4. Identifying unstated assumptions

A very useful skill of argument analysis and evaluation is the ability to identify the *unstated assumptions* on which an argument is based. In this course, we will use the word 'assumption' in a quite specific way, to refer to a premise that an argument relies on, but which has not been explicitly stated. Let's look at a very simple example first.

> Nellie is an elephant. So she has a trunk which she uses to pick things up.

The conclusion of this little argument is that Nellie has a trunk which she uses to pick things up. The only premise that is explicitly stated is that Nellie is an elephant. In this case, there is a very obvious premise that has not been stated, but which the argument clearly relies on. That unstated premise, or assumption is:

> Elephants have trunks which they can use to pick things up.

In this case, the premise was probably left out because it is common knowledge and therefore "goes without saying". Sometimes however, an argument will depend on an assumption that is contentious or implausible. Here is an example we have seen before:

> Cigarette smoking has been shown to be a health hazard; therefore, governments should ban all advertisements that promote smoking.

The conclusion of this argument is that governments should ban adverts that promote smoking. The only reason given is that smoking is a health hazard. What do we need to assume in order for the conclusion to follow from that premise? Why does the fact that something is a health hazard mean that the government should ban adverts promoting it? This argument seems to be relying on something like the following principle:

> Governments should ban advertisements that promote activities which are a health hazard.

This is clearly not as obvious an assumption as the previous example. Having identified the assumption and made it explicit by writing it down, we can now focus our attention on it. Is the principle really that plausible? Should governments really ban all adverts that promote unhealthy activities? What about adverts for alcoholic drinks? Over-consumption of alcohol is also a health hazard, but adverts promoting beer drinking are still allowed on Australian television. Is this wrong? Some sports (such as boxing and motor racing) are also very dangerous. Should adverts promoting these sports also be banned? Perhaps the assumption is not very plausible after all. If so, then we may have discovered a serious flaw in the original argument.

Of course, there is a lot more that could be said on this topic, but we will leave the matter there for now. The main point is just that arguments nearly always rely on unstated assumptions. To properly understand and evaluate arguments, it is crucial to be able to identify and clearly formulate these assumptions.

Assumptions

An **assumption** in an argument is an unstated premise which is required by the argument. That is, the conclusion of the argument would not follow from the stated premises without the addition of the assumption. Assumptions are also called **implicit premises** or **unstated premises**.

Tips for identifying assumptions

There are three useful rules of thumb you can use to help you identify any assumptions on which an argument depends.

Rule #1 (The Lonely Premise Rule)

An argument with only one premise usually depends on an unstated assumption.

Whenever you see an argument with only one premise, you can be fairly confident that it depends on an unstated assumption. In both of the examples given above, only one premise was stated and we saw that for the conclusion to follow, something else must be assumed. Substantive conclusions hardly ever follow from a single premise; it usually requires two or more premises working together to get to a conclusion. So whenever you have a single premise you should suspect that there is a missing assumption.

Do not be misled however: this is only a rule of thumb. You may sometimes come across an argument with a single premise which does not rely on any unstated assumption. More importantly, arguments with *more than one* premise may still depend on an assumption – perhaps more than one. Rule #2 provides more specific more information about when an argument depends on an assumption and what the content of the assumption must be.

Rule #2 (The Rabbit Rule)

If the conclusion contains a significant word or phrase that does not appear in any of the premises, then the argument depends on an assumption. The assumption will make use of the missing word or phrase.

If the conclusion says something about rabbits but none of the premises do, then the argument depends on a missing premise that does say something about rabbits. In other words, an argument cannot 'pull a rabbit out of a hat' – if there's a rabbit in the conclusion it must come from one of the premises. We can apply this rule to the example we looked at earlier:

> Cigarette smoking has been shown to be a health hazard; therefore, governments should ban all advertisements that promote smoking.

The conclusion contains several important words and phrases that do not occur in the premise. They are:

> Governments
> Should ban
> Advertisements
> Promote

The premise does not say anything about *governments*, or *banning* things or *advertisements*. The conclusion does mention all these things, so it attempts to pull a rabbit out of hat. Rule #2 therefore tells us that the argument requires an assumption that does say something about these things. From the list above, we can almost 'read off' what the assumption must be: *Governments should ban advertisements that promote* …. what? To answer this last question, we can turn to the third and final rule.

Rule #3 (Holding hands rule)

If a stated premise contains a significant word or phrase that does not appear in the conclusion or in any other stated premise, then the argument depends on an assumption. The assumption will be

a co-premise of the stated premise and will make use of the missing word or phrase.

According to this rule, the premises of an argument need to 'hold hands' with each other. If one premise mentions a concept that does not appear in the conclusion, then that concept must be used in at least one other premise. If it does not appear in any of the stated premises, it must appear in an unstated assumption. We can use this rule to complete our analysis of the example. The stated premise contains two main concepts:

> cigarette smoking
> shown to be a health hazard

The first of these occurs in the conclusion, but the second does not. So by the 'holding hands' rule, there ought to be another premise says something about things that are a health hazard. Since there are no other stated premises, there must be an unstated premise that says something about things shown to be a health hazard. Can we fit that concept into the partially completed assumption we identified using Rule#2? Yes, we can. We end up with:

> Governments should ban advertisements that promote activities which are a health hazard.

Which is the answer we arrived at before, by thinking about what would be required for the conclusion to follow from the stated premise. Using the three rules does not obviate the need to think about this. They can only give you some hints about what concepts the missing assumptions must use. They do not tell you how to put these ideas together to generate the assumption. For that you have think carefully about what the conclusion says and what would be required for it to follow from the stated premises.

A final comment on the last two rules. As stated, the rules say you have to look for 'significant' words or phrases. What does significant mean? That is not an easy question to answer in general – again, you must use your own judgement. The sort of things it is intended to rule out are words like 'it', 'but', 'has', 'that', 'which', 'is', 'a', 'the', 'be' and so on. These are words that help glue a sentence together, but do not by themselves refer to anything. The rules ask you to look at words and phrases that refer to things, actions or concepts; words and phrases such as 'governments', 'cigarette smoking', 'elephant', 'trunk' and so on. In most cases, it will be clear what the significant ideas mentioned in a conclusion or premise are. But be careful not to ignore little words that may be significant. In our example, for instance, there is the little word 'should'. That is used in the conclusion to say that the governments *should* to do something. But the stated premise doesn't say anything about what a government should or shouldn't do a – a sure sign of a missing assumption.

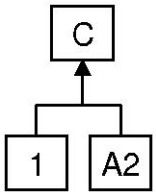
Assumptions and support

Consider again the original argument, before we identified the unstated assumption:

> **1.** Cigarette smoking has been shown to be a health hazard
> **Therefore**
> **C.** Governments should ban all advertisements that promote smoking.

Does the premise *support* the conclusion? Not by itself. Without some additional assumptions, the fact that cigarette smoking is a health hazard has no bearing on what governments should or should not do. However, when we add the unstated assumption that governments should ban advertisements that promote activities that are a health hazard, we get an argument in which the premises *do support* the conclusion. In fact, the argument is now deductively valid. We can represent it like this:

1. Cigarette smoking has been shown to be a health hazard.
A2. Governments should ban advertisements that promote activities which are a health hazard.
Therefore
C. Governments should ban all advertisements that promote smoking.



Notice how in this standard form representation the fact that they second premise is an *unstated* assumption has been indicated by putting the letter 'A' (for 'assumption') in front of the premise number. With the unstated assumption added, the premises now support but the conclusion. The question now of course is whether assumption A2 is *true* or not.

Remember that an argument is successful if it satisfies *two* conditions: all the premises must be true and the premises must support the conclusion. It might happen that the stated premises do not support the conclusion, because *by themselves* they do not give you a sufficient reason for thinking that the conclusion is true. Very often, however, you will be able to identify an unstated premise on which the argument depends. After adding this unstated premise, the argument *will* satisfy the second condition: the premises will support the conclusion.

But the argument might still be unsuccessful because it does not satisfy the first condition – one of the premises might be false. In particular, it might well happen that the assumption required to make the premises support the conclusion is false or implausible. That provides you with a powerful critique of the argument: unless a certain assumption is made, the conclusion does not follow from the premises. But that assumption is false, so the argument fails to establish its conclusion.

Questionable assumptions and begging the question

If an argument depends on a questionable assumption, then it may fail to satisfy the first condition required for an argument to be successful – it may be that not all the premises are acceptable as true. The argument about banning cigarette smoking depends on the questionable assumption that governments should ban advertisements that promote activities which are a health hazard. But there are apparent counter-examples to this generalization and if it is not true, the argument fails. So much is obvious.

What is less obvious is that whether an assumption is questionable or not can depend on the *context* in which the argument is found. An assumption may be questionable in some contexts of inquiry but not in others. For example, suppose that in a public debate about the legitimacy of same-sex adoption, you came across the following argument:

> Same-sex adoption is wrong because the welfare of children is more important than satisfying the parental cravings of gay and lesbian couples.

The conclusion of this argument is that same-sex adoption is wrong. The reason given is that the welfare of children is more important than satisfying the parental cravings of gay and lesbian couples. That premise seems plausible. Nearly everyone agrees that the welfare of the children involved is the primary consideration in questions of adoption. But does the conclusion follow? How is it supposed to follow from the (undisputed) fact that the welfare of the child outweighs the needs of the potential parents, that same-sex adoption is wrong? Clearly, the argument depends on the unstated assumption that children's welfare is in some way incompatible with same-sex adoption. That is, the argument assumes that same-sex adoption is a bad thing for children. But in

this context, that is a highly questionable assumption. It may be true and it may be false, but it is illegitimate to assume it in this debate, because that is the very question the debate about same-sex adoption is supposed to settle! The whole debate is about whether same-sex adoption would be bad for children or not. An argument like this, which assumes something which is the very point at issue in the context, commits the fallacy known as *begging the question*.

Here is a different kind of example. Suppose you were trying to discover whether a certain hypothesis was true or not. You develop an argument that seems to establish that the hypothesis *is* true. You then discover that at a crucial point in your argument, you have assumed the very hypothesis you are trying to prove. Then your argument 'begs the question': it assumes what it sets out to prove and therefore depends on an assumption that is questionable in this context. Notice that we cannot say in this case that your argument depends on a *false* assumption – the whole point is that we do not know whether the assumption (the hypothesis in question) is true or not. Indeed, the whole point of the argument in the first place was to try to *find out* whether the hypothesis was true or false. What we *can* say is that the argument fails because it depends on a premise which cannot be accepted as true in this context. The premise might be true or it might not, but in this situation it cannot properly be put forward in support of this conclusion.

Here is one final illustration, which you may find controversial:

> Begging the question is especially common in disputes about prohibition, on both sides … those on the liberal side often appeal to some general principle of tolerance, despite the position of their prohibitionist adversaries being precisely that the behaviour at issue is intolerable. The most egregious example occurs in the abortion debate, where a common riposte to those who would criminalize it runs, "If you believe abortion is wrong, that's fine, don't abort your pregnancies. But show tolerance towards others who don't share your beliefs." …
>
> Anyone who has ever actually listened to an anti-abortionist ought to be incapable of this response. Anti-abortionists don't think abortion is some kind of lifestyle *faux pas*, like serving white wine with beef or driving a 4x4 despite never having seen the countryside. They think it's murder. They think killing a fetus is no different morally from killing an adult. If their prohibitionism is wrong, it is not because they are insufficiently tolerant of murder. It is because killing a fetus is not really murder.
>
> Tolerance is irrelevant in the abortion debate. If abortion isn't murder, toleration isn't required; if it is murder, tolerating it would be a vice.
>
> Jamie Whyte, *Crimes Against Logic*, pp. 109-10.

Begging the question

An argument **begs the question** if it depends on a premise (stated or unstated) that is unacceptable given the context or debate in which the argument is presented.

For example, an argument which assumes the very conclusion it is intended to establish begs the question.

More generally, an argument presented in a debate about a specific issue begs the question if it depends on a premise which would not be accepted by the other side of the debate.

Other terms for this concept are: **circular argument** or **circular reasoning**.

A note on terminology

To the great annoyance of those who study arguments, the phrase 'begs the question' is now often used in a quite different sense to the one used here. The main culprits are journalists, who frequently use the phrase to mean 'raises the question' or 'prompts the question'. For example, following a report about a train collision, we find the comment:

> Today's accident begs the question - just how safe are Australia's railways?

Here 'begs the question' is clearly not being used to refer to a questionable assumption in any argument. In this context, it means 'prompts the question' or 'prompts one to ask the question'. Lots of people get quite infuriated by this sort of thing. My advice is not lose too much sleep over it. In just about every case it will be quite clear which meaning is intended. The problem of course is that the continued use of the expression in the journalistic sense makes it harder for other people to get their meaning across. Nowadays, if you want to use 'beg the question' to mean 'assumes what the argument set out to prove' you are more likely to have to explain what you mean, because of the prevalence of the journalistic usage. Such is life.

Further reading

For more on identifying assumptions in arguments, see:

> Alec Fisher: *Critical Thinking: an introduction* (2nd edition), Chapter 4
>
> Anne Thomson, *Critical Reasoning: a practical introduction*, pp. 25-37.
>
> Jill LeBlanc, *Thinking Clearly*, chapter 2, pp. 37-41.

The three rules for identifying assumptions were devised by Neil Thomason in material created for teaching argument mapping.

On 'begging the question' see:

> Jill LeBlanc, *Thinking Clearly*, chapter 6, pp. 163-9.
>
> Anne Thomson, *Critical Reasoning: a practical introduction*, p. 57.
>
> Jamie Whyte, *Crimes against Logic*, Chapter 9, pp. 107-116.

The same-sex adoption example discussed above was adapted from LeBlanc, pp. 39-40.

Exercise 4.1 Identifying assumptions

For each of the following arguments, identify any assumptions used and write out the argument in standard form, showing where the assumptions you have identified fit into the argument. If the assumption is a generalisation, try to evaluate it. Are there counter-examples? If there are, can the generalization be reformulated to make it more plausible?

1 Maria won this year's local sailboat race by beating Sue, the winner in each of the four previous years. We can conclude from this that Maria trained hard.

2 Psychiatrist: Take any emotion you care to consider. There are always situations in which it is healthy to try to express that emotion. So, there are always situations in which it is healthy to try to express one's anger.

3 Having an efficient, attractive subway system makes good economic sense. So, the city needs to purchase new subway cars, since the city should always do what makes good economic sense.

4 Since vague laws set vague limits on peoples' freedom, they make it impossible for people to know for certain whether their actions are legal. Thus, under vague laws people cannot feel secure.

5 Although cigarette smoking is legal, it should be banned on all airline flights. Cigarette smoking in the confines of an aircraft exposes non-smokers to harmful secondary smoke that they cannot avoid.

6 Zoologist: Animals can certainly signal each other with sounds and gestures. However, this does not confirm the thesis that animals possess language, since animals do not use sounds or gestures to refer to concrete objects or abstract ideas.

7 A smoker trying to quit is more likely to succeed if his or her doctor greatly exaggerates the dangers of smoking. Similar strategies can be used to break other habits. But since such strategies involve deception, individuals with addictions cannot easily adopt them unless a doctor or some other third party provides the warning.

8 A photograph taken with a traditional camera can never convey the experience of being in a landscape since only a three-dimensional representation of a landscape can convey the experience of being in that landscape.

Exercise 4.2 Arguments for evaluation

For each of the following arguments, put the argument into standard form, identifying any important unstated assumptions. Then write a short evaluation of the argument, considering both **support** (are the premises sufficient to establish the conclusion) and **truth** (are the premises true? Would they be acceptable in the likely context for the argument?)

1 Sociologist: The claim that there is a large number of violent crimes in our society is false, for this claim is based upon the large number of stories in newspapers about violent crimes. But newspapers are more likely to print stories about violent crimes, since such crimes are very rare occurrences.

2 Advertisement: Most power hedge trimmers on the market do an adequate job of trimming hedges, but many power hedge trimmers are dangerous to operate and can cause serious injury when used by untrained operators. Bolter Industries' hedge trimmer has been tested by National Laboratories, the most trusted name in safety testing. So you know, if you buy a Bolter's, you are buying a power hedge trimmer whose safety is assured.

3 There is no genuinely altruistic behaviour. Everyone needs to have a sufficient amount of self-esteem, which crucially depends on believing oneself to be useful and needed. Behaviour that appears to be altruistic can always be interpreted as motivated by the desire to reinforce that belief, a clearly self-interested motivation.

4 Although 90 percent of the population believes itself to be well informed about health care, only 20 percent knows enough about DNA to understand a news story about DNA. So at

least 80 percent of the population does not know enough about medical concepts to make well-informed personal medical choices or to make good public policy decisions about health care.

5 The number of calories in a gram of refined cane sugar is the same as in an equal amount of fructose, the natural sugar found in fruits and vegetables. Therefore, a piece of candy made with a given amount of refined cane sugar is no higher in calories than a piece of fruit that contains an equal amount of fructose.

6 Politician: The funding for the new nationwide health-awareness campaign should come from an increase in taxes on cigarettes. It is well established that cigarette smoking causes many serious health problems, and it is only reasonable that people whose unhealthy habits cause so many health problems should bear the costs of that campaign.

7 Although some people claim it is inconsistent to support freedom of speech and also support legislation limiting the amount of violence in TV programs, it is not. We can limit TV program content because the damage done by violent programs is more harmful than the decrease in freedom of speech that would result from the limitations envisioned by the legislation.

8 Since 1960 the spotted owl population has declined alarmingly. Timber companies that have been clearing the old-growth forests where the spotted owl lives are responsible for this. We should therefore ban clear felling in the old-growth forests.