

Introduction: The Elements of Logical Reasoning¹

In Malcolm Gladwell's book, *Blink: The Power of Thinking without Thinking*, he devotes a chapter to the *Revolution in Classical Music: Women*, it was believed, simply could not play as well as men. Their lips were different and their lungs not powerful enough to play wind instruments. Their hands were smaller, and it was presumed that they would not have the same reach when playing string or percussion instruments. They lacked the strength, attitude and resilience for challenging pieces. It did not even seem like a prejudice. It seemed like fact. But over the past few decades, the classical music world has undergone a revolution, and this because of blind or screen auditions. Since blind auditions became commonplace, the number of women in the top orchestras around the world has increased fivefold.

Prior to this practice, a panel of judges would intuitively 'know' that a woman could not be chosen for a solo part in an orchestra performance. Snap decisions or intuitive judgements like these are based on our beliefs, experiences and environment. First impressions, based on such beliefs, experiences and ingrained environmental conditioning, play a vital role in our lives and inform, or tend to inform, every decision that we make. These decisions can be wrong – mostly when it comes to race, gender and appearance, and often when we are deeply invested in religious or cultural views.

When we engage in critical thinking, reading or writing, we need to take our rapid cognition seriously and acknowledge the subtle influences that inevitably come into play, as they can alter or undermine the outcome of our reasoning. It is not to say that these impressions are always wrong. When we engage in something that we are good at and care about, especially in a given discipline where we have considerable experience and engage in it with passion, it fundamentally changes the nature of our first impressions. When we are new to a field, such as arbitration, for instance, it does not mean that our reactions are invariably wrong, it just means that they are shallow. With awareness, practice, focus and deliberate action, we can hone these skills and improve our overall competence and capability to make sound, well-reasoned judgements.

It should be recognised that arguments are full of implicit premises. According to Watson & Glaser,² the ability to recognise underlying beliefs that are presupposed – i.e. the implicit premise(s) – is a core skill of critical thinking. Disciplined thinking requires that we learn to make accurate assumptions about the content and become practiced in making justifiable inferences within that context.

It is also good to know that being fully aware of the underlying skills (also called input competencies) that one requires for effective arbitration, promotes and enhances the overall competence in performance.³

Relevant terminology

Before proceeding it is vital to clarify some of the relevant terms applicable to logical reasoning:

(a) 'Premise'

A *premise* is a supporting statement that is intended to prove or support another statement, being the *conclusion* sought to be drawn.

¹ By Maritza Breitenbach, Bachelor of Science (*cum laude*) from North-West University (NWU); Teaching Diploma, NWU; Certificate in Small Business Management (*magna cum laude*) from NWU; and a Master's degree (Philosophy in Biomedical Ethics) (*cum laude*), the latter from the University of Stellenbosch (US).

² The Watson-Glaser Critical Thinking Appraisal (WGCTA) is the oldest and among the most widely used and studied critical thinking (CT) measure. It was constructed around five subscales (or CT skills): inference, recognition of assumptions, deduction, interpretation, and evaluation of arguments (Bernard, *et al.*, 2008).

³ Du Preez, O. 2012. *Competence levels of alternate dispute resolution facilitators in the construction industry in South Africa*. (p. 41).

For example:

Premise	James was seen (i.e. caught) on CCTV camera stealing a bunch of roses.
Conclusion	James is a rose thief.

- The strength of our belief in a *conclusion* depends on the quality of the supporting statements – the *premises* – on which it is based.
- Statements that are backed by good reasons (*premises*) are worthy of strong acceptance.
- If the *premises* are unable to assign substantial weight to a *conclusive statement*, suspend judgement until there is enough evidence to make an intelligent and informed decision.

An *implicit premise* is an underlying statement that is presupposed, because –

- it is taken for granted, in other words, it is merely an *assumption*,
- it is usually based on something that we had previously learned and do not question,
- we normally *assume* – or then, at least, tend to assume – that our beliefs are true,
- assumptions can be unjustified or justified, depending on the strength of the reasons we hold,
- it presents or manifests itself when one statement (i.e. the *premise*) is followed by a *conclusive statement* and there seems to be a missing or unstated part.

For example:

Premise	Women have less powerful lungs than men.
Conclusion	Men are better at playing wind instruments.

The reader is therefore required to supply or fill in the *implicit premise* or *presupposed assumption* to complete the argument.

Premise	Women have less powerful lungs than men.
Assumption/Implicit premise	Powerful lungs are needed for top performance.
Conclusion	Men are better at playing wind instruments.

- *Implicit premises* should never be taken for granted. See the case between Ms Abbie Conant and the Munich Philharmonic during July, 1988.⁴ This case proved that some of the deep-seated assumptions that were held for many years in the classical music arena were incorrect and that breathing technique is the correct qualifier for wind instrument performance.

(b) 'Argument'

An *argument* is a *group of statements* in which some of the statements (the *premises*) are intended to support another statement, the *conclusion*. This *logical link* between *premises* and *conclusions* is what distinguishes arguments from all other kinds of discourse.

⁴ The courts ruled in Ms Conant's favour on the grounds that "she is a wind player with an outstandingly well-trained embouchure, i.e. lip musculature, that enables her to produce controlled tone production in connection with a controlled breath flow, and which gives her the optimal use of her breath volume. Her breathing technique is very good and makes her playing, even in the most difficult passages, superior and easy. In this audition she showed sufficient physical strength, endurance, and breath volume, and above and beyond that, she has enormously solid nerves. This, paired with the abovementioned wind-playing qualities, puts her completely in the position to play the most difficult phrases in a top orchestra, holding them out according to the conductor's directions for adequate length and intensity, as well as strength." Final judgment, *LH München vs. Conant*, LAG Aktz: 5 Sa 639/84, August 13, 1990.

(c) 'Inference'

Inference is the higher order mental process by which we reach a logical, well-reasoned *conclusion* based on credible and relevant evidence, founded on objective facts or proven statements or claims.

Identifying an argument

Being able to identify *arguments*, to pick them out of a block or range of non-argumentative prose, is an important skill on which many other *critical thinking* skills are founded. One is sometimes confronted with large volumes of pompous phrases and opinions or loads of background information that cover a vast landscape without actually presenting an argument. It is perhaps fair to say that successful decision-making rests on the principle of frugality. Too much information often clouds the mind and confuses the issue. A focused and well-trained decision-maker is practiced in the skill of finding the underlying signature of a complex phenomenon or problem.

Complex problems must be reduced to its simplest elements – conclusions based on supporting claims or statements. Even the most complicated of relationships and problems have an identifiable underlying pattern. We have to scrutinise and edit information in order to identify the important issues. Note the following:

- Explanations are not arguments – they may inform us, but claiming that '*he stole because he was hungry*' does not qualify as an *argument*.
- Advice is not an argument: '*a good way to stop your dog from getting fleas is to spray them with watered-down JIC*' is simply a statement that may or may not be true.
- Instructions are not arguments, it does not provide reasons, support or conclusions.
- Expressions of views, feelings and background information only inform and do not present an argument.

In contradistinction to explanations, advice, instructions or expressions of view, etc., *arguments* often consist of more than one *premise* to support a *conclusion*. An example of such a multi-premised argument is outlined in the table below:

Premise 1	The premises shall be used for residential purposes only.
Premise 2	The breeding of animals shall not be permitted at any time.
Premise 3	John is the registered owner of a miniature Schnauzer breeding business.
Premise 4	Eight puppies were seen on the balcony of his apartment.
Conclusion	John is in breach of the Lease Agreement.

When we want to identify an *argument* in a lengthy text, we systematically begin by first searching for and finding the *conclusion(s)*, then we identify the possible *premises* used in support of the *conclusion(s)*. We will then draw a proverbial line through non-argumentative background noise like irrelevant sentences, questions and exclamations. The aim being to simplify and focus on the issue at hand. In this process, the following must be considered:

- We sometimes need to paraphrase content to create an *argument* with clearly stated *premises*.
- Complex cases may present a number of *premises* and *conclusions*. Through a methodical process, some *conclusions* may be grouped or stacked together and used as *premises* in the final and *conclusive argument*.

- It is not always easy to recognise an *argument* (i.e. to locate both the *premises* for and *conclusions* sought to be made) but a few indicator words that frequently accompany *arguments*, and signal that a *premise* or *conclusion* is present or denoted, are provided in the table immediately below:

Some common <i>premise</i> indicators	Some common <i>conclusion</i> indicators
Because	Therefore
Given that	Thus
Seeing that	Which implies
As	Consequently
Due to the fact that	It follows that
Since	So
Assuming that	Hence
Inasmuch as	It must be that
As indicated by	As a result
For	Which means that
The reason being	Ergo

Conclusion

In this first of four articles, some of the key elements, or skills, needed for effective logical reasoning are examined and explained. Logical reasoning is a systematic process that involves distinct procedures and methods. Following these guidelines will enable the reader to detect errors in his or her thinking and assist him or her to achieve a high level of objectivity. It will guard against making decisions and accepting claims solely on the grounds that they coincide with or tend to confirm one's own beliefs, experiences and ingrained environmental conditioning. It entails and enforces the evaluation and formulation of existing beliefs and the know-how to devise new ones.

Let us conclude with the twentieth-century philosopher Bertrand Russell's assertion that the passionate holding of an opinion is a sure sign of a lack of reasons to support the opinion:⁵

'When there are rational grounds for an opinion, people are content to set them forth and wait for them to operate. In such cases, people do not hold their opinions with passion; they hold them calmly, and set forth their reasons quietly. The opinions that are held with passion are always those for which no good ground exists; indeed the passion is the measure of the holder's lack of rational conviction.'

Bibliography:

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⁵ Bertrand Russell. 1958. The Will to Doubt. New York, Philosophical Library, quoted in *Obstacles to Critical Thinking* [Online], Available: https://whythis.s3.amazonaws.com/media/reading/Vaughan_4e_ch_2.pdf