

Aptitude Advanced

Critical Reasoning

eBook 02

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Chapter 1: Introduction to Critical Reasoning

What is critical reasoning all about? It is basically about arguments and their validity. An argument is a group of statements; one is supposed to follow from the others, which are regarded as providing support or grounds for the truth. This is called the conclusion of the argument. The statement(s) that provide the support or reasons for accepting the conclusion are the premises.

Conclusion: A conclusion is a claim, the main point of an argument.

Facts or Premises: A premise is a stated reason, a piece of evidence that supports the conclusion.

Assumption: An assumption is an unstated premise that supports the conclusion.

Consider the following sample argument:

United Artists most recent film is based on a best-selling novel and stars Brad Heartthrob. Therefore, the film is expected to do well at the box office.

The first step in tackling a problem such as this is to identify the three components.

Fact 1: Film based on popular novel

Fact 2: Star is Brad Heartthrob

Conclusion: Film should be successful

The assumptions are always unstated (hereafter, Hidden Assumptions, or Hidden Assumption's): they are additional pieces of information about each fact in the argument. For example:

Hidden Assumption for fact 1: Fans of the book are expected to help sales of tickets.

Hidden Assumption for fact 2: Brad Heartthrob's presence should contribute to the success of film.

These Hidden Assumption's help you see how the facts lead to the conclusion. You can often, though not always, distinguish fact from conclusion by spotting "signal words" that introduce each component. The Conclusions may be signaled by words like as, therefore (as in the example above), so, thus, and in conclusion. Detailed facts, which are more specific than conclusions, may be flagged by such words as due to, because, a study shows, and in addition.

Once you identify the components, you must answer questions that ask you to evaluate these components. There are three basic question types in the Logical Reasoning section, each focusing on one of the three components. They are in descending order of frequency: the Additional Fact Questions, the Conclusion Question, and the Hidden Assumption Question.

- A. Some of the questions will merely ask you to identify the conclusion.
- B. Additional Fact/ Inference questions - these ask you to find something that is known to be true from information presented in the argument containing words like - *infer, implicit, imply, most reasonably* and *must be true*. Inferences could be about a conclusion that was not stated, or from facts stated as premises.
- C. Assumption questions – These use phrases like depends on, relies on, assumes. Look for a gap between the premises and the conclusion, try to get a sense of what assumption is necessary to fill the gap. Try to state the assumption in your own words before seeing the answer choices.

Chapter 2: Identifying Conclusions Quiz

Identify the conclusion in the arguments expressed in questions 1-11:

1. The FDA should stop all cigarette sales immediately. After all, cigarette smoking is the leading preventable cause of death.
2. Every law is an evil, for every law is an infraction of liberty.
3. Wisdom is the principal thing, therefore get wisdom.
4. Now human law is framed for a multitude of human beings. The majority of human beings are not perfect in virtue. Therefore human laws do not forbid all vices.
5. ... vicious acts are contrary to acts of virtue. But human laws does not prohibit all vices... Therefore neither does it prescribe all acts of virtue.
6. The real and original source of inspiration for the Muslim thinkers was the Quran and the sayings of the Holy Prophet. It is therefore clear that the Muslim philosophy was not a carbon copy of Greek thought, as it concerned itself primarily and specifically with those problems which originated from and had relevance to Muslims.

7. Letting forests die is self destructive. Their role as a filter of the world's pollution, a sponge that absorbs carbon dioxide and slows global warming is crucial to the life of the earth.
8. As the government spends increasingly less on student financial aid, many leading colleges and universities are using a larger percentage of tuition revenues for scholarships. Just as income tax breaks are given for charitable contributions, this portion of the tuition should be tax deductible.
9. If the criminal law prohibits suicide, that is not an argument valid in the church; and besides, the prohibition is ridiculous; for what penalty can frighten a person who is not afraid of death itself?
10. If a right to euthanasia is grounded in self determination, it cannot be reasonably limited to the terminally ill. If people have a right to die, why must they wait till they are dying before they are permitted to exercise that right?
11. The dreamer rejected the ordinary. Jay invited the ordinary. Jay was no dreamer.

Quiz Keys and Explanations

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4. Liberty.
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Chapter 3: Technique for Critical Reasoning

The general algorithm to be used in answering any critical reasoning questions is:

1. Identify the conclusion. In some cases, the question can take the forms of a fill-in-the-blank, in which case the conclusion would be part of the option.
2. Ask yourself this question. What is evidence in the argument itself, which is supporting the conclusion? This would be explicitly stated in the argument.
3. The next question that you will need to address. Is the conclusion dependent upon some conditions that have not been stated explicitly in the passage? If that is the case, try to list down such assumptions.
4. Look at the question and try to frame an answer to the question, as far as possible without looking at the options.

The best possible suggestion for doing well on Critical Reasoning is to understand how the problems are constructed, what the test is asking you to do, and then to practice. Keep in mind the following steps when tackling this section in the test.

Read each paragraph carefully.

- A. Distinguish conclusion from fact and consider the hidden assumptions based on given facts.
- B. Read the question carefully.
- C. For additional fact questions, make sure of your task (strengthen or weaken) before proceeding. Choose the statement that directly addresses a given fact, Hidden Assumption, or conclusion.
- D. For conclusion questions, think in a linear fashion: Where are the facts headed? Choose a statement that goes one logical step further from the given facts.
- E. For Hidden Assumption questions, remember to choose a statement that supports the argument with more information about given issues. Try the “negation test.”

Chapter 4: Additional Fact Questions

Types of Questions

The Additional Fact questions focus on the supporting details of the argument. You are presented with a complete argument and are asked either to weaken or strengthen the argument by considering five multiple-choice statements. These statements are new facts about the argument, which you must accept as true. Some additional fact questions ask for a weakening of argument, while others might ask you to support the argument.

For example, in the preceding argument regarding United Artists' new movie, an Additional Fact Question might offer the following choices:

1. The film will play only in urban areas.
2. The producers of the film have cast their next movie without Brad H.
3. The film is not likely to win an Academy Award.
4. The book upon which the film is based is a worldwide hit.
5. Brad H's popularity ratings are at an all-time low.

If the question asks you to weaken the argument, you will choose a statement that either weakens a given fact or disputes Hidden Assumption and makes the conclusion illogical. Option 5 best weakens this argument by disputing the Hidden Assumption that Brad H. will attract moviegoers. The conclusion no longer logically follows.

For a strengthening choice, you would choose a statement to bolster a given fact or Hidden Assumption to support the conclusion. The correct strengthening option here would be 4, for it elaborates the book's popularity, thus supporting the conclusion. Wrong choices, called distracters, usually follow a pattern. They may touch upon the argument only marginally (such as answers 1, 2, & 3): they may accomplish the opposite task (strengthen when you want to weaken); or they may not be the best strengthening or weakening statement (e.g. option 1 is not the best weakening statement when compared to 5)

1. The trend in the United States banking industry of several small community banks merging into fewer large, interstate banks has consumers worried about service. Many consumers worry that, as banks become larger and fewer in number, the

competition in the banking industry will decrease, and consumers will lose services and will pay higher fees. As a result, many consumers are urging their legislators to enact legislation to limit the size of any individual banking company. Which of the following facts would most allay the fears of the consumers discussed in the preceding argument?

1. The federal government recently enacted legislation to increase the maximum amounts of deposits that will be insured.
2. A limitation on mergers between interstate banks could be construed as a violation of the Commerce Clause of the United States Constitution.
3. Larger banks are able to generate higher profits for their investors with lower levels of risk.
4. As a bank increases in size, its overhead costs for operation will decrease, and it will be able to improve the services to its consumers.
5. Large governmentally operated banks have functioned successfully in other countries for many years without any decrease in services to

their consumers, and with service fees that are less than many private banks.

2. Of the graduating students from Governor Smith Academy, a private high school, 93 percent go on to college. From Eastern High, the public high school in the same city, only 74 percent go on to attend college. As a result, many parents with children about to enter high school believe that Governor Smith Academy gives students a better education than they can get at Eastern High School. Which of the following statements, if true, would cast the most doubt on the conclusion about Governor Smith Academy?

1. Until 1992, Governor Smith Academy was exclusively a girl's school, but Eastern High School has always been coeducational.
2. Governor Smith Academy requires students to pass an admission examination before entering, but Eastern High School admits all applicants who live in the city.
3. Eastern High School has problems with student violence during school hours.

4. Governor Smith Academy has a higher percentage of students attending Ivy League colleges than any other high school in the state.

3. Television Advertisement: “Leonardo da Vinci was a genius, and everyone recognizes his art as the greatest in the world. At Acme Art Supply Company, you can get modern, improved art supplies, so you will be able to create works of art better than Leonardo da Vinci’s.”

Which of the following statements, if true, most shows the flaws in the claims made in this advertisement?

1. Leonardo da Vinci, at the time he was painting in the fifteenth century, was sponsored by patrons who provided him with the opportunity to use the best materials then available in the world.
2. Most of the customers of Acme Art Supply Company are hobbyists who are not professionally trained and who do not realize the value of using professional-quality art supplies.
3. The art supplies at Acme Art Supply Company are more expensive than similar supplies available at any other supply store in the area.

4. An art professor from the local community college supplies all of his students with materials from the Acme Art Supply Company.

5. Even when using supplies from Acme Art Supply Company, many amateur artists create projects that art critics call inferior and childish.

4. While some job loss is inevitable in a changing American economy, the current phase of corporate “downsizing” has reached the level of becoming an epidemic. Many employees are being fired simply to enhance profits for top management and company shareholders. Even so, some economists see improvement in the fact that the total number of new jobs being created is increasing at a steady rate.

Which of the following facts, if true would show that the economists’ view of improvement is incorrect?

1. The new jobs that are being created come as a result of Governmental tax incentives to large corporations.

2. Corporate downsizing is not actually resulting in higher profits for shareholders as expected.

3. Many of the new jobs are low-paying entry-level positions that do not provide health care or pension benefits.
4. A separate study of corporate shareholders reveals that many of them would be willing to forgo higher profits in order to increase hiring levels.
5. Other countries are experiencing similar increases in job creation.

5. High doses of niacin in a person's diet have been shown to raise HDL levels, which doctors call the "good" cholesterol, and to lower levels of triglycerides and LDL, the so-called "bad" cholesterol. As a result of this study, some nutritionists are now recommending diets that are extremely high in niacin.

Which of the following facts, if true, would most question the recommendations of the nutritionists?

1. The original study was conducted on a sample of hospital patients who initially had dangerously high cholesterol levels.
2. High doses study was conducted on a sample of hospital patients who initially had dangerously high cholesterol levels.

3. When level of triglycerides decrease, patients report higher levels of stamina and improved physical endurance.
4. The doctors reporting the results of the study had once been discredited for falsifying the results of their research.
5. Other studies have shown that the body eventually reaches a maximum plateau with regard to its LDL level.

Chapter 5: Conclusion Questions

Read the question first to decide what the question is asking. Do not read the choices. Then read the argument passage. As you read look for the conclusion. The conclusion often comes after words like: therefore, thus, hence, then, consequently, as a result. State what you think is the conclusion and then ask, “Why?” The other statements should provide the reasons. If not then you have chosen the wrong part as the conclusion. The premises answer the question “Why?” Certain words that generally introduce a premise are: because, since, if, given that, in view of, assume, suppose.

At times, arguments will be missing their conclusion. A series of facts, along with unstated Hidden Assumption's will lead to the final statement, which you must supply. Sound arguments are linear, in that you can usually predict in what general direction the facts are headed. You may also consider the conclusion an inference: you are inferring the conclusion from the specific statements and associated Hidden Assumptions.

The newest book by England's favorite political satirist has received warm praise from critics. In addition, there is a strong market in the U.K. for political satire.

You are now asked to choose the statement that best completes this series of facts.

1. Political satire transfers well to other countries.
2. The author of this book is a member of Parliament.
3. People read book reviews before making purchases.
4. Such a book will be banned by the current Tory government.
5. The book will do well in British Bookstores.

Although a series of facts does not usually have just one possible conclusion, there is only one best conclusion in the given choices. The best answer here would be one that follows the path that the facts follow, by making a more general statement. The answer is (5).

Distracters may read too much into the facts; In the preceding example, statement (4) is a choice that goes too far from the given facts; you cannot reach the conclusion from the facts alone. Another sort of distracter introduces more detail instead of making the leap to a conclusion; examples of this would be answer (1), (2), and (3).

Now try these:

6. A consumer watchdog group recently reported the results of a study surrounding the deregulation of

the U.S. banking industry, which has allowed for more mergers between banks and has allowed banks more freedom in setting their interest rates for their customers. The report shows that customers now have access to higher savings interest rates and lower borrowing interest rates. At the same time, banks, are reporting record profits.

From the results of this study, what can be concluded about the effect of deregulation of the American banking industry?

1. Deregulation has hurt the banking industry by limiting the number of options allowed to the customers of small, local banks.
2. Deregulation has been a success because it has given the banks the ability to raise their interest rates and force their customers to pay the highest rates possible.
3. As a result of the deregulation of the banking industry, investments in other industries will increase resulting in a stronger economy nationwide.
4. Deregulation has been a success because it allows both the banks and their customers to realize savings and profits at the same time.

5. Because deregulation has lowered the interest rates that customers will have to pay, many banks will be driven out of business in the near future.

7. A report from the head of the city's school department reveals that the school department had a larger surplus in its health insurance account at the end of 1994.

The same report showed that at the end of 1995 the school department suffered a deficit of \$300,000 in the same account. Despite this decline, the school department reported no significant changes in costs over the two-year period. What can be concluded from the results of this report?

1. The school department's budget for health costs is excessively high.
2. More teachers were provided with health insurance payments during 1995 than in 1994.
3. The costs related to operating the school department's health insurance program must have increased dramatically from 1994 to 1995.
4. The health insurance account received less funding in 1995 than it did in 1994

5. The health insurance budget will show an even greater deficit in 1996 than it did in 1995.

8. In a game of Monopoly, if a player owns a hotel on Boardwalk, he must own both Boardwalk and Park Place. If he owns a hotel in Marvin Gardens, he must own Marvin Gardens.

If the player described above does not own Park Place, which of the following conclusions may be drawn?

1. The player owns a hotel on Boardwalk.
2. The player owns a hotel in Marvin Gardens but does not own a hotel on Boardwalk.
3. The Player owns Marvin Gardens and Boardwalk, but does not own a hotel on either property.
4. The player does not own a hotel in Marvin Gardens.
5. The player does not own a hotel on Boardwalk.

9. As the temperature of a solution of water and chemical X increases, the reactivity of chemical Y increases but the reactivity of chemical X remains constant. As the temperature of a solution of water and chemical Y increases, the reactivity of chemical Y remains constant.

From the above information, what conclusion may be drawn?

1. A change in temperature has no effect on the reactivity of chemical Y.
2. A change in temperature of chemical Y causes a reduction in the temperature of chemical X.
3. When combined, chemical X and chemical Y display different reaction levels than when studied separately.
4. When combined with chemical X, chemical Y demonstrates the same reactive properties as it does when it is studied alone.
5. A change in temperature produces a greater effect on chemical Y than it does on chemical X.

10. Advertisement: Seven out of ten municipal employees choose Green Arrow Underwriters as their health insurance provider.

From the information provided in this advertisement, what further conclusion may be drawn?

1. Green Arrow Underwriters has the cheapest premium rated of any other insurance company available.
2. All other health insurance providers, excluding Green Arrow Underwriters, provide services to less than 50 percent of the municipal employees.
3. Municipal employees need less health insurance coverage than employees in other industries.
4. Green Arrow Underwriters provides more valuable services and better customer assistance than any of its competitors.
5. Except for Green Arrow Underwriters, the health insurance industry is suffering a decline in the rate of obtaining new customers.

Chapter 6: Assumption Questions

To tackle the Hidden Assumption question, you must directly face the hidden statements that underlie the argument. Each Hidden Assumption statement meets the following two criteria: it gives you extra information about the existing facts instead of supplying new facts, and it must be true for the argument to be valid.

For Example:

The Republican candidate for governor of State X will get the education vote. More than \$200,000 was donated to her campaign fund by the state teachers' union. The same union donated only half that amount to the Democratic candidate's campaign.

You would then be asked to choose the statement that best reveals an assumption underlying the preceding argument.

1. The Republican candidate is a former teacher.
2. The Democratic candidate will lose the election.
3. A donation usually indicates approval of a candidate.
4. Most teachers have joined the union.
5. Unions endorse candidates in each election.

An excellent test of a Hidden Assumption is the “negation test”. If you think a choice is a Hidden Assumption, negate it and see if it seriously affects the validity of the conclusion – the right answer should.

For example, suppose you are struggling between answer (3) and (4). If answer (4) was falsified, you would now have the statement “Most teachers have not joined the union.” Does that mean that the Republican candidate is now likely not to win the education vote? She may still. Negation of answer (3) gives you “Donations usually don’t indicate approval of a candidate.” This negative statement does the most direct harm to the conclusion that the Republican candidate will get teachers’ votes; it makes the connection between the facts and conclusion illogical. Answer (3) is correct.

Distracters associated with this question type include choices such as (4), which doesn’t support the conclusion enough; as well as irrelevant statements such as (1), (2) and (5) besides being marginal to the problem, these statements also introduce new facts, whereas answer (3) elaborates on the facts given. Try these questions.

11. In order to ensure a successful vote on the issue of abortion rights, the governor is pressuring the leaders of the state political party to replace several delegates to the national convention. The governor is insisting that certain individuals with a history of voting in favor of abortion be replaced with those who have voted against abortion rights in the past.

The governor's actions demonstrate that he is making which of the following assumptions?

1. Voting on abortion issues is an important part of the national political agenda.
2. The current delegates will probably not share the governor's views on such issues as the national budget or federal spending limits.
3. The proposed new delegates will continue to vote on abortion issues in the same way that have voted in the past.
4. The national delegation will not have an opportunity to vote on any issues other than abortion rights.

5. Governors of other states will be making similar changes to their states' delegations, so that the issue of abortion rights will be guaranteed to be decided as the governor desires.

12. To travel on public transportation from City Hall to the convention center, the most direct route requires passengers to ride the Blue Bus line to Center Street, collect a token at Center Street station, then ride the subway to Middle Street. This weekend there will be a big political rally, so the city should hire extra token vendors for the Center Street station.

The conclusion for the preceding argument depends upon which of the following assumptions?

1. The mayor will be working at City Hall this weekend and will need to use public transportation to go to the convention center.
2. There is no way to get from City hall to the convention center without going through the Center street station.

3. The political rally will draw thousands of people to the city from all parts of the state.
4. Because of the political rally, traffic at the Center Street station will increase.
5. The city public transportation system does not allow passengers to buy tokens in advance.

13. The newspaper just reported that a man won this year's national baking contest for the first time in its history. The contest has used both male and female judges for many years. This must have been the first year that the contest was open to male participants.

Which of the following is an assumption upon which the speaker's conclusion is based?

1. The newspapers has never before reported the results of the national baking contest.
2. Male judges are more likely to vote for a male contestant than for a female contestant.
3. Men have tried to enter the national baking contest for several years but have been denied.
4. Men are generally superior to women and would be able to beat them in any kind of competition.

5. Men are better bakers than women and could win this contest ever year.

14. Today is Tuesday and yesterday was Monday. Therefore, tomorrow will be Wednesday.

This speaker's conclusion depends on which of the following assumptions?

1. Wednesday is the day that precedes Thursday.
 2. Tuesday always follows Monday.
 3. If, in any given week, Tuesday follows Monday, then Wednesday will follow Tuesday.
 4. Every week consists of seven days arranged in a particular order.
 5. The speaker always schedules a certain meeting to occur on Wednesday.
15. In the animal world, when any species becomes overpopulated, naturalists observe that the animals begin fighting among themselves and become cannibalistic. Sociologists have been reporting for years that the human population of the world is growing at an uncontrollable rate, and the world's cities will be overpopulated in about ten

years. As a result human societies will begin experiencing a global breakdown and we can expect an international war within the next ten years.

Which of the following statements represents a hidden assumption upon which the preceding argument depends?

1. Human social behaviors follow the same pattern as the behaviors of animals.
2. Major cities do not always have adequate budgets to provided resources for all their residents.
3. Naturalists and sociologists use the same research methods in studying their subjects and reporting results.
4. The study that showed cannibalistic patterns in animals studied only carnivorous animals.
5. The population of the world has doubled in the past five years, and its rate of growth will increase even faster in the future.

Chapter 7: Analysis of Explanation Questions

Analysis of explanations questions test abilities used in explanation: flexibility in generating explanations and evaluating relevance in terms of them, and in assessing the explanatory adequacy of statements. Special subject matter knowledge is not required. Each group of analysis of explanations questions consists of a situation and results along with questions directed toward explaining the result, given the situation. The questions might be presented in the format illustrated below, in which two choices (A), (B) are available for each answer alternatively be, presented in a three-choice format (A, B, C) with directions to choose the best answer, or in a four-choice format (A, B, C, D) with directions to select a pair of choices from among the four choices.

Directions: Preceding each group of numbered statements is a question that can be answered "Yes" or "No". Answer this question separately for each statement in the group by marking answer choice A on your answer sheet for "yes" or answer choice B for "No" next to the number for each statement. Be careful not to mark answer choices C, D or E. Do not assume either that there are more "Yes" answers or that there are more "No" answers.

Situation: The damming of the Palman River partially flooded the West Kenyan Wildlife Preserve and caused overcrowding of the animal population. Therefore, one hundred of the giraffes and one hundred of the Zimmerman gazelles were moved to the much larger East Kenyan preserve, where identical species of lions and giraffes as in the West Kenyan preserve and one species of gazelles, Allen gazelles, were already living. The only difference in climate was that the East Kenyan preserve averaged about ten inches less rain per year. In both preserves the prevailing winds were from the east, and the terrain was mainly flat.

Results: After three years in the East Kenyan preserve, the population of Zimmerman gazelles there had diminished almost to the point of extinction.

How this result arose from the given situation needs explanation.

You will be asked, for each of several statements, whether the statement is relevant to explaining how this result arose from the given situation. A statement is relevant if it provides information (beyond what is given in the situation) that either supports or, alternatively, weakens some possible adequate explanation.

You will also be asked, for each of several other statements, whether the statement could serve as a basis for explaining how this result arose from the given situation.

Do not consider extremely unlikely or farfetched explanations.

Question: In the following statement, if true, relevant to some possible adequate explanation of how the result arose from the given situation?

No zoo has succeeded in breeding Allen gazelles in captivity. The weather was normal in East Kenya during the three years after the transfer.

Question: Could the following statement, if true, form the basis for an adequate explanation of how the result arose from the given situation?

The animals successfully rounded up for the transfer included primarily the weaker Zimmerman gazelles, which then lost out in competition for grass with the Allen gazelles. Kenya's efforts to increase hydroelectric power caused the overcrowding in the West Kenyan preserve.