

# APPENDIX A

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## CRITICAL THINKING MISTAKES

Critical thinking is reasonable and reflective thinking aimed at deciding what to believe and what to do. Throughout this book, we have identified mistakes that a good critical thinker should avoid. Some are mistakes that can arise in clarifying or defining a view. Others are mistakes that can arise as we collect or rely on evidence or reasons for a view. Still others arise when we try to draw conclusions for our evidence. And there are even mistakes that can arise as we assess other people's views or reasons. Knowing what they are will help us to avoid them in our own reasoning. But it will also help to make it clear just what the value is in being a critical thinker: thinking critically is valuable in part because it helps us to avoid some mistakes. This appendix lists all of the mistakes we have discussed.

*Personalizing Reasons.* It is a mistake to personalize reasons by treating them as if they belonged to someone. That is a mistake for two reasons. First, epistemic reasons are universal: if they are reasons for me to believe something, then they are equally reasons for anyone else to believe it. Second, epistemic reasons are objective: whether a piece of evidence is sufficient or acceptable is an objective matter. It has nothing to do with me or with anyone else. Personalizing reasons can obscure the fact that they are universal and objective. It can also allow emotion to get in the way of thinking critically, if one identifies too much with one's own reasons or if one rejects reasons just because someone else accepts them.

*Appeal to Relativism.* It is a mistake to just assume that truth is relative. This is a mistake because we always need to have good reasons for our beliefs, including our belief that relativism is the right attitude to take toward some subject matter.

Relativism with respect to some subject matter is the view that the facts in that area are in some way dependent on our beliefs about them. Relativism might be the right attitude to take toward such topics as what is humorous or what is tasty. But for most topics, even religious and moral ones, it is best to assume that Realism is the appropriate attitude, unless one has powerful reasons not to. For most topics, in other words, it is wrong to assume that what is true for me might not be true for you, or that what is true for our community or culture might not be true for others. Truth is the same for everyone.

Sometimes, an appeal to Relativism will be used as an attempt to bring a discussion to an end. One person, perhaps tired of the debate or feeling that they are on the losing side, will say to the others: "Well, I'm entitled to my view and you are entitled to yours." This kind of response is fine if what is intended is that everyone is allowed to make up their own minds about what to believe or do. But if the point is that we can both be right even when we disagree, then this is a mistake that we should avoid, unless there is excellent reason to think otherwise.

*Appeal to Emotion.* It is a mistake to base our beliefs only on our emotions. This is a mistake because how a belief makes us feel is not an evidence that the belief is true, and a belief should be based on evidence that it is true. For a belief to be justified enough for knowledge it must be based on good epistemic reasons. Epistemic reasons are reasons to think that the belief is true. Emotional reasons are not epistemic ones. How a belief makes us feel has nothing to do with whether the belief is true. As we have already noted, critical thinking does not aim to eliminate emotion from our decision making. I doubt this would be worthwhile even if it was possible. Many of our beliefs are so fundamental to our deepest conceptions of ourselves, of our culture or our place in the Universe that the pain involved in abandoning them would be too great to bear. It is fine for our beliefs to have or even constitute these emotional supports, so long as they also have sufficient support from epistemic reasons. But it is a mistake to base our beliefs on nothing but emotional reasons. We also saw that it is a mistake to allow emotions to prevent us from collecting or assessing the evidence we need to make the decisions we must.

*Privileging Confirming Evidence.* It is a mistake to assume that evidence that confirms what we already believe is better than new evidence that conflicts with it. This is a mistake because what we already believe may be false, and if we were to consider the disconfirming evidence more carefully we would see this and change our minds. A critical thinker is always willing to reflect on whether his beliefs are based on sufficient and acceptable evidence.

*Privileging Available Evidence.* It is a mistake to assume that evidence that we currently have is better than evidence that we might collect. This is a mistake because if we were to collect more evidence, we might discover some that overrides or that undermines the evidence that we have. It might be that our current evidence is the best we can get, but we will not know this until we try to collect more. Crucially, even if we have excellent reason to rest content with the evidence we have, we should always keep an open mind that we might uncover new evidence that will override or undermine the evidence we now have.

*Appeal to Tradition.* It is a mistake to believe something just because that belief is traditional. This is a mistake because the fact that a belief has a long history is not evidence that it is true, and it is a mistake to believe something without evidence that it is true. Being a critical thinker does not mean abandoning all of our traditional beliefs. It just means that we need to have good reasons to continue holding them.

*False Definition.* It is a mistake for a definition to be too broad or too narrow, or both. This is a mistake because it means that the definition is false. A counterexample to a definition is an example that shows that the definition is too narrow or too broad. The SEEC method can help us to avoid this mistake by requiring us to look for counterexamples and contrasting concepts.

*Equivocation.* To equivocate is to use words in different senses without realizing it. This is a mistake because it is hard to know if an assertion is true, if we are not clear about what it means.

One form of this mistake occurs during debates or conversations. It is a mistake for participants in a discussion not to recognize that they mean different things by the key words and phrases they use. This is a mistake because it will be very hard to agree on the truth if we mean different things by our words. This can be recognized and avoided by a careful use of the SEEC method.

Another form of this mistake occurs in arguments. It is a mistake if a word must mean one thing for the premises to be true and another for the argument to be valid. This is a mistake because then the argument cannot be sound.

*Straw Man.* It is wrong to distort or misrepresent another person's beliefs or their reasons. It is a mistake because it is very rude and because it prevents you and the other person from getting to the truth together. While everyone has a duty to make her beliefs and reasons clear, we all have a duty to represent each other's beliefs and reasons as clearly and charitably as we can.

*Post-Hoc.* It is a mistake to conclude that one thing caused another just because the one thing happened first. This is a mistake because while causes do precede their effects, this is just a necessary condition for a causal link not a sufficient one.

*Appeal to Ignorance.* It is a mistake to believe something just because you have no evidence that it is false. This is a mistake because a bit of investigation might show that it is false, and thinking critically requires looking for evidence when one can.

One form of this mistake is to accept a piece of evidence just because one does not know of any overriding or undermining evidence. Critical thinkers should look for overriding and undermining evidence, before relying on some evidence.

Another form of this mistake is to discount or ignore potential costs or benefits of a proposal just because you do not know how to measure or compare them. It is important for critical thinkers to do what they can to discover these costs or benefits.

Another form of this mistake is to believe that a disjunction is true just because you do not know of any other possibilities. Thinking critically about alternatives

requires making sure that we have done what we can to make our disjunctions exhaustive.

Another form of this mistake is to believe that a conditional is true just because you do not know of any counterexample to it. Critical thinkers should look for counterexamples before believing conditionals.

*Unacceptable Testimony.* It is a mistake to accept testimony from a witness if the topic is inappropriate, the witness is not properly trained, or not properly informed, or if the witness is biased. It is a mistake because such evidence is not acceptable. Testimony is appropriate only on topics for which there are recognized experts. An expert must be properly trained and properly informed. And a witness must not be motivated to lie about or exaggerate the facts.

*Ad Hominem.* It is a mistake to believe that a piece of testimony is false just because the witness is unreliable or biased. It is a mistake because it confuses undermining and overriding evidence. Testimony can be true even if it is from an unreliable or biased source.

This mistake is traditionally called “ad hominem” because it involves criticizing testimony by criticizing the witness (the “hominem”). But we need to be a bit careful here in identifying this mistake. For it is not always a mistake to conclude that a witness is unreliable or biased. There can be very good reason to believe this. But it is always a mistake to conclude that *a witness’s testimony is false* just because they are unreliable or biased.

*Bad Question.* It is a mistake to ask a question that is ambiguous, contains charged or slanted words or that hides a controversial presupposition. It is a mistake because it makes it harder to know what the person answering the question really believes.

*False Disjunction.* It is a mistake to reason with a false disjunction. It is a mistake because an argument with a false premise is not sound. Moreover, in the case of reasoning by Denying a Disjunct, if the disjunction is false, then the conclusion will be false too.

*Denying the Antecedent.* It is a mistake to reason as follows: If P, then Q; it is not the case that P; so, it is not the case that Q. It is a mistake because this form of reasoning is not always valid. To think that it is valid is to confuse a sufficient condition for a necessary one.

*Affirming the Consequent.* It is a mistake to reason as follows: If P, then Q; it is the case that Q, so it is the case that P. It is a mistake because this form of reasoning is not always valid. To think that it is valid is to confuse a necessary condition for a sufficient one.

*Affirming a Disjunct.* It is a mistake to conclude that one disjunct is true just because the other one is false. This is a mistake because it involves a missing premise. Affirming a disjunct is valid *only if the disjunction is an exclusive disjunction*. But if one knows that the disjunction is exclusive, then one should add this piece of information as an additional premise in one’s reasoning.

*Red Herring.* It is a mistake to raise irrelevant matters when criticizing someone’s beliefs or reasons. This is a mistake because it is rude and because it makes it harder

to find the truth together. One form of this mistake is to criticize a disjunction in someone's argument by raising possibilities that are ridiculous or that have already been ruled out.

*Hasty Generalization.* It is a mistake to rely on an unrepresentative sample when reasoning using samples. This is a mistake because the analogical premise is false, and an argument with a false premise is not sound. This mistake is a special case of the mistake of a false analogy. The mistake is called a "hasty generalization" because the argument's conclusion is a general claim about the target and it is hasty because not enough care was taken to ensure that the sample was representative.

*False Analogy.* It is a mistake when reasoning by perfect analogy for the analogical premise to be false. This is a mistake because an argument with a false premise is not sound. Recall that any two things are alike in a huge number of respects. An analogical claim is true only if the analogues are **exactly alike** in all of the respects that are **relevant** to the relevant property. Knowing what those respects are can be difficult, and can sometimes require a lot of investigation. Knowing whether the analogues really are alike in those respects can also be difficult.

*Slippery Slope.* It is a mistake to reason with an extremely false causal conditional. It is a mistake because an argument with a false premise is not sound.

