afraid of flying and can rattle off examples of plane crashes, but is not convinced by the (much less newsworthy) fact that the vast majority of flights are completely safe and uneventful. Clearly, a reasoned assessment of the danger of boarding a flight would lead to a different conclusion. Our emotions often cloud our reasoning.

> Illusory superiority is the belief that one is better than average, or better than most people.

What does *better* mean? It can literally mean being better than average at a certain task, but it might also mean being more attractive, kinder, more patient, more reliable, and so on, than average. Essentially, we have a tendency to believe we are superior to others on a number of traits and skills we value. And while most people succumb to this illusion to some degree, and

while it's a pleasant illusion to have, it's clearly not possible that the majority of people are in fact superior, well, to the majority of people.

Illusory superiority also extends to our friends and loved ones. We believe them to be kinder, smarter, more honest, better looking, etc. than average.

A similar illusion can even extend to people we don't know.

> Ingroup / outgroup bias: We have more empathy for people we perceive to be like us (in-group).

Again, we favor people we perceive to be within our group in a number of ways, whether we know them personally or not. Which group that is can depend on many factors. Examples include alumni from the school, people from the same country, race, or religion, or fans of the same sports team. This can translate into more empathy and positive support—but the ugly side of this is less empathy and worse treatment of perceived outgroup people.

Cognitive biases can cloud your judgment and influence your actions in all areas of personal and professional life. This can include who you are friends with and who you want to date, but also how you interact with other students and later with colleagues. You might also be on the receiving end of cognitive biases, and you might or might not be aware of this: medical decisions and diagnoses can be influenced by a doctor‘s impression of the patient; hiring, for instance who is invited or a job interview and which questions are asked, can be influenced by the age, gender, and skin colour of the applicant; and many more.

One of the trickiest aspects is that often, biases operate quietly in the background, without our realizing that we have been influenced by them (these are called implicit biases). This is where critical thinking skills can help. It also brings us back to intellectual humility. If we turn intellectual humility into a habit, we might learn to keep an open mind, place less trust in our own opinions and hunches, and take a step back to consider the evidence before we act. This might help us recognize and counteract cognitive biases and give us the freedom to rationally assess the evidence and make more reason-based decisions.

Next, we'll discuss some general guidelines for how to do this.

How to do better: Guidelines for critical thinking in the wild

Say you are trying to make a decision, form an opinion on an ongoing debate or political issue, or starting a research project. In most cases, you aren't actually starting out from scratch—you have a hunch, you feel more drawn to one side than to others. The first step is to make that starting point explicit. For example, you could take a few brief notes. It might be interesting to come back to these notes later and see how your view has changed.

> *What* do you think? Try to make it explicit.

The next step is to consider the reasons why you think this. Ideally, you will have considered the preliminary evidence and reasons you were confronted with, right? Yes—but especially when we first approach a new topic or questions, we typically don't yet have good reasons, and our evidence is piecemeal at best. This means our opinion is likely shaped by irrelevant factors. These could be similar experiences you have had in the past, things other people have said, or thinking habits and reactions that are typical for you (such as, 'I'm sure things will be fine, they always are,' or, 'Oh dear, I'm not sure about this, I worry things could turn out

badly'). Sometimes, realizing what you think and why you think it can motivate you to take a fresh look at the reasons and evidence.

> *Why* do you think this? Is this a typical view for you to take? Is it well founded?

Next, consider what evidence and which reasons would persuade you to change your mind. This is not to say you *will* change your mind—sometimes, we end up with the same position we started out with. But this position will be much better supported if you have surveyed the evidence, found that the evidence that supports the opposite position is in fact comparatively weak, and determined that overall, your initial position is the one that has the strongest support. Alternatively, you might find that the evidence in fact points in a different direction. This is where things get interesting, as it's an opportunity to see things from a different perspective.

> What would make you *change your mind*?

Once you know what would make you change your mind, you can seek out that kind of evidence. This will be the best way to test the strength of your position. Can't think of anything that would change your mind? That might be an indication that it's all in your head and you really should start from scratch!

> Don't look for reasons in support of opinions that you already have; look at the evidence and see where it leads you. Seek out and value evidence that speaks against your view.

Why is it so important to consider what would change your mind? Throughout this unit, we've been emphasizing that you should evaluate the argument, not the conclusion. Similarly, don't try to find reasons in support of a particular position, especially if that's a position you felt drawn to from the beginning. Instead, survey the evidence broadly and see where it leads you. Consider different perspectives and seek out positions that differ from yours and evidence or reasons that could make you change your mind. In fact, if the evidence does lead you to revise or even change your position, that's a fantastic sign that you are on the right track. Why? Because it's an indication that you are reaching a reason-based conclusion. By contrast, if your position remains the same in the face of new evidence, it's possible that you are just so wedded to that position that you are unwilling to change it, even in the face of better reasons for the alternative.

This idea is familiar in the philosophy of science and in scientific practice. Good scientific hypotheses are often described as hypotheses that are falsifiable: they specify the types of evidence that would disprove them. Even a hypothesis that turns out to be wrong therefore tells us something about how things actually are. By contrast, a hypothesis that does not specify any conditions in which it could be disproved doesn't tell us anything: it is consistent with any possible findings. Being right, at any cost, is not what good scientists, or good critical thinkers, should strive for.

Say you've surveyed the evidence and are ready to defend your argument. This could be in writing (including academic writing, a university assignment, or even a blogpost), or in a presentation (at a work meeting or conference), or even just in conversation. Again, there are several things to pay attention to.

> Put your cards on the table! Try to make the reasons supporting your claim as transparent as possible!

Firstly, embrace **spoiler messages**! If your audience knows from the beginning what you are arguing for, and how, then they can assess your argument as it unfolds. Critical thinking—including critical writing or debate—is not like a good thriller, where you want to keep your audience guessing. Overall, you want to keep things simple and easy to follow—use signposting and explain to your audience which evidence you have considered, why you think it's true and how this supports your conclusion. Depending on the context, you may also want to standardize your argument or use an argument map.

Clearly, you have to start somewhere—so tell the audience what you are assuming without further argument, making sure that your starting point is uncontroversial in the context of the issue and for the audience you are addressing.

> Be explicit about your assumptions (including assumptions you are making for the sake of argument).
>
> Consider your audience: How much background knowledge do they have? Which claims and concepts might need clarification, which ones might be controversial?

You'll also want to

> define any key terms.

Generally, it's a good idea to minimize jargon and use simple, everyday language wherever possible. This makes your argument accessible to more people and easier to follow. In that spirit, define any concepts that are central to your argument and/or likely to be controversial. This way, if people disagree with your definition, they can still follow your argument. It will also help avoid equivocation.

Next,

> identify your sources; in writing, use references (and obviously, these should reputable).

As a rule of thumb, try to put other people's ideas in your own words. This demonstrates your understanding of the claims they presented, so that other people can identify where it might not match their understanding of the original text. It's not always that the original author said it best! Sometimes, using a quotation is fine—but if you are using other people's words, make sure you mark this as a quotation. If you don't, you are plagiarizing, or technically stealing another person's ideas. To avoid this happening by mistake, when you are taking notes, mark any sections you have copy-pasted as quotations (with a page number!) so you don't get confused.

Finally,

> be clear about the limitations of your argument and identify any objections.

Again, what these are depends on the issue you are considering and your audience. In some cases, it might be a good idea to identify your own background and the motivation you have for caring about this particular issue. Also, be honest about any conflicts of interest you might have (this can include bias for or against an opponent, for instance if they are someone you

dislike, or a friend). For instance, you might care about an issue because of a particular experience you had in the past. You might worry that owning up to this will count against your argument—but in reality, being honest about any existing commitments is the best way to make your audience believe you are in fact sincere. It's part of demonstrating intellectual humility. Most of us have some level of commitment and interest about most issues, so being honest really is the best way to go. And as long as you aim to convince through reasons, this should not count against your argument.

Another thing to think about:

> Do you really want to convince *everyone*?

Sometimes, you probably do: for example if you are working on or leading a team and trying to persuade them to adopt a particular strategy. But other times, the answer might be no. For example, if you are writing a research article, giving a conference presentation, or writing an essay assignment, most of your readers probably won't be convinced. These matters are often too complex and there are too many moving parts to allow for easy consensus. That's ok—people might still be interested in the questions you raise or come back with constructive criticism, and the ensuing debate can mean real progress. Convincing people isn't the only way to make progress in a live debate!

This comes back to the idea that a strong hypothesis is one that can easily fail: there are lot of reasons why it could turn out to be false—and if it doesn't, that could mean you were on to something. Similarly, if many people disagree with all or some of what you say, this can be an indication that you are saying something interesting. Obviously, this doesn't mean you shouldn't try to convince anyone—that would be the opposite of critical thinking! It just means you should be realistic about the prospects of getting everyone on board and welcome opposing opinions. It also means you shouldn't water down your message to a point where you are likely to get everyone on board, as in that case, consensus is likely meaningless.

If you are discussing or criticizing another person's position, aim to be as charitable as you can.

> The **principle of charity** says that other things being equal, the best interpretation is the one that makes the most sense of what other people say. Interpret an opponent's argument as being as *strong* as possible.

Doesn't this mean you are making your own job harder? It does, but paradoxically, this is efficient: if you successfully attack a strong argument, your criticism is hard to refute. By contrast, if you attack a strawman, your criticism is virtually irrelevant. In fact, aim to reconstruct your opponent's position so clearly, convincingly, and fairly that your opponent thinks, wow, I wish I had thought of putting things that way myself!

In academic writing, a typical beginner's mistake is to trash an opponent's opinion. It is tempting to call out an opponent for mistakes they might have made, a lack of clarity, or failing to address a question. But getting lost in this kind of nit-picking is not necessarily productive—it is really just a slightly more sophisticated form of the personal attack. Nobody is perfect, and while it can be satisfying to discover that a more senior academic (or politician, or your boss) is making mistakes, you are probably making some mistakes of your own. Moreover, you want to convince your opponent—and if you annoy them, this is not likely to happen. So focus on the issues and the reasons that speak to these issues, not on tangential mistakes.

This brings us to another point: while writing, in particular, is often done in isolation (at least in some disciplines; in the sciences, for example, it is very much a communal effort), critical thinking always profits from conversation and debates. Whatever your discipline,

> avoid lone-wolf approaches: Just as you should seek out evidence that could disprove your claim, seek out the opinions of people that disagree with you. That's often more useful than talking to people who already agree.

This should happen at all stages (research, argument building, defending an argument, and revision). Even if you already consider counter-examples and objections to your claims, other people will offer different perspectives, raise new questions (about assumptions, definitions), and help you see familiar issues in a new light. This can help you see the weaknesses of your own position and any cognitive biases (e.g. confirmation bias), and it might also help you discover some mistakes you made along the way. Overall, this will improve your argument.

This leads to a final piece of advice:

> Be open-minded about revising or even changing your position.

Remember that your conclusions are only as good as the reasons in their support. That support can change over time, as new evidence becomes available. What might seem like a strong, well supported claim at one point might be disproved at a later point when new reasons or evidence become available; this is in fact what happens in many scientific discoveries. So even when you have presented your argument, submitted your essay, or published your paper, a change in your position should never be off the table. You might want to turn to other issues—but also keep an open mind about the possibility of changing your position. In fact, if and when you do, that's often when things get interesting. Ideally, think of your endorsement of any particular position or view as preliminary and open to revision.

The guidelines we have outlined here would, if followed, be a significant step towards creating a culture of critical thinking and facilitating genuine, reason-based debate. This would also involve respecting people for admitting they are wrong or don't know the answer to certain questions. Such a culture of intellectual humility, of admitting mistakes and the limitations of our knowledge would be important progress, especially in the time of fake news, partisan politics, and social media that often function as echo chamber for our own views. We hope that the critical thinking tools you have learned throughout this unit can help you take a step in that direction.

Critical writing

This chapter has focused on general purpose critical thinking guidelines. This is because critical thinking is used broadly, whenever you defend a claim or try to make a reason-based decision. This can be in professional or academic contexts, but also in politics or in everyday life. However, critical thinking skills are also at the center of critical writing. We have included resources on critical writing in additional resources section of your moodle page for this topic.

Further reading

For more on intellectual humility, see
https://scienceandthebigquestions.com/tag/217/intellectual-humility/

For more on cognitive biases, see https://yourbias.is/

F.D. Barth: How confirmation bias affects you every single day.
https://www.psychologytoday.com/au/blog/the-couch/201712/how-confirmation-bias-affects-you-every-single-day

G.L. Ciampaglia & F. Menczer: Misinformation and biases infect social media, both intentionally and accidentally. https://theconversation.com/misinformation-and-biases-infect-social-media-both-intentionally-and-accidentally-97148

For background information and suggestions on using internet search engines, see
https://time.com/5318918/search-results-engine-google-bias-trusted-sources/

For an excellent introduction to cognitive biases, see Daniel Kahneman. *Thinking, fast and slow*. Macmillan, 2011.

For people with an interest in philosophy, this is a fun and insightful read: Daniel C. Dennett. *Intuition pumps and other tools for thinking*. WW Norton & Company, 2013.

as is Bruce, M., & Barbone, S. (Eds.). *Just the arguments: 100 of the most important arguments in Western philosophy*. John Wiley & Sons. 2011.

For a great writing guide, try Martinich, A. P. *Philosophical writing: An introduction*. John Wiley & Sons. 2015.

Further sources used in this chapter:

T. Friedman, How to get a job at Google:
https://www.nytimes.com/2014/02/23/opinion/sunday/friedman-how-to-get-a-job-at-google.html

J. Kruger, Justin, and David Dunning (1999), Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of personality and social psychology* 77(6), 1121.

E.J. Krumrei-Mancuso, M.C. Haggard, J.P. LaBouff, W. Rowatt (2019), Links between intellectual humility and acquiring knowledge. The Journal of Positive Psychology, DOI: 10.1080/17439760.2019.1579359

M. R. Leary, K.J. Diebels, E.K. Davisson et al. (2017), Cognitive and Interpersonal Features of Intellectual Humility. *Personality and Social Psychology Bulletin* 43(6), 793-813

L. Zmigrod, S. Zmigrod, P.J. Rentfrow, and T.W. Robbins (2019), The psychological roots of intellectual humility: The role of intelligence and cognitive flexibility. Personality and Individual Differences 141(15), 200-208.

Exercises

Note: The following exercises allow you to independently explore the biases and productive skills from this topic. You might find they're a bit different in style from previous chapters. Remember, critical thinking is best learned through practice!

1 Comparing Fast and Slow

1a) Go through the following examples and circle the correct answer. Try to do this as quickly as you can—use your snap judgment!

1. All fish can swim. Tuna are fish. Therefore, Tuna can swim.

Valid OR invalid

2. Anything made of wood can be used as fuel. Petrol is not made of wood. Therefore, petrol cannot be used as fuel.

Valid OR invalid

3. All African countries are hot. Antarctica is not an African country. Therefore, Antarctica is not hot.

Valid OR invalid

4. All things with four legs are dangerous. Sheep are not dangerous. Therefore, sheep do not have four legs.

Valid OR invalid

5. A bat and a ball cost $1.10. The bat costs one dollar more than the ball. How much does the ball cost?

10c OR 5c

6. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

100 minutes OR 5 minutes

7. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

24 days OR 47 days

8. Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.
Which is more probable?

Linda is a bank teller OR Linda is a bank teller and is active in the feminist movement.

9. Which scenario is more probable?
   a. A massive flood somewhere in North America next year, in which more than 1,000 people drown.
   b. An earthquake in California sometime next year, causing a flood in which more than 1,000 people drown.

10. Which scenario is more probable?

Mark has hair OR Mark has blonde hair

1b) Now go through the same examples slowly.

1c) Now compare your results. Was there a difference between doing these exercises quickly and doing them slowly? If yes, how do you think this difference can be explained?

2 A Demonstration

Here's a puzzle to test your problem solving. The solution as well as an explanation will be provided once you have finished.

Follow this link: https://www.nytimes.com/interactive/2015/07/03/upshot/a-quick-puzzle-to-test-your-problem-solving.html?WT.mc_id=2015-KWP-AUD_DEV&WT.mc_ev=click&ad-keywords=AUDDEVREMARK&kwp_0=22769&kwp_4=152993&kwp_1=162996&_r=0

3 Daniel Kahneman on Thinking Fast and Slow

Watch this short video, in which Daniel Kahneman explains the distinction between 2 systems of reasoning, System 1 and System 2.
https://www.youtube.com/watch?time_continue=1&v=PirFrDVRBo4&feature=emb_logo

- What are the main differences between the two systems?

- Consider your results when you did the exercises in 1 quickly versus slowly. Why might doing these exercises quickly lead to characteristic System 1-style mistakes?

- What would it take to avoid these mistakes?

- What types of tasks, problems, and decisions might System 1 be particularly good for? And what about System 2?

- Can you think of any actual examples where you have been guided by System 1-style reasoning in the past? You might want to think about big decisions you have made—for example about where to live, which university to study at, or whether to go on a big trip. Which strategies did you use to make these decisions? Do you think these were good strategies, and why / why not?

4 Are you biased? And if you were, would you know?

Knowing about your own cognitive limitations, preconceptions, and biases is the first step towards avoiding them. This knowledge will give you a sense of the situations in which your judgment is prone to be corrupted—and with practice and some effort, you might be able to reach a more balanced position. The problem is that often, biases are implicit and we aren't aware that we have them. So we would like to invite you to take a test on implicit bias.

Below is some information from the Project Implicit website. Read it carefully before you start. You can choose from a wide range of tests on topics such as race, skin color, gender, weight, age, religion, and disability. Our suggestion is to think about which topics you care about deeply. For example, if you care about gender equality, take the tests that focus on those

issues. The results might surprise you. But beware: if you find your reactions were biases in a way you never thought possible, this might be unpleasant. We think it will still be valuable information for you to have. But it's up to you to decide!

That said, as always with these things, don't take the results too seriously. The IAT is a research and educational tool. It's not a tool for decision making. And while it can help foster awareness, there is no guarantee that its results are always on track.

What is implicit bias, and how can you test it?

"The Implicit Association Test (IAT) measures attitudes and beliefs that people may be unwilling or unable to report. The IAT may be especially interesting if it shows that you have an implicit attitude that you did not know about. For example, you may believe that women and men should be equally associated with science, but your automatic associations could show that you (like many others) associate men with science more than you associate women with science." (https://implicit.harvard.edu/implicit/education.html)

And before you get started, some further considerations:

"Because the Implicit Association Test (IAT) sometimes reveals troubling aspects of human nature, it poses the possibility of causing discomfort. If you are considering using the IAT in your research, your research plan should take this possibility into account. Project Implicit urges careful consideration of the costs associated with misuse. The IAT has potential for use beyond the laboratory; however, there are problems with using it outside of the safeguards of a research institution.

First, people may use the IAT to make decisions about themselves (e.g., what should I buy, where should I go to school?). Second, people may use it to make decisions about others (e.g., does this potential job candidate have racial bias?).

On the surface these might seem like acceptable uses; however, we assert that the IAT should not be used in any such ways. We cannot be certain that any given IAT can diagnose an individual. At this stage in its development, it is preferable to use the IAT mainly as an educational tool to develop awareness of implicit preferences and stereotypes. For example, using the IAT to choose jurors is not ethical. In contrast, it might be appropriate to use the IAT to teach jurors about the possibility of unintended bias. Using the IAT to make significant decisions about oneself or others could lead to undesired and unjustified consequences." (https://implicit.harvard.edu/implicit/ethics.html)

Now, follow this link and choose one (or several) of the tests on the website, depending on your interest and time.

https://implicit.harvard.edu/implicit/australia/takeatest.html

Once you have finished, consider the following questions. You can also, if you want, comment on the questions in the discussion forum. To do this, you do not (!) need to reveal anything about which tests you did or about your results—again, this is really just food for thought.

- First of all, consider your results. Were they in line with what you expected? Or were the results surprising, and if yes, in what way?

- Next, can you think of any cases where these (implicit) biases might have affected decisions you made or things you did in the past?
- Finally, what, if anything, do you think can be gained from knowing about these biases? For example, do you think that having these results might help you make more balanced decisions in the future, and how?

For further information and background, have a look around the site. A list of frequently asked questions can be found here: https://implicit.harvard.edu/implicit/australia/background/faqs.html

5 Challenge! Your own arguments from the wild

This activity is very good for practicing both critical thinking and critical writing. Your responses don't have to be lengthy to be useful. Feel free to post your response on the discussion forum and make sure to post a link to the original article. If you see someone else's post, engage with their discussion of the article, rather than how accurately they have completed the task – can we get closer to the truth as an intellectual community?

Find an argument from a news site, or in social media. Remember, not all text contains an argument! If you're not sure where to find an argument, don't just google 'argument'. We're looking for something that tries to *say* something interesting and relevant to our lives or understanding of the world. It would be especially good to choose one that you don't already agree with!

Try these websites for a start if you can't find anything from sites you regularly visit-

https://theconversation.com/au (news and opinion written by academic experts for the public)

https://www.theage.com.au/topic/the-age-letters-1rf (short letters to the editor from the Age)

https://www.bbc.com/ (independent news from the UK)

https://bigthink.com/ (articles written by experts, often challenging assumptions)

https://www.edge.org/ (asking and answering big questions)

https://aeon.co (essays with provocative ideas from science, philosophy, society and arts)

With the argument you have found –

a) Identify the conclusion
b) Standardise the main argument – what reasons are given to support the main conclusion?
c) Try mapping the argument.
d) Write a paragraph which explains the argument to a friend who has not read the original source.
e) Write a second paragraph which identifies any flaws in the argument. Remember you can consider both validity and truth!
f) Write a third paragraph suggesting ways of improving the argument. Discuss whether the reformulation solves the issues you identified in the second paragraph.