Ethics for Nerds

An Advanced Course in Computer Science
Summer Semester 2020

Precise Thinking 8
Summary

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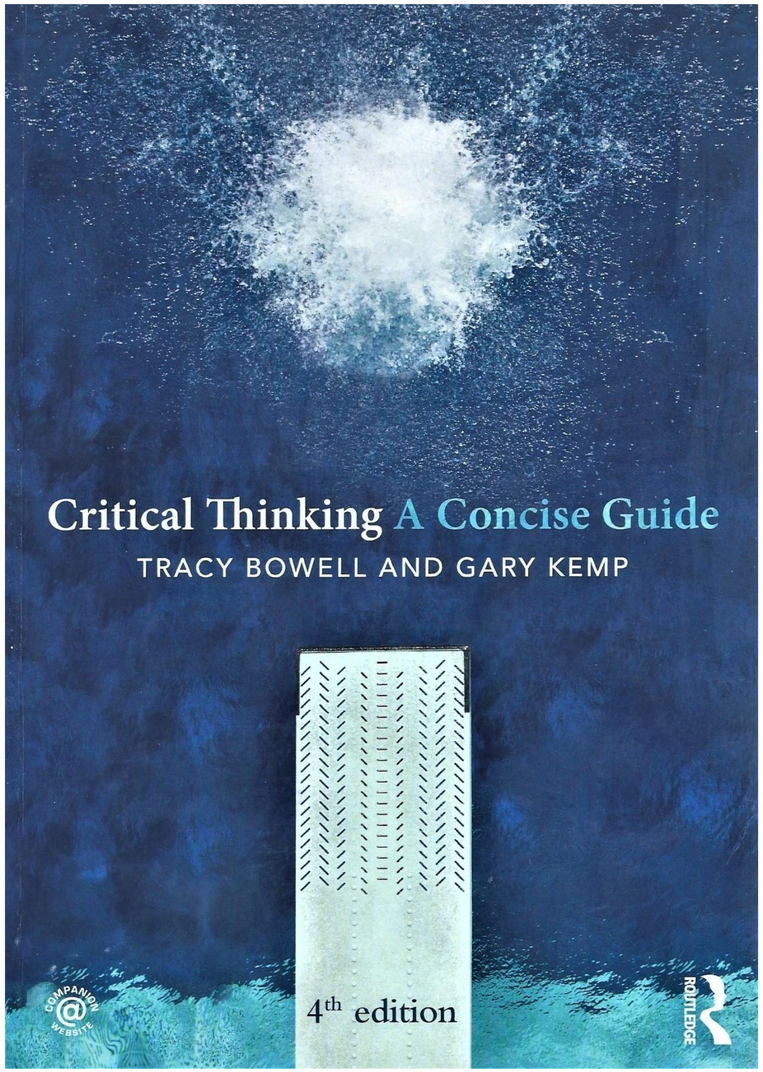
PRECISE THINKING



We *very* loosely follow this book:

> Bowell, T., & Kemp, G. (2015). *Critical thinking: A concise guide (4th ed.)*. Routledge.

However, *lots* of things deviate from the book. What is said in the lecture has precedence over the book.

You do **not** have to buy the book. If you want to have an inexpensive look, you can find a digital copy of the 2nd edition online at:

http://www.academia.edu/download/46383480/_Tracy_Bowell__Critical_Thinking_A_Concise_Guide_BookFi.org.pdf

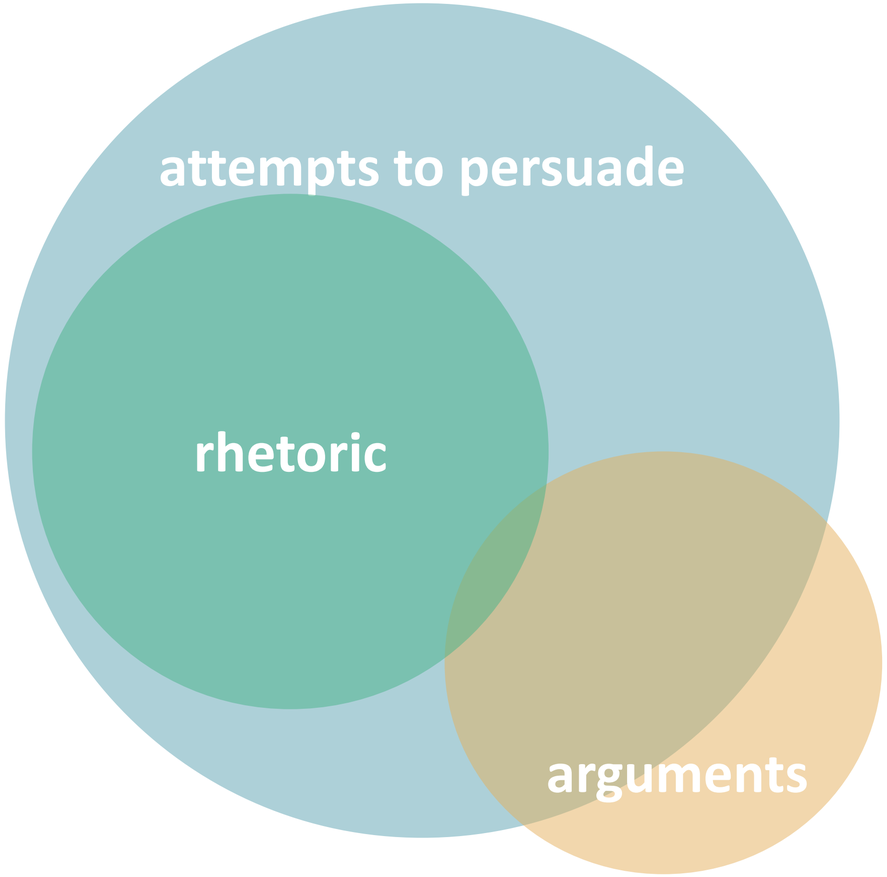
Also see:
https://www.youtube.com/watch?v=HnJ1bqXUnIM

What do we want to teach you?

higher-order skills
to arrive at your own, independent position, but based on reason

- analyse infor-mation
- identify the key aspects in arguments
- weigh different types of evidence and arguments
- criticise weak arguments
- strengthen strong arguments
- assess meaning and significance of arguments
- express yourself clearly

ARGUMENTS

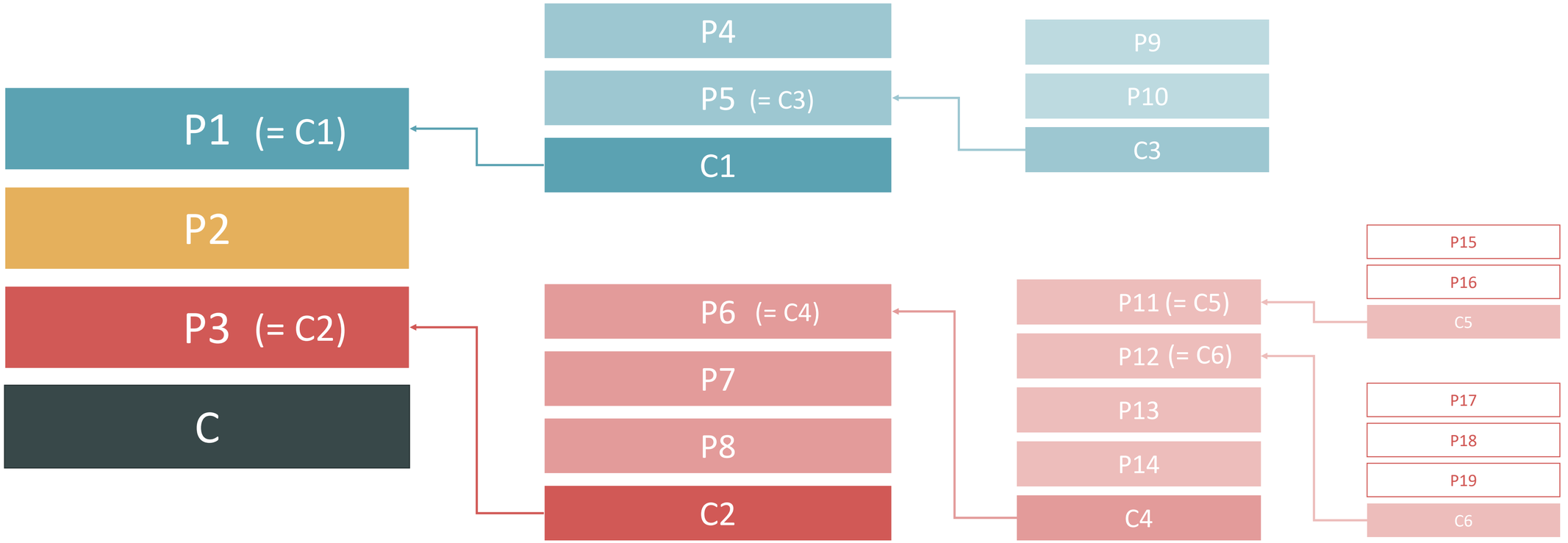


Rhetoric (working definition)

An attempt to persuade mostly though the power of the words used, not through reason.

Rule of thumb:
Arguments are mainly about truth, rhetoric is mainly about emotions.

THE STRUCTURE OF ARGUMENTS



DIFFERENT FORMS OF ARGUMENTS

text(ual) form

If it's raining, then the street gets wet and it, indeed, rains. Thus, the street is wet.

- good for communicating the argument, natural to start with
- but bad for assessing

standard form

extended standard form

P1: If it rains, then the street is wet.

P2: It rains.

C1: Therefore, the street is wet.

- good for checking the truth of the premises, missing/implicit premises and general structure
- but bad for communication (to non-philosophers)

logical form

P1: $a \rightarrow b$

P2: a

C1: b

- good for checking for validity
- but impossible to check truth/ plausibility of premises, i.e. impossible to check soundness

PRINCIPLE OF CHARITY

Always **read** using the *principle of charity*:

- find the best and strongest interpretation of an argument (or any text)
- assume that every argument (or text) was written by someone rational, capable and intelligent
- Find *charitable* premises and conclusions when reconstructing another's argument

Read as close to the text as possible, and as far away as necessary.

~~Meh. Yeah, well, it'll be close enough.~~

But **write** as if it was not applied to your work:

- write as precise as if your addressee is a mean, nasty expert who hates the principle of charity and loves to point out ambiguities, mistakes and inconsistencies
- write as easy and crisp as if your addressee is my mother (and my mother is intelligent, but neither a philosopher nor a computer scientist)

Write as easy and straight forward as possible, and as complicated as necessary.

DEDUCTIVE REASONING

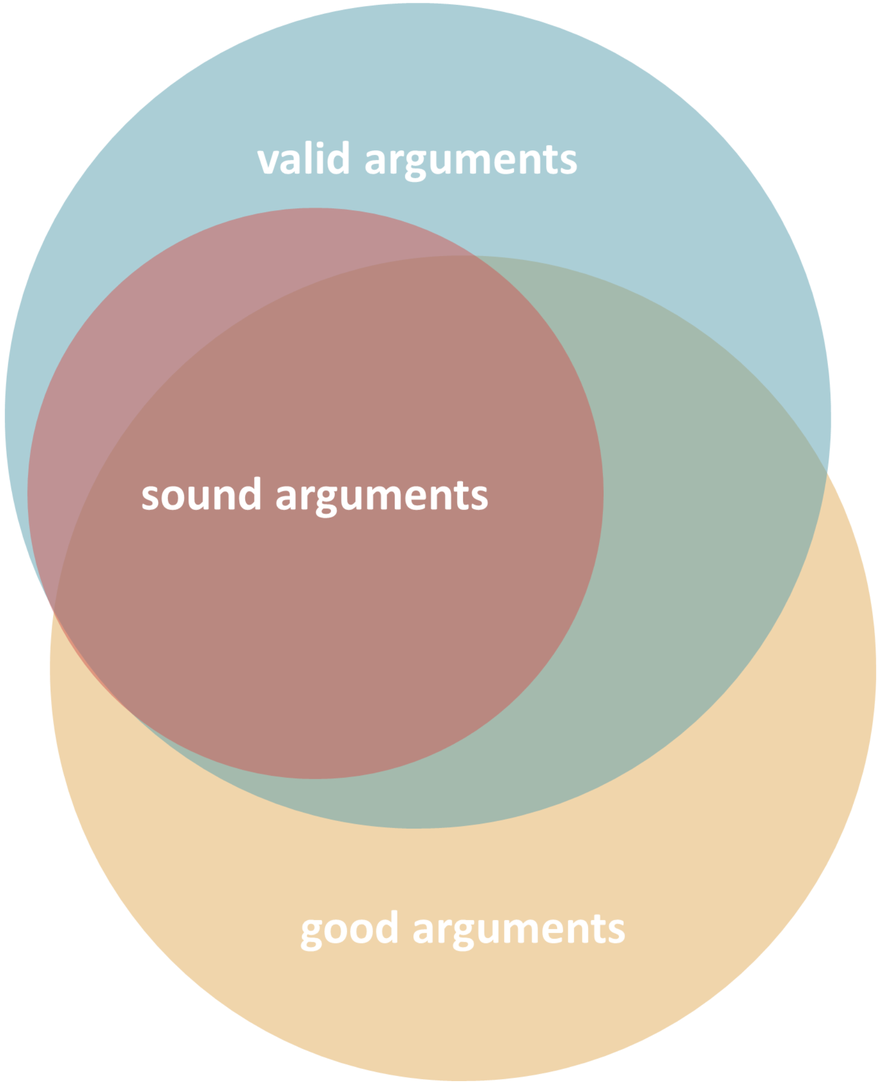
validity: it is not possible that all premises are true, but the conclusion is false,
usually you go for logical validity

soundness is **validity** and **truth of all premises**

the argument's inference is formally ok

and

you can pull the argument's inference off, because what you infer from is true



DEFEASIBLE REASONING

Koons, Robert, "Defeasible Reasoning", *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition), Edward N. Zalta (ed.), https://plato.stanford.edu/entries/reasoning-defeasible/

Defeasible reasoning

Reasoning is defeasible iff the corresponding argument is rationally compelling but not deductively valid.

P1: Tim is a bird.

C: Tim can fly. ✗|✓

P1: Tim is a bird.

P2: Tim is a penguin.

C: Tim cannot fly. ✗|✓

Defeasible reasoning

P1: Anne is Bob's grandmother.

C: Bob loves Anne. ✗|✓

Not truth-preserving: there are cases in which all premises are true, but the conclusion is false.

VS

Deductive reasoning

P1: Anne is Bob's grandmother.

C: Bob is Anne's grandchild. ✓| -

Truth-preserving: there are no cases in which all premises are true, but the conclusion is false.

ATTACKING AN ARGUMENT

How to show that an argument is not suitable *for a certain target audience* **to support its conclusion** *(yet)*

1

show that is has at least one false premise
(standard way)

1lite

show that at least one premise is implausible and thereby shift the burden of proof

2

show that the inference does not work

for deductive arguments:

show that the argument is not valid

for defeasible arguments:

show that the argument is not defeasibly forceful

3

show that the reasoning is fallacious or that it is pseudo-reasoning

4

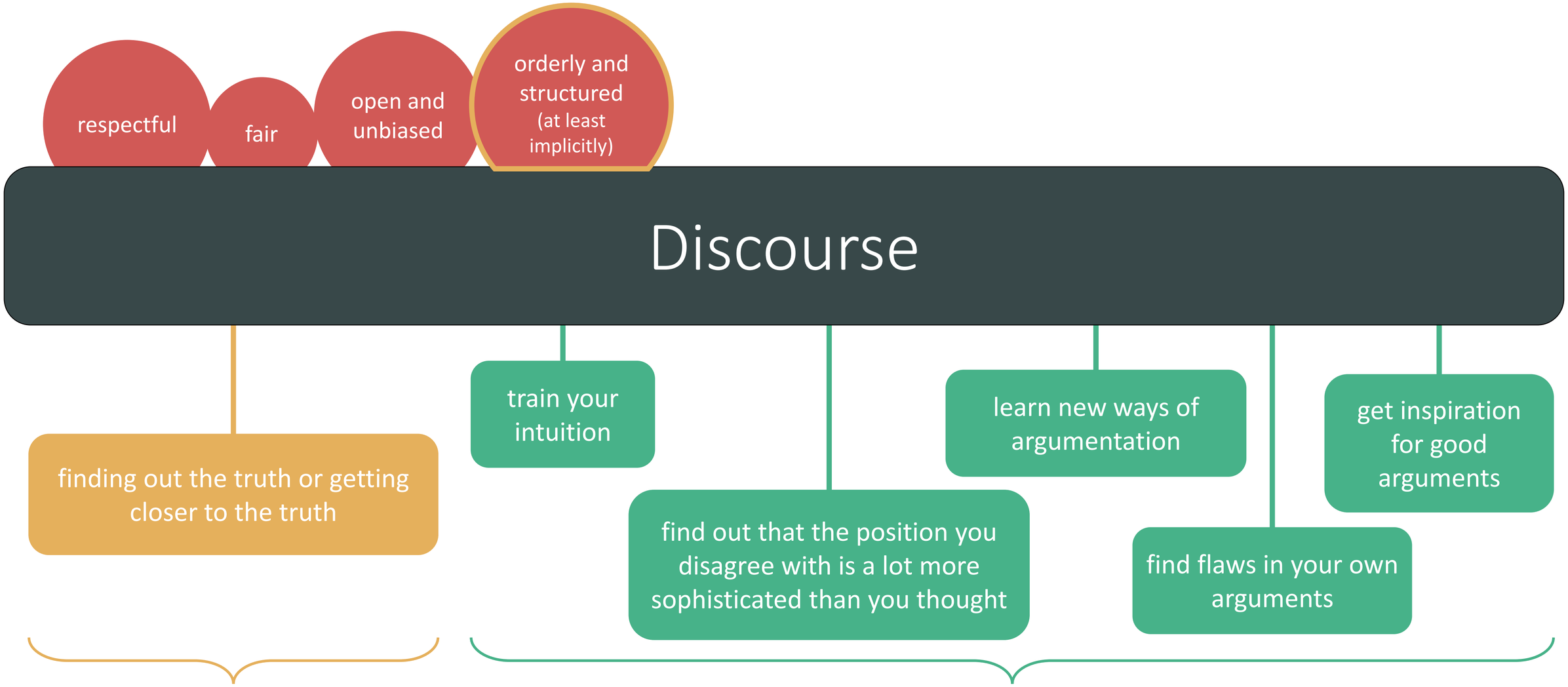
for defeasible arguments:

show that there is a defeater

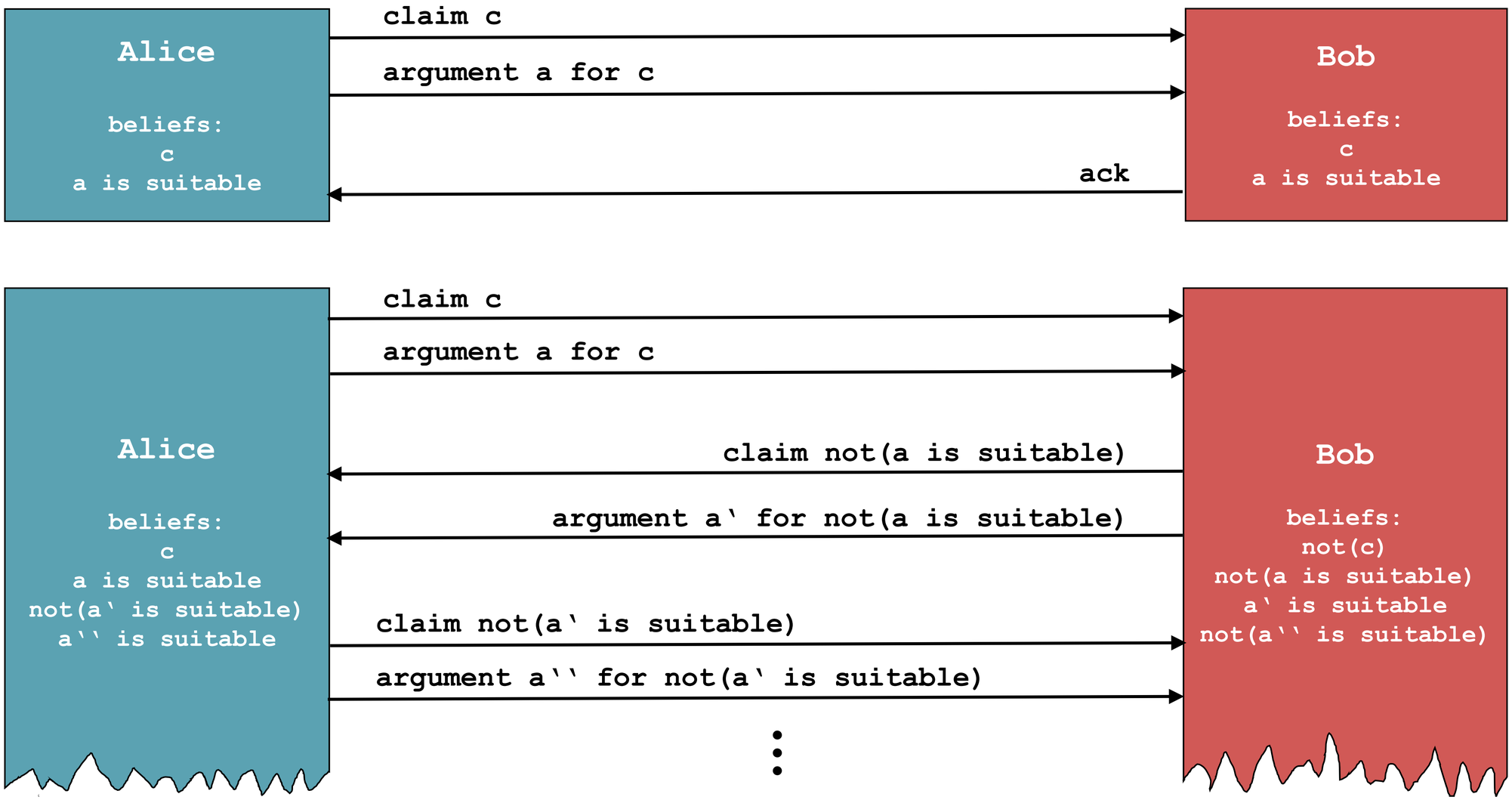
5

show that it is not rationally persuasive to the target audience

DISCOURSE


respectful
fair
open and unbiased
orderly and structured (at least implicitly)
Discourse
finding out the truth or getting closer to the truth
train your intuition
find out that the position you disagree with is a lot more sophisticated than you thought
learn new ways of argumentation
find flaws in your own arguments
get inspiration for good arguments
learn more about the world
improve your skills of how to think about the world

A BARE-BONES PROTOCOL FOR DISCUSSIONS



RECONSTRUCTING ARGUMENTS

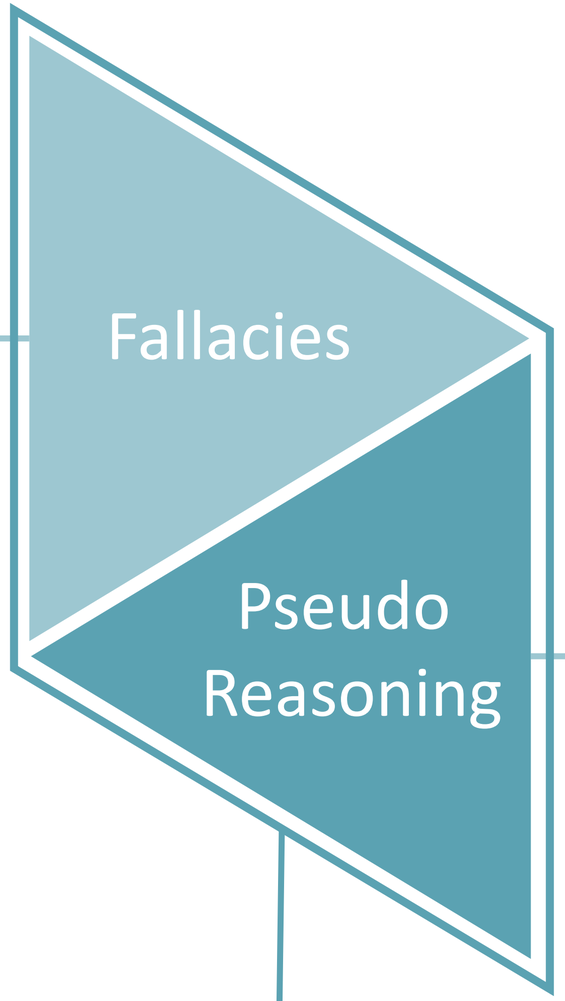
So when reconstructing an argument:

1. Identify the conclusion
2. Get rid of extraneous material
3. Find out the plausible logical form(s) (aka ‘Logical Streamlining’)
4. Write down the final reconstruction(s)

There are a few things along the way to keep in mind!

FALLACIES AND PSEUDO-REASONING

bad arguments of a certain form
(but still arguments)



something that should appear to be an argument, but in fact is not even a bad argument, but no argument at all

common traps of thinking people tend to fall into that can used be intentionally or unintentionally

How to present your argument

1. summarize the intuition behind your argument
2. give your argument in (extended) standard form
3. give reason to believe that the argument is sound
   - show its validity (if necessary)
   - give reason to believe in any premise that is not already evident on its own

How to present your assessment of another's argument

1. summarize the intuition behind the argument
2. give the argument as charitably reconstructed tabular form(s)
   (as few as possible and as many as necessary)
   - this reconstruction is preferably valid, if this makes sense given the argument
   - sometimes it is necessary to say a few words why this is/are the most charitable reconstruction(s)
3. check whether the argument is suited to support its conclusion
   - validity/forcefulness
   - truth of premises
   - fallacious reasoning/ pseudo reasoning
   - defeaters
4. give an overall verdict on whether the argument is persuasive or what we would still need to investigate in order to find out whether the argument is persuasive