# LOGIC, LANGUAGE AND ASSUMPTIONS

We could look at the following statement: ‘***Management theories come from books. I have read some management theories from the internet. Therefore, the internet must be a book’.*** You might be forgiven for thinking ‘Well, I mean I know the internet is not a book, so it must be false’.

However, we need to think about the logic here. If you were not aware that the internet was not a book, how would you answer this? In other words, the language becomes important here.

If you look at it carefully, you will notice that the word ‘only’ is missing, or maybe the word ‘All’. If the statement had said ‘management theories *only* come from books’ or ‘All management theories come from books’, then that would change the meaning, but it doesn’t say that. Similarly, it does not say that management theories *cannot* come from other places. So, management theories could come from books and from other places, so the internet might be a book, but we cannot tell.

Of course, if we assume that the statement is completely and wholly correct … I mean if we assume that there is nothing missing – like the word ‘only’ – and nothing to be taken away from the first two statements, then would the third statement seem to follow logically? Actually, not quite. When there is no ‘only’ or ‘all’, then we need to recognise that we do not have sufficient information to make a judgement.

As we have seen, being able to identify weaknesses in the arguments that we might see from others and strengthening our own arguments enables us to develop and exercise our critical thinking skills – and that is crucial for success in our degree and beyond. So now let us have a look at whether arguments that we can see and hear from others (or make ourselves) make a lot of sense. If there are too many assumptions being made, then there will be little logic in our argument.

Have a look at the three sentences below. Ignoring everything that you know, examine the following statements and determine whether you think they (1) follow on logically from the information given, or (2) do not follow on logically, even if some of these statements don’t necessarily make a lot of sense to you:

1. I always enjoy a good theatre performance in London. I recently went to see a show at the theatre called ‘The Job’ which I enjoyed. The show was obviously in London.
2. Chocolates are nice to eat but can make us overweight. My brother is overweight. Therefore he must eat a lot of chocolates.
3. Organisations which are extremely successful tend to invest a great deal in training their staff. It is clear, then, that in order to be successful, organisations should invest a great deal in training their staff.

The question to ask is this: in the statements above, does the final sentence follow on logically from the earlier two sentences?

The questions to ask yourself as you examine the three sets of statements above are:

* **Could there be alternative explanations here?**
* **Are there words used here – or words which are not used – which seek to lead me to a conclusion which may not be true?**
* **Where two or three ideas are combined to give a piece of information, are they necessarily linked?**

The reason why some individual might believe all of the above statements relates to the assumptions that are contained within them, and sometimes individuals will write or say things that don’t quite make sense, but we can’t really work out why. It may be that what is said or written contains assumptions that are not true.

Understanding how words and language and statistics are used to develop and strengthen arguments really assists us in using our critical thinking skills to evaluate the information we are given from different sources.

## Comments on Statements (A) to (C) above

The following is a commentary on statements (A) to (C).

1. **I always enjoy a good theatre performance in London. I recently went to see a show at the theatre called ‘The Job’ which I enjoyed. The show was obviously in London.**

The final statement does not necessarily follow from the two previous ones, but it tries to link the word ‘enjoy’ to ‘London’. There are a number of assumptions which are present in this statement which need to be recognised.

The words ‘show at the theatre’ do not necessarily mean that it was a good show, although they probably do mean that it was a ‘theatre performance’. The words ‘show’ and ‘performance’ usually mean the same thing when it is at a theatre.

Although the person enjoys a good theatre performance in London, that does *not* mean they *cannot* enjoy a good theatre performance in another city.

This person will not enjoy a bad theatre performance in London: we can say this with confidence because of the use of the word ‘always’.

1. **Chocolates are nice to eat but can make us overweight. My brother is overweight. Therefore he must eat a lot of chocolates.**

The main assumption here is that chocolate is the only reason that people are overweight. If there was no other possible reason for being overweight, then the final statement is true, but the statements do not say whether that is the only possible reason or not. In addition, the statement does not say whether he enjoys chocolates or not. Finally, it could also be true that my brother does other things which make him overweight.

1. **Organisations which are extremely successful tend to invest a great deal in training their staff. It is clear, then, that in order to be successful, organisations should invest a great deal in training their staff**.

One of the challenges here is to determine causality: we could conclude that more successful organisations are successful because they train people more (which is the meaning of the final sentence), but likewise we could conclude that successful organisations train more because they have the resources to do so. Determining which is correct is not easy.

There is another assumption built into the debate here, and it involves the meaning of ‘a great deal’. Are we talking about absolute amounts (e.g. £120,000) or relative amounts (e.g. 15% of turnover)? If we are talking about the absolute amounts, then of course successful companies are going to have more money to invest, but if we are talking about relative amounts and proportions, then every company can put the same percentage into training – making the second sentence correct. Identifying the assumptions that others use is hugely important to critical thinking.