

Critical Thinking

Session Two

The Critical Thinker's Toolkit

Online resources

Lecture slides and additional materials can be found here:

<http://all-embracing.episto.org/courses/critical2014/>

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Premises and Conclusions

In the previous class we talked about how collections of propositions can entail or strongly suggest other propositions.

We talked about:

Conclusions: The proposition we are trying to show follows from our argumentative propositions.

Premises: The propositions we put forward in support of some conclusion.

Evaluating Arguments

To find out whether an argument is good, we must perform two tasks.

1. The Logical Task: We must suppose that the premises are all true and then determine how probable the conclusion is given that supposition.

2. The Material Task: We must learn whether the premises are true or, at any rate, we must decide how plausible they are.

If an argument fails the logical task OR the material task OR both, it is not a good argument and we should reject it.

The conclusion, however, could still be true.

Identifying Unstated Assumptions

Sometimes when an argument is relayed to us in spoken or written form we will find that one (or more) of the premises has been left unstated.

Example

The Pyramids of Ancient Egypt are examples of astounding engineering skill. Thus, aliens built the pyramids.

You might wonder how someone can make the jump from:

P1. The Pyramids of Ancient Egypt are examples of astounding engineering skill.

to:

C. Aliens built the pyramids.

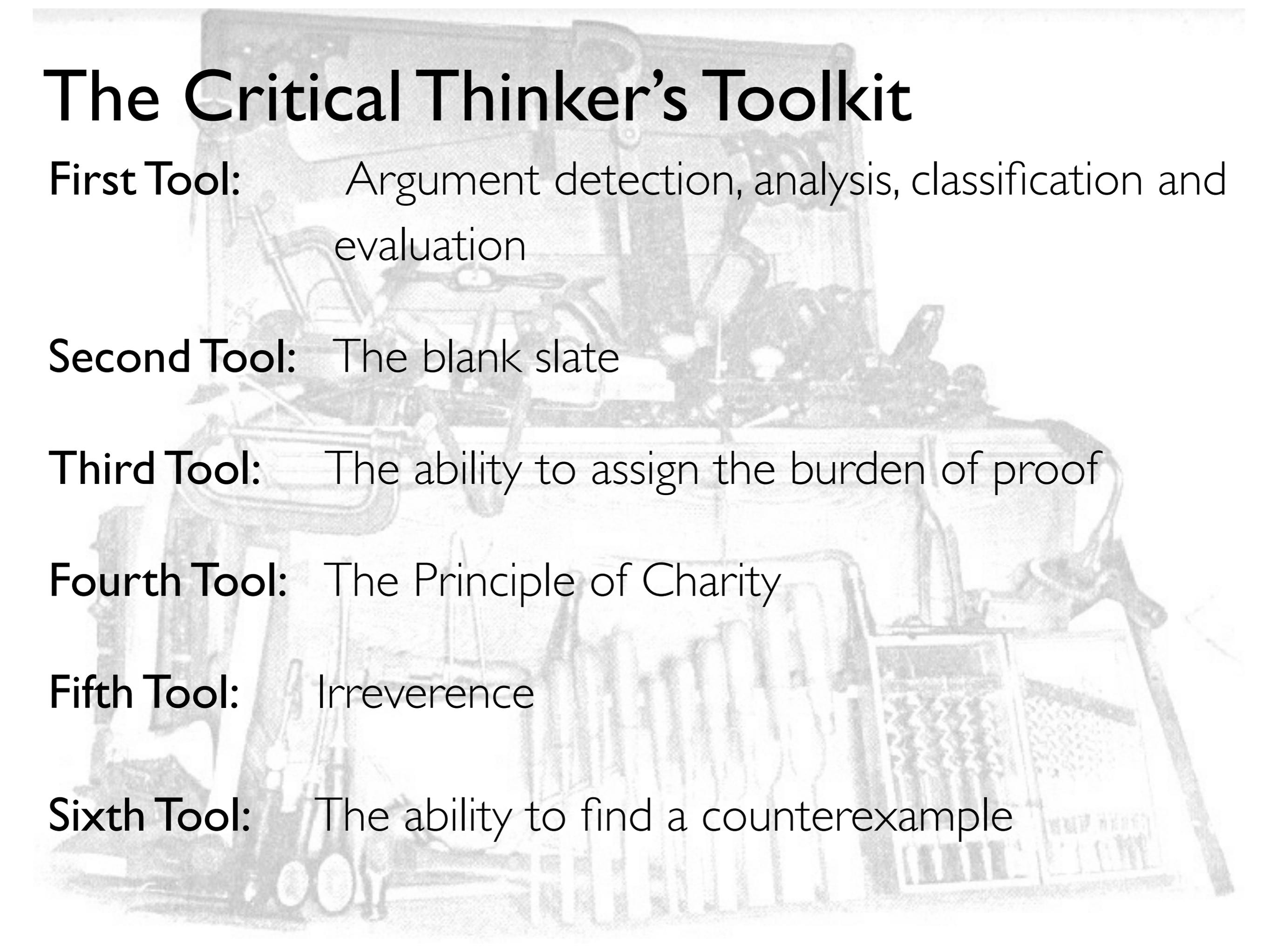
What aren't we being told?

Sometimes premises are suppressed because it is reasonable for the arguer to assume that they are common knowledge.

You should take a coat! If you take a coat, you won't catch your death of cold!

Think of this as an argument with one stated premise. The premise is there to give you a reason for believing the conclusion.

The Critical Thinker's Toolkit



First Tool: Argument detection, analysis, classification and evaluation

Second Tool: The blank slate

Third Tool: The ability to assign the burden of proof

Fourth Tool: The Principle of Charity

Fifth Tool: Irreverence

Sixth Tool: The ability to find a counterexample

First Tool: Argument detection, analysis, classification and evaluation

We have already looked some elements of the first tool:

1. We know how to work out whether some statement is a proposition and
2. We know how collections of propositions can entail or suggest some other proposition.

Let's now talk about the difference between a deductive and a non-deductive argument.

Deductive Arguments

The arguer intends that the premises should entail the conclusion.

Non-Deductive Arguments

The arguer intends that the premises should strongly suggest the conclusion.

Why is this distinction important?

When we are trying to assess whether an argument is good, we should assess it with respect to the standards the arguer intended the argument to be judged by.

If someone intends that their premises should entail some conclusion, then if the premises do not entail the conclusion, the arguer has put forward a bad argument.

If someone intends that their premises should strongly suggest some conclusion, then if the premises do not strongly suggest the conclusion, the arguer has put forward a bad argument.

Tricky Question

What should we do if someone intends to put forward an argument which is meant to entail its conclusion but it only strongly suggests it?

What should we do if someone intends to put forward an argument which only strongly suggests the conclusion but it turns out the propositions entail it?

Second Tool: The Blank Slate

To make like a blank slate is to adopt an open mind when applying tool one, that is, when detecting, analysing, classifying and evaluating arguments.

Example

People say that global warming is the greatest threat yet to human life on our planet. Yet global warming is a natural phenomena that we have (as a species) encountered and survived in the past. Rather than follow a strict and stringent economic and ecological project to try and stem the inevitable we should, instead, work towards adapting to the forthcoming changes in climate, something that will require us to keep to, or even increase, our levels of production.

3rd Tool: The ability to assign the Burden of Proof

Definition

Somebody who makes a statement shoulders the burden of proof if she needs to defend that statement; in other words, she shoulders the burden of proof if an argument in support of the statement is required before her audience can reasonably be expected to agree with the statement.

Example 1

Suppose someone says:

It's raining outside.

Should you take their word for it?

Example 2

Suppose person A claims: The Earth is not spherical, it is cuboid. We can demonstrate that the world is cuboid by the fact that we have horizons; horizons indicate that that part of the world we cannot see is perpendicularly down from us.

Whilst person B replies: Nonsense. The world is spherical; the horizon is the result of our only being able to see so far until the world curves away from us.

Example 3

Suppose I say:

There's chocolate on every desk in this lecture theatre.

And one of you says:

No, I've looked.

Example 4

The Prosecution: In this case I shall be demonstrating the guilt of the defendant by bringing forth twelve witnesses, men and women like yourselves, who will show without a shadow of a doubt that the defendant had the ability and the motive to commit the crime with which he is charged.

The Defense: Allow me to remind you, ladies and gentlemen of the jury, of the golden thread of justice that runs through our legal system. We must presume the defendant innocent unless the prosecution can ultimately prove its case, something, I assure you, that cannot be done in this instance.

Example 5

Suppose I say:

I don't think we should assume that the fire alarms in this room work.

And one of you says:

I think we should. They look fine to me.

Example 6

Suppose I say:

It's time to teach New Zealand's real history, a history of a pre-Maori Celtic People who came here from South America via Easter Island and built great stone monuments, monuments the Academic Left deny and hide from us ordinary and real New Zealanders!

And one of you says:

That's not historically (or archaeologically) accurate!

We can make some useful generalisations, though, about which sorts of people in which circumstances hold the burden of proof:

People who argue against the status quo

People who put forward a controversial claim

People who put forward a claim which could easily be checked by gathering evidence without much effort

People who start an argument

The Prosecution in a trial

Site managers in matters of safety

Whistle blowers

Sub-ordinates who disobey orders that are handed down by an appropriate procedure

Fourth Tool: The Principle of Charity

In analysing an argument, give the arguer the benefit of the doubt wherever possible. Adopt the reconstruction, paraphrase or interpretation of the argument that is most likely to make it a good one, one with plausible premises that provide considerable support for its conclusion.

Two Reasons for Invoking the Principle of Charity

1. It is the most rational thing to do:

(a) If you are in favour of the arguer's conclusion, you want her argument to be strong.

(b) If you are against it, you are better off attacking a stronger rather than weaker version of it.

(c) If you don't have a viewpoint, you want the debate to be a quality debate.

2. It is the ethical approach. We should do our best to elicit reasonable opinions from people instead of seizing on the unreasonable things they say and shutting down the debate.

Example

Suppose I say:

He's Scottish, so of course he's stingy.

A charitable reconstruction

P1. He is Scottish.

[P2. All Scots are stingy.]

Therefore,

C. He is stingy.

A more charitable reconstruction

P1. He is Scottish.

[P2. Scots tend to be stingy.]

Therefore, probably,

C. He is stingy.

A even more charitable reconstruction

P1. He is Scottish.

[P2. Scottish men tend to be stingy.]

Therefore, probably,

C. He is stingy.

Fifth Tool: Irreverence

Definition

To evaluate an argument irreverently is to be unimpressed by irrelevant details of the way the argument is phrased, the person offering it, the effect its conclusion would have if it were true and so on.

Example 1

Patricia Cornwell, the noted crime thriller author, claims to have solved the mystery that is the question of the identity of Jack the Ripper. She claims that Jack the Ripper was none other than the American artist Walter Sickert. Seeing that she knows about crime I think we can finally call 'Case Closed' on this matter.

Example 2

Kerry Thornley was the bunk mate of one Lee Harvey Oswald; they served in the US Army together and were close friends. After the assassination of John Fitzgerald Kennedy, the members of the Warren Commission asked Thornley to tell his story about the Oswald he knew, which resulted in the publication of "Oswald," a book which put forward the hypothesis that Oswald probably did work alone. Given Thornley's connection to Oswald, I think we can say Oswald was a Lone Gunman.

Sixth Tool: The Ability to Search for a Counter-example

Definition

A counter-example to an argument is a situation which shows that the argument can have true premises and a false conclusion.

Example

If you don't give your Mother a present for her birthday then she won't be very happy. A good child, thus, will always make sure that they give their Mother a birthday present as this will ensure her happiness on that most important of days.

Rough Definition of 'Fallacy'

A Fallacy is a bad argument which may nonetheless be psychologically persuasive.

Two Projects in the Study of Fallacies

Project 1: Diagnosing the flaws in fallacies of various kinds (why they are bad arguments).

Project 2: Considering why fallacies of various kinds are psychologically persuasive (why they can seem like good arguments).

A Rough-and-ready Approach to Project I

If an argument is fallacious, it suffers from at least one of two ailments.

First Ailment (Insufficient Evidence = Logical Failure)

The premises taken together do not provide sufficient grounds for judging that the conclusion is true.

Example of First Ailment

(Failure of Insufficient Evidence for Conclusion = Logical Failure)

Most residents of South Auckland communities are afraid to go out at night. They believe that the police are not doing enough to combat violent crime. This shows that the Government needs to spend more money resourcing the police so that they can do a more thorough job of fighting violent crime.

Second Ailment (Failure of Support for Premises = Material Failure)

At least one premise is a proposition which an ordinary reasoner should know not to accept without further evidence.

Example of Second Ailment

(Failure of support for premises = Material Failure)

Either I use global warming as an example in class all the time in class or else I avoid talking about it altogether. If I go on about global warming all the time in class, I might antagonise some of the people in the class. So, either I avoid talking about global warming or else I run the risk of antagonising some of my pupils.

Sub-Species of First Ailment (Failure of Relevance)

All explicit premises are statements whose truth or falsity is in fact irrelevant to the question of whether we should accept the conclusion. An irrelevant premise can be made to seem relevant when the argument is in standard form, but only by making explicit a suppressed premise which is implausible.

Example of First Ailment

(Failure of Relevance - Logical Failure)

Before you swallow any mouthful of food, you should chew it thirty-two times. That's what Mr Gladstone said and he was British Prime Minister four times! That's good enough for me!

Some Things to Watch Out For

i. People often wrongly regard certain information as relevant to assessing an argument. This information includes:

- Information about the person offering the argument,
- Information that tends to promote a positive attitude towards the idea that the conclusion is true and
- Information about what good or bad things would happen if the conclusion turned out to be true.

ii. People are often confused by arguments with complex structures or lots of technical jargon. (Writing the arguments out in standard form, diagramming them or paraphrasing them can diminish such risks.)

A Very Technical Argument

One reason to believe the conclusion that paranormal phenomena should not be taken as counter-rational is one based upon the reduction of fundamental predicates from observed instances. It is all well and good to be epistemic reductionists and take a Humean worldview but we should not think that this necessitates the controversial thesis that the predicates of epistemic reductionism are indicative of ontological reductionism. Such a move would require some bridging principle which would show that epistemic statements, based upon limited instances of supposed regularities, can generate genuine ontological knowledge.

iii. People are often insufficiently sensitive to the fact that some words used in arguments are ambiguous and some are vague.

Puzzling statement: *If you can eat any fish, you can eat any fish*

Paraphrase: If there's at least one kind of fish that you are able to eat, then you will find that you are able to eat all kinds of fish.

iv. Arguments that deal with certain types of information (e.g., analogies, causes and their effects, statistics) are prone to mislead.

v. Rough-and-ready reasoning that serves us well in some situations lets us down in other situations.

vi. Sometimes we make bad decisions under pressure from time or from a peer group.

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