3rd edition

anne thomson

critical reasoning

a practical introduction

critical reasoning

We all engage in the process of reasoning, but we don't always pay attention to whether we are doing it well. This book offers the opportunity to practise reasoning in a clear-headed and critical way, with the aims of developing an awareness of the importance of reasoning well and of improving the reader's skill in analysing and evaluating arguments.

In this third edition Anne Thomson has updated and revised the book to include fresh and topical examples, on issues as diverse as speed cameras, organic food, and religious miracles, which will guide students through the processes of critical reasoning in a clear and engaging way. In addition, two new chapters on evaluating the credibility of evidence and constructing reasoning will fully equip students to reason well. By the end of the book students should be able to:

- identify flaws in arguments
- analyse the reasoning in newspaper articles, books and speeches
- assess the credibility of evidence and authorities
- make sound decisions and solve dilemmas
- approach any topic with the ability to reason and think critically.

Anne Thomson was formerly Honorary Lecturer and Fellow of the School of Economic and Social Studies at the University of East Anglia. She works for examination boards in the UK on tests of Critical Thinking, and is author of *Critical Reasoning in Ethics* (Routledge, 1999).

ANNE THOMSON

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A PRACTICAL INTRODUCTION

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This version of the book is dedicated to Ella, Lilia, Freya and Nikolas – the next generation of critical thinkers.

introduction

> Sir: Martin Kelly ('Fishy business in Loch Ness', 28 March) reports Dr Ian Winfield as saying that the fish stocks in Loch Ness are not big enough to feed a monster, therefore a monster does not exist. He confuses cause and effect.
>
> It is perfectly obvious to me that the reason why the fish stocks are low is because the monster keeps eating them.
>
> (Peter Stanton, Letters to the Editor, *The Independent*, 31 March 1995)

> Sir: I read with disbelief James Barrington's letter (31 December) in which he contrasts foxhunting and fishing. He argues that the League Against Cruel Sports does not campaign against angling, because most fish which are caught are either eaten or returned to the water. Does that mean that the League would stop campaigning against foxhunting if the victims were turned into stew afterwards?
>
> (Patricia Belton, Letters to the Editor, *The Independent*, 4 January 1994)

This is not a book about whether the Loch Ness monster exists, nor one about whether foxhunting is more cruel than angling. What the two extracts above have in common is that they are examples of reasoning – the first one perhaps tongue-in-cheek, but reasoning nevertheless. This book is concerned with helping readers to develop their ability to understand and evaluate reasoning.

Reasoning is an everyday human activity. We all think about what we should do and why we should do it, and about whether – and for what reason – we should believe what other people tell us. We see examples of reasoning in our favourite soap operas on television: the single mother who allows the baby's father to help with child minding because this will enable her to pursue her career; the parent who concludes that his daughter must be taking drugs because this is the only plausible explanation of her behaviour; and the jurors who struggle to assess whether the abused wife killed her husband due to provocation, or in self-defence, or at a time when her responsibility for her actions was diminished.

One dictionary defines reasoning as 'the act or process of drawing conclusions from facts, evidence, etc.'. Since it is clear that we all do this, the purpose of this book is not to teach people to reason, but to remind them that they do not always pay attention to whether they are reasoning well, and to provide the opportunity to practise reasoning in a clear-headed and critical way. This kind of approach helps us to know whether the

conclusions which are drawn from the facts or evidence really do follow, both when we ourselves are drawing conclusions and when we are assessing the reasoning of others. However, the use of the word 'critical' is not intended to suggest that, when we evaluate other people's reasoning, we must restrict ourselves to saying what is wrong with it. Critical evaluation involves judging both what is good and what is bad about someone's reasoning.

Reasoning well is a skill which is valuable to anyone who wants to understand and deal with the natural and social worlds. Scientists need to reason well in order to understand the causes of phenomena. Politicians need to reason well in order to be able to adopt the right policies. But we cannot leave reasoning to scientists and politicians, because we all want to know whether what they tell us and what they prescribe for us is right. So reasoning well is an important skill for all of us.

Critical reasoning is centrally concerned with giving reasons for one's beliefs and actions, analysing and evaluating one's own and other people's reasoning, devising and constructing better reasoning. Common to these activities are certain distinct skills, for example, recognising reasons and conclusions, recognising unstated assumptions, drawing conclusions, appraising evidence and evaluating statements, judging whether conclusions are warranted; and underlying all of these skills is the ability to use language with clarity and discrimination.

In common with other skills, reasoning skills can be improved and polished with practice. If we think of critical reasoning as analogous to a game, we can see it as involving a set of particular skills and also the ability to deploy this set of skills when engaged in playing the game. In tennis, for example, players need to be good at executing particular strokes – driving, volleying, serving. But, in order to win a game, they need to be able to put these skills together in an appropriate way, and also to be able to respond to moves made by their opponent.

When 'playing the game' of reasoning, we need to be good at certain basic activities, such as drawing conclusions and evaluating evidence. But we also need to be able to put the skills together in order to present an effective piece of reasoning to someone else, and we need to be able to respond to the moves in reasoning made by others: for example, when someone presents us with a piece of evidence of which we were unaware, we need to be able to judge how it affects our argument. The tennis coach will improve the tennis players' ability by sometimes requiring them to practise particular skills and then requiring them to play a game in which they must remember to deploy those skills and also select the appropriate strategy.

This book offers the reader the opportunity to practise particular reasoning skills, and sometimes to 'play the game' of reasoning by deploying a set of skills. Each chapter focuses on particular skills, and presents short passages of reasoning on which to practise these skills. Model answers to a number of the exercises are given at the end of the book to enable readers to assess their progress. The reader's overall ability is developed by longer written passages for analysis and evaluation. As readers' command of skills improves,

so their ability to analyse and evaluate the longer passages, and eventually to construct reasoning of their own – thus to 'play the reasoning game' – should improve.

For the most part, these exercises offer practice in understanding, analysing and evaluating the reasoning of other people, rather than asking readers to focus on their own reasoning. There are two good reasons for this. The first is that it is necessary to illustrate the structure of reasoning, and this can only be done by presenting particular examples. The second reason is that it is often easier for us to recognise problems in others' reasoning than in our own. Improved skills in evaluating the reasoning of others, and the willingness to apply the same critical standards to your own reasoning, are important first steps towards developing the ability to produce good reasoning of your own. Moreover, some of the exercises which suggest working with a partner, as you might do in class, will begin to make you aware of the need to present good reasons for your beliefs and conclusions, and will give you practice in responding to criticisms and questions. The final chapter sets out the steps to take in order to devise and construct better reasoning of your own. The final exercise suggests subjects upon which you can practise the skills of constructing arguments and making decisions.

It has already been pointed out that the ability to reason well is important in everyday life – in understanding, for example, the reasons upon which politicians base their policies, or the evidence presented in a court of law. It is also true that almost every subject of academic study, both at school and at university, requires an ability to reason well. However, most subjects are not taught in a way which requires students to think about their own thinking processes. Hence it is possible to become good at reasoning about, say, geography, without realising that you have developed skills which apply in other areas. The approach presented in this book does not require any specialist knowledge; the passages of reasoning are on topics of general interest, such as would be discussed in newspapers and can be understood by the general public. But it does require you to think about the nature of reasoning, so as to acquire the tendency to approach reasoning on any topic in this critical, analytic way. In other words, these reasoning skills are transferable; they will help students in their reasoning on a wide range of topics, including their own specialist area. Practice in dealing with reasoned argument will also help students in their essay writing, since in most subjects a requirement of good essay writing is that ideas should be presented in a clear, coherent and well-argued way.

The ideas underlying this text are related to the academic discipline known as Critical Thinking, as can be seen from the following quotation from Edward Glaser, co-author of a widely used test of critical thinking, the Watson–Glaser Critical Thinking Appraisal: 'Critical thinking calls for a persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends.' (Glaser 1941: 5). The Critical Thinking tradition, which derives from both philosophy and education, originated in the US. Some of its foremost American proponents were, or are, John Dewey, Edward Glaser, Steven Norris, Robert Ennis, Richard Paul and Michael Scriven; in Britain one of the first to write about Critical Thinking was Alec Fisher. Readers who are interested in learning more about the subject will find details of these authors' works in the bibliography at the end of this book.

It is possible to study for an A level in Critical Thinking, and the skills which are assessed in this examination are very closely related to the skills which this book seeks to improve. However, the book should not be seen merely as an aid to improving one's skills for the purposes of assessment, though it will certainly function admirably in this way. Its influence will be much wider than this, enabling readers to deal effectively with reasoning in every sphere of their lives.

1

analysing reasoning

We cannot begin to evaluate someone's reasoning if we do not understand it, or if we understand the words but fail to grasp that reasons are being offered for accepting a point of view. The skills upon which this chapter focuses – recognising reasoning, and identifying conclusions, reasons and assumptions – are the most basic abilities; upon them the important skills involved in *evaluating* reasoning (the focus of our next chapter) depend.

RECOGNISING REASONING AND IDENTIFYING CONCLUSIONS

Reasoning is, of course, presented in language, but not all communications in language involve reasoning, so we need to be able to pick out those features of language which tell us that reasoning is taking place. It is clear that we use language for a variety of purposes. For example, we may use it to tell a joke, to insult someone, to report factual information, to describe a scene or a personality, to tell a story, to express our feelings, to explain why we have acted in a particular way, to ask questions, to issue orders. What most uses of language have in common is the attempt to communicate something to others.

Sometimes we want to persuade others to accept the truth of a statement, and one way of doing this is to offer them reasons or evidence in support of this statement. This is the essence of argument. The simplest examples of arguments occur when someone who believes some statement will present reasons which aim at persuading others to adopt this same point of view. In more complex cases, someone may wish to assess and evaluate someone else's reasoning, or someone may be reasoning about their own or someone else's reasoning. We all use language in this way, often without thinking of what we are doing as being something as grand as 'presenting an argument'. For example, someone might say:

> He must be older than he says he is. He told us he was forty-two, but he has a daughter who is at least thirty years old.

Here reasons are being offered for the conclusion that 'he must be older than he says he is'. So this simple, everyday piece of communication is an argument.

Here are some more very simple examples of argument. As you read through these examples, think about which statement the author is trying to get you to accept (that is,

the conclusion), and which statements are being offered as reasons for accepting the conclusion:

> The bus is late. It must have broken down.
>
> That bird can't be a robin. It doesn't have a red breast.
>
> You should try to appear confident in your job interview. The employers are looking for someone who can speak confidently in public.
>
> Children learn languages much more quickly and speak them more fluently if they start to learn them at an early age. So if you want your children to be bilingual, you should speak two languages to them from the time they are born.
>
> She didn't turn up for their date. She obviously doesn't really want to be his girlfriend. If she'd wanted a serious relationship with him she wouldn't have missed the date.

'Argument indicator' words

The language of reasoning can be very complex, but there are some relatively simple linguistic clues which can signal that reasoning is taking place. Certain characteristic words are used to indicate that someone is presenting a conclusion, the most commonly used being 'therefore' and 'so'. For example, the argument presented in the first paragraph of this section could be written as:

> He told us he was forty-two, but he has a daughter who is at least thirty years old. So, he must be older than he says he is.

'Hence' and 'thus' can also function in the same way as 'so' and 'therefore', though they are less commonly used. Other words may indicate the presence of a conclusion, for example, 'must', 'cannot'. In the original version above, the word 'must' is used to show that the reasons offered force us to draw the conclusion. The word 'cannot' could function in a similar way, since the conclusion could have been expressed as follows: 'He cannot be as young as he says he is'. Sometimes the word 'should' can signal that someone is presenting a conclusion, because arguments often make a recommendation. This is shown in two of the examples above; the third, which recommends appearing confident in a job interview, and the fourth, which recommends speaking two languages to babies. All of these 'conclusion indicator' words have other uses in addition to their function in arguments, so their presence in a written passage does not guarantee that an argument is being offered. However, they are useful indicators in assessing whether a passage contains an argument.

Recognising arguments without argument indicator words

Some passages which contain arguments have no argument indicator words. In order to recognise them as arguments, it is necessary to consider the relationships between the statements in the passage, to assess whether some of the statements can be taken to support a statement expressing a conclusion. For example, the following passage can be construed as an argument:

> Knowing the dangers of smoking is not sufficient to stop people from smoking. One-third of the population still smokes. Everyone must know that smoking causes lung cancer and heart disease.

This passage is clearly presenting as a statistical fact that one-third of the population smokes, and as an obvious truth that everyone must know the dangers of smoking. It is using these reasons to support the conclusion that knowing the dangers is not sufficient to stop smokers from smoking.

Note that the only candidate for a conclusion indicator – the word 'must' – appears not in the conclusion, but in one of the reasons. Yet, we can be clear that the last sentence is not the conclusion, because no appropriate evidence (for example, that there have been programmes to educate the public about the dangers) is offered. Note also that in this example, as well as in our first example, the conclusion does not appear at the end of the passage. We need to be aware that conclusions can appear anywhere within a passage, even though it is possible for us to 'tidy up' an argument by writing out the reasons first and ending with a conclusion introduced by 'so' or 'therefore'.

We have now considered two things we might look for to identify the conclusion of an argument:

- conclusion indicator words;
- the claim for which reasons appear to be offered.

Note that if we have identified a conclusion, we have also identified the passage as an argument or as something which is intended to be an argument. If we have identified the conclusion by finding conclusion indicator words, then it is reasonable to regard the author as intending to present an argument. Earlier, we introduced the term 'argument' as one way in which people use language when they are attempting to persuade or convince others of the truth of something – that is to say, when they have a particular purpose. However, when trying to assess whether a written passage presents an argument, we are not solely trying to guess the purpose of the author in writing the passage. We can also attempt to interpret the way in which this piece of language functions: this is what we are doing when we identify the conclusion by the second method, that is to say by looking for the claim for which reasons appear to be offered. If a passage can be written out as a series of reasons supporting a conclusion, then it can be construed as an argument, even if the author did not quite intend it in that way.

Nevertheless, it is often useful as a first step to consider the purpose of a passage when trying to decide whether it is an argument. If you ask yourself, 'What is the main point which this passage is trying to get me to accept or believe?', you can then underline the sentence which you think expresses the main point. The next step is to check whether the rest of the passage contains a reason or series of reasons which support the main point. You do not need to worry too much at this stage about whether they give conclusive support, because you are not yet attempting to evaluate the reasoning. Consider whether they are relevant to the main point, and whether they support it, rather than counting against it. Do they provide the kind of evidence or reasoning which one would need to present in order to establish the truth of the main point? If you are satisfied on these matters, then you can take it that you have identified a conclusion of an argument, and thereby decided that the passage is an argument. You may find it useful to tidy up the argument by writing it out as a series of reasons, followed by your chosen conclusion, introduced by 'so' or 'therefore'.

Identifying conclusions

In this section are some examples in which we put these recommendations into practice.

> The new miracle drug Amotril has caused unforeseen side effects of a devastating nature. Careful testing of the drug prior to its marketing could have prevented the problems caused by these side effects. Therefore, no new drugs should be released for public consumption without a thorough study of their side effects.
>
> (Law School Admission Test, 1981)

This argument presents its conclusion in a straightforward way, and this helps to make it an easy passage to analyse. We first notice that the word 'Therefore' introduces the last sentence, so it is obvious that the conclusion we are being led to accept is:

> no new drugs should be released for public consumption without a thorough study of their side effects.

The reason given for this is that careful testing of Amotril before it went on sale could have prevented the problems caused by its devastating side effects. In this case, we do not need to tidy up the argument, since it is clear what claim is being made. Moreover, the reason gives good support for the conclusion, provided we assume that one could not find out about a drug's side effects without thorough study, and that it is never worth taking the risk of offering a drug for sale unless we are as certain as we can be that it has no serious side effects.

Here is another example:

> People who diet lose weight. Falstaff cannot have dieted. He hasn't lost weight.

In this case, we do not have a conclusion indicator such as 'so' or 'therefore', but we do have the word 'cannot'. Is it being used to signal a conclusion? We must consider whether the sentence in which it occurs is the main point which the passage is trying to establish. It seems that the passage *is* trying to convince us that Falstaff cannot have dieted, and we seem to have a clear argument if we rearrange it to read:

> People who diet lose weight. Falstaff hasn't lost weight. Therefore, he cannot have dieted.

This is the most natural way to read the passage.

But suppose we had started out by assuming that the main point which the passage was aiming to get us to accept was that Falstaff has not lost weight. Then, we would have set out the argument as follows:

> People who diet lose weight. Falstaff cannot have dieted. Therefore, he hasn't lost weight.

But this is an unnatural reading of the passage, in two respects. First, it would not be natural to use the words 'cannot have dieted' in the second sentence if the meaning it aimed to convey was that Falstaff has been unable to diet. Second, even if we replaced 'cannot have dieted' with 'has been unable to diet', the first two sentences would be insufficient to establish the conclusion, since Falstaff may have lost weight by some means other than dieting, for example by taking exercise. Moreover, the kind of evidence which one would have to use in order to establish that Falstaff had not lost weight would be evidence, not about whether or not he had dieted, but about what he weighed in the past compared with what he weighs now.

Here is another example in which there are no conclusion indicators such as 'so' and 'therefore':

> We need to make rail travel more attractive to travellers. There are so many cars on the roads that the environment and human safety are under threat. Rail travel should be made cheaper. Everyone wants the roads to be less crowded, but they still want the convenience of being able to travel by road themselves. People will not abandon the car in favour of the train without some new incentive.

What is the main point which this piece of reasoning tries to get us to accept? Clearly it is concerned with suggesting a way of getting people to switch from using cars to using trains, on the grounds that it would be a good thing if people did make this switch. We could summarise the passage as follows:

> Because the large numbers of cars on the roads are bad for the environment and human safety, and because people will not abandon the car in favour of the train

without some new incentive, we need to make rail travel more attractive. So, rail travel should be made cheaper.

Notice that the word 'should' appears in the conclusion. This may have helped you to see which sentence was the conclusion. Now that we can see more clearly what the argument is, we may question whether it is a good argument. For example, is it the cost of rail travel which deters motorists from switching to using trains, or is it because rail travel is less convenient? Would reducing rail fares really make a difference? Are there any alternative measures which would better achieve the desired effect? Setting out the argument in this way can help us to see what questions we need to ask when we begin to evaluate arguments.

Judging whether a passage contains an argument

Sometimes the subject matter of a passage may make it appear at first sight that an argument is being presented when it is not. Consider these two passages, one of which can be construed as an argument, whereas the other cannot.

The number of crimes reported to the police is rising. The overall crime rate may not be rising. Traditionally, only a quarter of what most people regard as crime has been notified to the police.

Most crime is committed by those aged under 21. But most people aged under 21 are not criminals. Some people aged over 21 are persistent offenders.

Let us consider the first passage and ask what main point it is making. Does it try to convince us that the number of crimes reported to the police is rising? It presents no evidence for this, but simply presents it as a fact. Does it try to convince us that traditionally, only a quarter of what most people regard as crime has been notified to the police? Again, no evidence is offered for this. Does it offer evidence for the claim that the overall crime rate may not be rising? Well, it gives us information which shows that this is a possibility. The fact that reported crime is rising may make us suspect that crime is rising overall. But when we are told that there has been a tendency for only a quarter of what is regarded as crime to be reported, we can see that if this tendency has changed in such a way that a greater fraction of what is perceived as crime is now reported, then the overall crime rate may not be rising after all. We can write this argument as follows:

Traditionally, only a quarter of what most people regard as crime has been notified to the police. So, although the number of crimes reported to the police is rising, the overall crime rate may not be rising.

Notice that the original version of this passage did not contain any of the 'argument indicator' words which we have listed, but it is nevertheless an argument.

Now let us look at the second passage. What does it aim to get us to believe? It presents three comments about statistics on crime, each of which, in a sense, it aims to get us to believe, since it asserts them as being true. However, it does not have a single major point to make, in the sense that none of the statements supports any of the others. You will see this if you try for yourself writing out the three possible ways of treating one of the statements as a conclusion. So this is a passage in which three pieces of information about the same subject-matter are not linked in any process of reasoning; but because of the kind of information presented, that is to say, because it refers to statistics, we may at first be tempted to think of it as an argument, because the use of statistics is a common move in argument. We need to be aware, then, that argument is not just a matter of presenting information – it is, rather, a matter of presenting a conclusion based on information or reasons.

Summary: Is it an argument?

1 Look for **conclusion indicator** words, e.g. 'so', 'therefore', 'must', 'cannot', 'should'.
2 If there are no **conclusion indicator** words, look at each sentence in turn and ask, 'Does the rest of this passage give any extra information which tells me why I should believe this?' If the answer is 'no', then the sentence is not a conclusion; if the answer is 'yes', then the sentence is a conclusion.
3 If none of the sentences in a passage is a conclusion, then the passage is not an argument: **no conclusion, no argument.** If one of the sentences is a conclusion supported by reason(s) in the rest of the passage, then the passage is an argument.
4 When you have found a conclusion, rewrite the passage with the conclusion at the end, introduced by 'So'. Read through the rewritten passage. If it makes sense, then you can be sure that it is an argument.

(Do not worry at this stage about whether the reasons are true or about whether they give conclusive support to the conclusion.)

Exercise 1: Identifying arguments and conclusions

For each of the following passages:

(a) decide whether it is an argument;
(b) if it is an argument, say what the conclusion is.

1 Pets are good for you. Research has shown that pet owners are less likely than other people to be depressed or to suffer from high blood pressure.

2 A disease found in the faeces of cats can cause miscarriages if it infects pregnant women. Most cat owners are probably immune to this disease. Rabbits can spread listeriosis and salmonella.

3 Children who are good at spelling usually have a good visual memory. Poor spellers have not learnt to look at words carefully. Practice in reading does not necessarily help poor spellers.

4 Most examinations impose a tight time limit on candidates. But this is difficult to justify. It prevents some good candidates from demonstrating their ability in a subject, and most employers would be happy to employ people who take time to produce a well thought-out solution to a problem.

5 Millions of pounds of public money are spent defending riverside farmland from flooding. Some of this money should be given to farmers to compensate them for taking such land out of production. This would save money and would benefit the environment, since if rivers were allowed to flood, their natural flood plains would provide wetland meadows and woodland rich in wildlife.

6 This year the incidence of gale force winds in some parts of Britain has been very high. The wettest months were January and February. April was very warm, with average temperatures much higher than in April last year.

7 Although water is the commonest stuff on earth, only 2.53 per cent of it is fresh, while the rest is salt. And of the freshwater, two-thirds of it is locked up in the glaciers and permanent snow cover. What is available, in lakes, rivers, aquifers (ground water) and rainfall run-off, is now increasingly coming under pressure from several directions at once.

('Water scarcity could affect billions: is this the biggest crisis of all?'
Michael McCarthy, *The Independent*, 5 March 2003)

8 The new Wembley stadium was designed to be used for many different kinds of event. For a major athletics event, a platform that covers some of the seating can be used to provide an athletics track. The platform would not be difficult to fit or remove.

9 The North American Wildlife Federation, which sponsors an annual watch for endangered species, reports that sightings of the bald eagle between 1978 and 1979 increased by 35 per cent. In the watch of 1979, 13,127 sightings of bald eagles were reported, 3,400 over the 1978 count. This indicates considerable growth in the bald eagle population.

(Law School Admission Test, 1981)

10 The presence of security cameras has been shown to reduce crime in areas such as shopping malls. But security cameras are not an unqualified success. Law-abiding citizens do not wish to have all their activities observed, and criminals may commit just as much crime, but do so in areas where there are no cameras.

11 Most voters never read the election manifestos produced by political parties. Voters are often influenced in their choices by the personalities of party leaders. They sometimes vote for change because their own interests have not been served by the government's policies.

12 We could reduce road accidents by lowering speed limits, and making greater efforts

to ensure that such limits are enforced. But, because this would inconvenience the majority who drive safely, this would be an unacceptable solution to the problem of careless drivers who are unsafe at current speed limits.

13 In the Victorian era, cannabis was used to treat all kinds of conditions, such as muscle spasms, menstrual cramps and rheumatism. Now its use, even for medicinal purposes, is illegal. It has been found to be helpful in relieving the symptoms of multiple sclerosis.

14 Training can improve one's performance in sport, and advances in the technology of sporting equipment can help athletes to break world records. But this does not mean that the right training and the right equipment can help anyone to excel. Scientists have identified genes that give some individuals an advantage in athletics, for example a gene that helps the body to use oxygen efficiently, and thus helps the muscles to work well for longer periods.

15 Some social historians have claimed that the 1914–18 war enhanced the status of women in Britain, because they were able to leave demeaning jobs in domestic service to work in munitions factories, thus gaining independence and a sense of self-worth. However, the work in these factories was unskilled, repetitive and dangerous – not at all the environment to encourage self-belief. And after the war, women workers were told to give up their jobs to returning soldiers. Many simply returned to domestic service. The reality was thus quite different from what some social historians claim.

Answers to Exercise 1 are given on pp.161–163

● IDENTIFYING REASONS

We use reasons in a number of ways, for example to support conclusions of arguments, to support recommendations, to explain why something has happened, or why someone has acted in a particular way. This section focuses on the use of reasons to support conclusions of arguments.

If we have identified a conclusion of an argument which has no argument indicator words, then it is likely that we will already have some idea as to what the reasons of the argument are, since in order to identify the conclusion, we will have had to assess which parts of the passage could be taken to give support to the chosen conclusion – hence which parts are the reasons. This is what you were doing when you worked through Exercise 1. But if we identify the conclusion by the presence of argument indicator words, then we will have to look again at the passage in order to identify the reasons.

Sometimes we will find characteristic words which indicate the presence of reasons, e.g. 'because', 'for', 'since'. For example, our earlier argument about Falstaff could have read as follows:

People who diet lose weight. Since Falstaff hasn't lost weight, he cannot have dieted.

In this example, the word 'Since' signals that 'Falstaff hasn't lost weight' is being offered as a reason for the conclusion that Falstaff cannot have dieted. Sometimes a phrase will be used which tells us explicitly that a reason is being offered, a phrase such as 'the reason for this is'; and sometimes reasons are listed, introduced by the words 'first . . . second . . . (and so on)'.

Arguments often use hypothetical or conditional statements as reasons. These are statements which begin with 'If' and which say that something is true, or will be true, or will happen, provided that (on the condition that) something else is true or something else occurs – for example, 'If I read without wearing my glasses, I will get a headache'. When you see a sentence beginning with the word 'If', think about whether this is being offered as one of the reasons for a conclusion. It is important to remember that it is the whole statement which is being presented as a reason. You should not attempt to break the statement down into two reasons. Sometimes an argument has a hypothetical statement for a conclusion, so you cannot just assume that any hypothetical statement is being offered as a reason.

In common with 'conclusion indicator' words, these 'reason indicator' words can be used in ways other than to introduce a reason, so their presence cannot guarantee that a reason is being offered – but it can be a useful clue. Sometimes, however, we will find no such words or phrases, and will have to rely on our understanding of the meaning of the passage. It may be useful to ask yourself, 'What kind of reason would I have to produce in order to provide support for this conclusion?' You should then look in the passage to see if such reasons are offered.

In addition to the hypothetical statements already mentioned, many different kinds of statements can function as reasons. They may be items of common knowledge, general principles, reports of the results of experiments, statistics, and so on. What they have in common is that they are put forward as being true. Not all the reasons offered in an argument can be given support within that argument. That is to say, that arguments have to start somewhere, so every argument must offer at least one basic reason for which no support is offered. Thus those who present arguments will often take as a starting point something which is obviously true, or the truth of which can easily be checked by others. However, this is not always the case. People may present something which is contentious as a basic reason, and they may fail to give support for such a statement precisely in order to conceal the contentious nature of their argument. So the evaluation of reasoning, which will be discussed in the next chapter, will require us to consider whether the basic reasons presented in any argument are true.

The structure of arguments

The reasons in an argument can fit together in a number of ways. Sometimes there may be only one reason supporting a conclusion, for example:

Falstaff is thinner. So he has probably been dieting.

In our original Falstaff argument, there are two reasons:

Reason 1: People who diet lose weight.

Reason 2: Falstaff hasn't lost weight.

These two reasons, taken together, support the conclusion:

Falstaff cannot have dieted.

Neither reason on its own would be sufficient to support the conclusion. The number of reasons used in this way in an argument need not be limited to two. An argument could have three, four or a whole string of reasons which need to be taken together in order to support the conclusion.

However, sometimes when there are two (or more) reasons, they are offered not as jointly supporting the conclusion, but as independently supporting it, for example:

> It is right to ban cigarette advertising because it encourages young people to start smoking. But even if it had no such influence on young people, it would be right to ban it because it could give existing smokers the mistaken impression that their habit is socially acceptable.

In this case, the conclusion that it is right to ban cigarette advertising could be supported either by the claim that it has the adverse effect of encouraging young people to start smoking, or by the claim that it has the adverse effect of making smokers think that their habit is socially acceptable. This differs from the Falstaff argument in that the author of this argument does not regard it as necessary to offer both reasons, and would claim that the argument had established its conclusion if either reason could be shown to be true. But when an argument offers reasons as jointly supporting the conclusion, then evaluating the argument requires an assessment of the truth of all the reasons.

In the two examples we have just presented, it is clear that in one case joint reasons, and in the other case independent reasons, are being offered. But in some arguments it will be debatable whether the reasons are intended to support the conclusion jointly or independently. Consider the following example:

> Our 40,000 GIs stationed in South Korea support a corrupt regime. The savings in dollars which would result from their coming home could make a sizable dent in the projected federal deficit. Furthermore, the Korean conflict ended 30 years ago. Hence it is time we brought our troops home.
>
> (James B. Freeman, *Thinking Logically*, p. 165)