




Graduate Research Advanced Skills Program (GRASP)

Research Writing Series

1/7

The argument in research writing

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I acknowledge the Whadjuk Nyungar as the Custodians of the land on which I live and work. This Country was never ceded, it always was, and always will be Aboriginal land.

I pay my respects to Whadjuk Nyungar Elders past and present. I value their ancestral and continuing caring for Country practices and thank them for looking after this Country for so long.

I appreciate Indigenous ways of communication which are inclusive and respectful, and I recognise that this Country has been a place of teaching, research and learning for tens of thousands of years.

Dimensions of academic writing

Argument

The process of supporting one main, contestable claim, with other claims using reasoning and evidence.

Critique

The systematic application of doubt in order to arrive at a balanced evaluation.

Analysis

Breaking things down into parts, looking for relations between these parts in order to make meaning.

Science is built up of facts, as a house is built of stones; but an accumulation of facts is no more a science than a heap of stones is a house.

- Henri Poincaré

What is an argument?

In everyday life, people often use "argument" to mean a quarrel between people. But in logic and critical thinking, an argument is a list of statements, one of which is the conclusion and the others are the premises or assumptions of the argument.

<https://philosophy.hku.hk/think/arg/arg.php>

Four types of arguments

1. Deductive arguments
2. Inductive arguments
3. Abductive arguments
4. Conductive arguments

Deductive arguments

Example deductive statement

- *All are* [All X are Y] *All mammals are warm-blooded.*
- *None are* [No X are Y] *No mammals are cold-blooded.*
- *Some are* [Some X are Y] *Some politicians are women.*
- *Some are not* [Some X are not Y] *Some politicians are not women.*

Example deductive argument

Premise 1 *All mammals are warm-blooded.*

Premise 2 *Dolphins are mammals.*

Conclusion *Therefore, dolphins are warm-blooded.*

Inductive arguments

Most commonly used in scientific and experiment-based enquiry. Based on experience and observation. A form of argument in which, even if the premises are true, the conclusion is probably true, but not necessarily true.

Example inductive argument

- Premise 1 *In 98% of observed cases, where there is smoke, there is fire.*
(presence of X usually indicates presence of Y)
- Premise 2 *There is smoke on the mountain.*
(X is present)
- Conclusion *Therefore, there is probably a fire on the mountain.*
(Y is probably the case)

Abductive Arguments

Pragmatic/creative guessing - abductive reasoning can often yield creative and imaginative conclusions, because it is not bound by purely logical relations.

Example abductive argument

- Premise 1 *You arrive home and are surprised that the front door is open.
(X)*
- Premise 2 *But if your daughter had arrived home before you, this would
be unsurprising. (If Y, then unsurprisingly X)*
- Conclusion *Therefore, it is reasonable to conclude that your daughter
opened the door. (therefore, presumably Z)*

There is sufficient reason to allow for the guess to be true. It is the most 'economical' and pragmatic explanation.

Conductive Arguments

An argument wherein each premise is separately relevant to the conclusion, and wherein these premises, taken together, provide good grounds in support of the conclusion.

A Premise 1

B Premise 2

C Premise 3

D Premise 4



E Conclusion

What is a good argument

1. A good argument must have true premises

A) *All dolphins are mammals.*

B) *All mammals are warm-blooded.*

> *So all dolphins are warm-blooded.*

2. A good argument must be either valid or strong.

A) *No baby in the past has ever been able to understand quantum physics.*

B) *Lina is going to have a baby soon.*

> *So Lina's baby is not going to be able to understand quantum physics.*

3. A good argument cannot be circular.

A) *Smoking is bad for your health.*

> *Therefore smoking is bad for your health.*

4. A good argument must be relevant to the conclusion

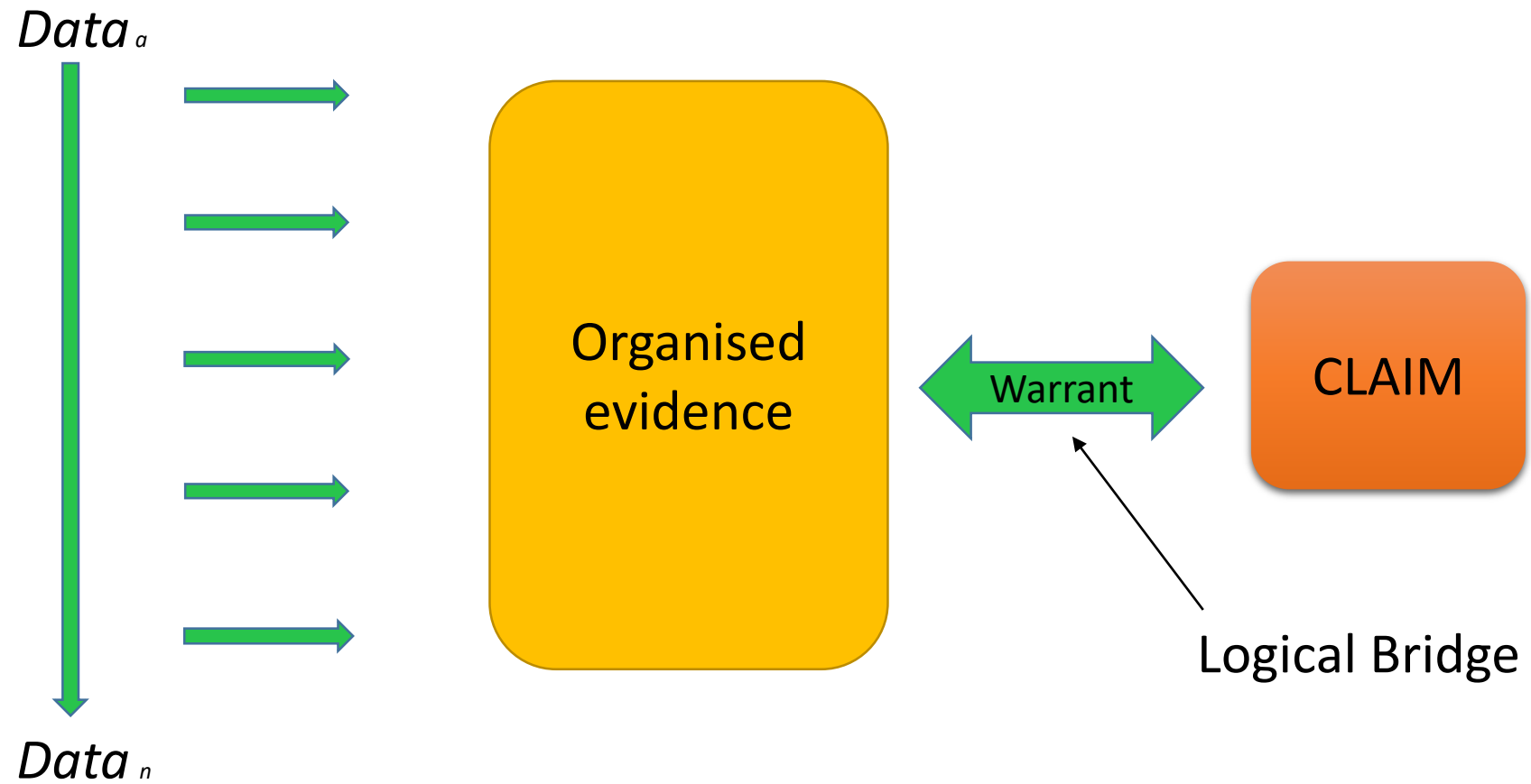
Adapted from Lau & Chan, 2021

The Toulmin model of argument

Stephen Toulmin (1958):

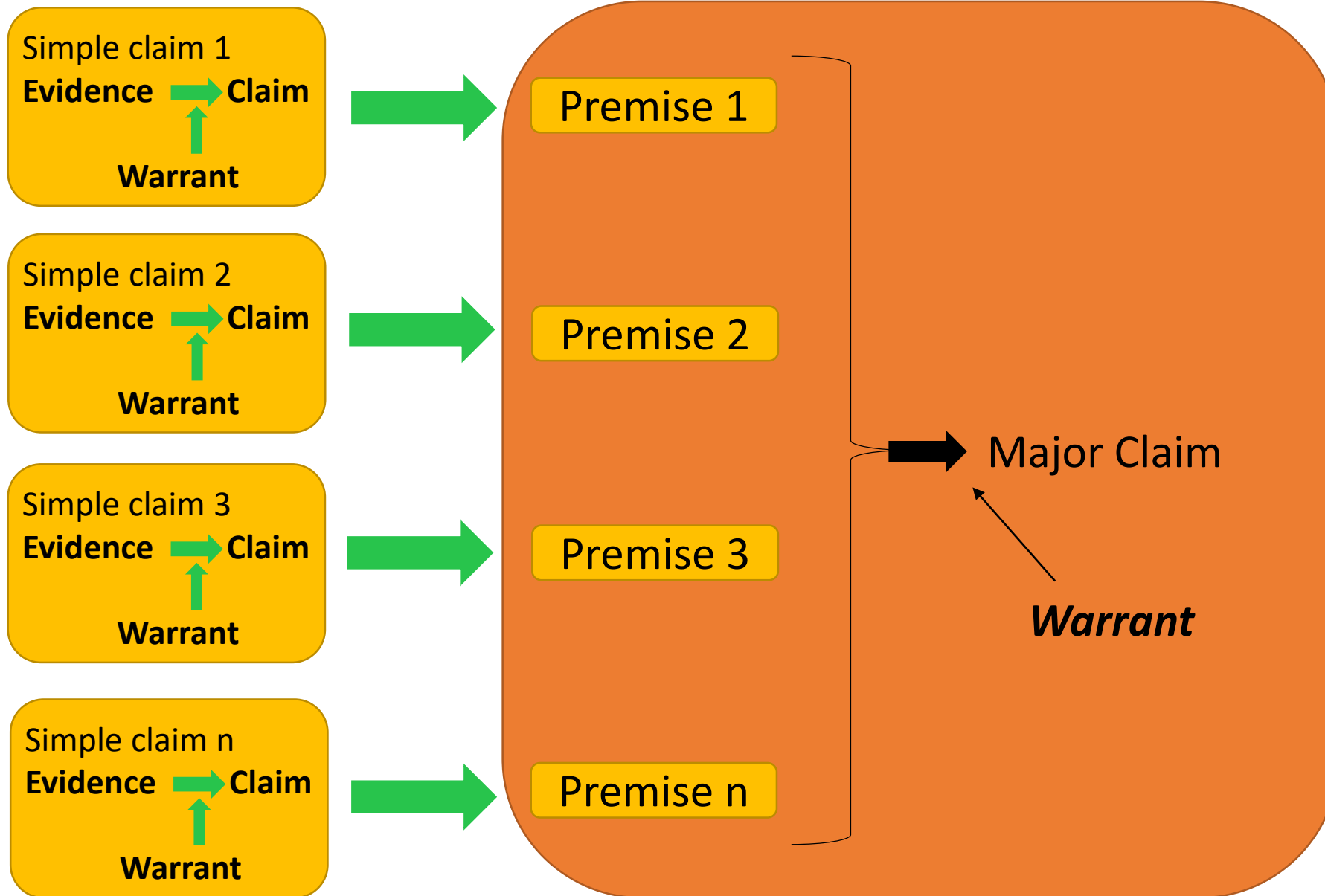
- an argument does not become automatically better by adding more evidence
- model of how complex argumentation works

(Machi & McEvoy, 2016)



“Given the data on the subject, this is what we can conclude.”

(Machi & McEvoy, 2016, p.51)



(Machi & McEvoy, 2016, p.51)

Arguments and epistemology

Think about how epistemology fits

- with the kinds of arguments you are using
- the language you use to construct your arguments

What can we know about the world?

How do we know if something is true or false?

What can we know and how can we know?



What can I state as “truth” or “knowledge” in my thesis?

Arguments and academic writing

Think about how academic writing fits with your argumentation:

- Signposting, headings, summaries:
“Your academic reader wants to know what you are trying to argue right up front and is not willing to figure things out for themselves”.
(Mewburn, Firth & Lehmann, 2019 p 14)
- The language you use
HASS: discourse act verbs: *discuss, state, suggest*
Sciences: research act verbs: *report, describe, discover, found*
All use: *establish... exaggerate*
(Mewburn, Firth & Lehmann, 2019 p 25)

Questions

GRASP webpage

<https://libguides.library.curtin.edu.au/grasp>

Help

libraryhelp@curtin.edu.au

Feedback (Stop – Start – Continue)

https://docs.google.com/spreadsheets/d/1t7roPInys2xK_0zY69ivY9s09ZNs2iY_byLVdCSKD7M/edit?usp=sharing

References

Machi, L. A. ; McEvoy, B. T. 2016. *The Literature Review: Six Steps to Success*. Third edition. Thousand Oaks, California : Corwin

Lau, J. & Chan, J. (2021). Argument analysis. Accessed 2nd of May 2022 at <https://philosophy.hku.hk/think/arg/>

Mewburn, I., Firth, K. & Lehmann, S. (2019). How to fix your academic writing trouble. Open University Press, GB.