

Chapter *of* 2

Logical Reasoning

Argument Core



Getting Familiar

To start, go ahead and try these five Logical Reasoning questions. Give yourself no more than eight minutes total. We'll revisit these questions later on in the chapter.

2

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The Assumption Family of Questions

Each of the five problems on the previous pages seems to be asking a different type of question, right? Yes, it's true that the question stems are a bit different, but our goal in this chapter is to illustrate that these five questions are actually birds of a feather: they require the same thought process and the same skills. Each one of these questions requires that you identify a core argument being made, and furthermore, that you recognize the assumptions within that core. Each of these questions falls into a broader category that we refer to as the Assumption Family.

The following question types, each to be discussed in greater detail in later chapters, are what we categorize as Assumption Family questions. Combined, these questions make up more than half of all Logical Reasoning questions on the exam:

- Assumption questions
- Flaw questions
- Strengthen questions
- Weaken questions
- Principle Support questions

In this chapter, we will outline the keys to understanding and answering Assumption Family questions. We'll finish by revisiting the questions you've just completed.

The first step is to establish a reading perspective.

Reading from a Perspective

Kennedy-Nixon

The first ever nationally televised presidential campaign debate took place in September of 1960. Democratic Senator John F. Kennedy and Republican incumbent Vice President Richard Nixon squared off in what would become one of the most famous debates in history. The idea of relevant experience had become a major issue in the campaign; the Republicans had cited inexperience as the main reason why Senator Kennedy was unqualified to lead from the White House. The first question of the evening was directed to Senator Kennedy (quoted from debate transcripts):

MODERATOR: Senator, the Vice President [Richard Nixon] in his campaign has said that you were naïve and at times immature. He has raised the question of leadership. On this issue, why do you think people should vote for you rather than the Vice President?

MR. KENNEDY: Well, the Vice President and I came to the Congress together in 1946; we both served in the Labor Committee. I've been there [in Congress] now for fourteen years, the same period of time that he has [referring to Nixon's six years in congress and eight years as Vice President], so that our experience in, uh, government is comparable....

MODERATOR: Mr. Nixon, would you like to comment on that statement?

MR. NIXON: I have no comment.

Perhaps it was a calculated move, but Vice President Nixon seemed to have bought into Kennedy's argument. He didn't even respond.

Most of the time, we tend to go along with people's arguments without much thought. If they speak forcefully enough, or with enough passion (as Senator Kennedy most likely did during the debate), we end up *wanting* to go along. Let's face it: we're easily convinced and gullible, especially when politicians are talking!

Kennedy's argument above sounds great. It makes sense: 14 years equals 14 years, right? However, there are some inherent gaps in his logic. We'll get to these momentarily.

Assumption Family questions are all about reading an argument, such as the one given by Kennedy above, deconstructing the argument, and identifying any gaps or weaknesses in the logic used to form the argument. Complacency won't cut it. Giving the benefit of the doubt won't work. In order to be successful in this endeavor, you must be super-critical of everything you read, and in order to properly focus your critical eye, you must read with a purpose.

Perspective and Purpose

Have you ever read a paragraph in a book or a magazine and then realized that you can't remember anything that you've read? That sort of situation is perhaps unavoidable in life, but it is something that you can and should make sure to avoid on the LSAT. On the Logical Reasoning section, you will find yourself confronted with arguments and passages on topics that you're not familiar with and not particularly interested in. If you're not entirely sure what parts of the passage are important and what parts are not, the risk of "spacing out" is particularly high. When this happens, you'll find yourself rereading certain sentences two or three times as you struggle to concentrate. You might even decide to start over from the top and read the whole thing over again! This is obviously not a good use of time. So, how can you avoid this?

Research shows that the best readers, and the most efficient readers, all read with a clearly defined purpose. Having a clear sense of why you are reading something, and what is most important to understand about what you read, will help you avoid losing focus. However, there are often situations in life, such as when you take standardized exams, when it can be very difficult to know what your specific purpose should be as you read.

An effective way to define *purpose* is to consider the *perspective* of a reader. Here are a few examples to illustrate this point:

From the Perspective of...	Purpose
a beach lounge reading a novel	pure entertainment... no real purpose
a mother of two, dinner time, a pound of leftover ground beef in the freezer, reading a cookbook	find recipes that use ground beef (how much time do you think she'll spend trying to absorb the details of a chicken recipe?)

a Robert Frost scholar, preparing to give a lecture on Frost's use of "nature's ritual," reading an anthology of poems by Robert Frost	connect different poems using the ritualism of nature as a theme
a sports show host, getting ready to interview Tiger Woods, reading the New York Times the morning after the biggest golf tournament of the year	scan for Tiger's tournament results, look for inexplicable events that Tiger might be able to shed light on in a live interview

In each of these real-life situations, we can see that the reader's perspective is what determines the purpose of his or her read. For each of these situations, we can say that *perspective* drives *purpose*.

Many students read LSAT arguments with a vague or incorrect sense of purpose. Some read LSAT arguments with no purpose at all. This leads to slow reading and low comprehension. To better your chances of success on Logical Reasoning, you need to read quickly, efficiently, and with a high level of comprehension. Having a clearly defined sense of purpose is the key to this, and an effective way to ensure that your purpose is sound is to read from the right perspective.

Reading Like a Debater

Let's revisit the Kennedy-Nixon excerpt in order to define the perspective that will drive your purpose when reading Logical Reasoning arguments. Consider Kennedy's argument one more time:

MR. KENNEDY: Well, the Vice President and I came to the Congress together in 1946; we both served in the Labor Committee. I've been there [in Congress] now for fourteen years, the same period of time that he has [referring to Nixon's six years in congress and eight years as Vice President], so that our experience in, uh, government is comparable...

There are many different perspectives from which Kennedy's argument can be heard or read. Here are some:

- 1. Reporter.** Someone listening or reading from the perspective of a reporter would listen or read with the purpose of accurately transcribing the comments. He or she would listen closely for details (1946, 14 years, etc.) to be sure they were noted accurately.
- 2. Historian.** Someone listening or reading from the perspective of a historian might listen or read with the purpose of connecting the comments to similar arguments made in historical debates, perhaps attempting to draw out comparisons with the famous Lincoln-Douglas debates.
- 3. Debater.** Someone listening or reading from the perspective of a debater (in this case Vice President Nixon) should listen or read with the purpose of analyzing the logic of the argument and attempting to uncover the logical gaps or flaws. You may have guessed it...

This is the best perspective to use for the Logical Reasoning section.

Assumption Family questions will ask you to evaluate the logic of an argument, or to identify flaws in an argument. If you are reading these arguments through the critical eye of a debater, your purpose will be to actively seek out the inherent gaps and flaws. So, as you read, put yourself in the shoes of a

debater. Prepare yourself for an effective rebuttal, and when your chance comes, don't be caught flat-footed like Richard Nixon was!

Let's take a closer look at specifically what it is that you need to attend to as you read from the perspective of a debater.

The Structure of Arguments

Imagine yourself in Nixon's shoes. In order to effectively rebut Kennedy's argument, you first need to figure out what the main point of his argument is. What exactly is he trying to say? What is his conclusion?

CONCLUSION (main point): "...so that our experience in, uh, government is comparable..."

The conclusion of the argument is the main point, final claim, or main opinion. It is always the most important part of the argument; you must identify the conclusion if you are to have any chance at understanding, evaluating, or attacking the argument. The conclusion is sometimes triggered by words such as *so*, *thus*, *therefore*, and *consequently*.

Next, you must consider how the conclusion is drawn. Why is this conclusion made? What support is given for this conclusion? What are the supporting premises?

SUPPORTING PREMISE (supporting fact): "...we both served in the Labor Committee."

SUPPORTING PREMISE (supporting fact): "I've been there [in Congress] now for fourteen years, the same period of time that he has [referring to Nixon's six years in congress and eight years as Vice President]..."

Supporting premises are stated facts or claims that are meant to provide support for the conclusion. Premises are sometimes triggered by words such as "because" or "since" (more on trigger words, or language cues, later).

Once you've identified the conclusion and the supporting premises, you'll be in a good position to be critical of the argument. In this case, the argument is suspect because Kennedy makes a few questionable *assumptions*.

ASSUMPTION (unstated): Two people who serve on the same committee necessarily gain the same experience.

ASSUMPTION (unstated): The amount of time spent in Congress is a good measure of experience.

ASSUMPTION (unstated): The work of a Senator provides the same relevant experience as the work of a Vice President.

Assumptions are the underlying, unstated elements of the argument that need to be true in order for the argument to work. Almost all LSAT arguments have underlying assumptions. Your job is to actively uncover these assumptions as if you were devising your counter response in a debate. We'll discuss the

nature of assumptions more carefully in a later chapter, so don't worry if you weren't able to see the ones above initially.

Assuming Nixon had (1) understood Kennedy's conclusion, or main point, (2) attended to the premises that Kennedy used to support his conclusion, and (3) actively used this understanding to uncover the gaps inherent in Kennedy's argument, he could have responded much more forcefully.

Let's rewrite history:

MR. KENNEDY: Well, the Vice President and I came to the Congress together in 1946; we both served in the Labor Committee. I've been there [in Congress] now for fourteen years, the same period of time that he has [referring to Nixon's six years in congress and eight years as Vice President], so that our experience in, uh, government is comparable....

MODERATOR: Mr. Nixon, would you like to comment on that statement?

MR. NIXON: Yes, I would like to comment. Senator Kennedy assumes that his work as a Senator provides the same relevant experience as my work as Vice President. This assumption is flawed. The executive experience I have gained as Vice President is much more relevant to the executive work that we all know to be the primary work of the President. In fact, our experience is *not* comparable. I am much better prepared to be President.

When you read a Logical Reasoning passage, take on the perspective of a debater. Perspective gives you purpose, and purpose gives you focus, speed, and comprehension. Make it your purpose to be critical of the argument at hand. Actively search for conclusions, the supporting premises, and the underlying assumptions. Challenge the language that's used, including absolute or extreme words or phrases. In the same way that you would be skeptical of an opponent's argument in a debate, be skeptical of the author's argument in an LSAT passage.

The Argument Core

Definition

Thus far, we've discussed the core elements of an argument. An argument is a premise, or set of premises, used to arrive at a claim (conclusion). From this point forward, we will refer to this simple relationship as the argument core, and we will diagram the argument core using a "therefore" arrow:

Argument Core: A premise, or set of premises, used to arrive at a conclusion.



Let's look at a quick example of an argument core:

The sun rises only on Mondays. ➡ The sun does not rise on Fridays.

We would read this argument core as follows:

The sun rises only on Mondays. THEREFORE, The sun does not rise on Fridays.

In this argument, the premise that the sun rises only on Mondays is used to support the claim that the sun does not rise on Fridays.

Do you think this is a valid argument? Does it make any assumptions? Take a few seconds to think about it before reading on.

Evaluating the Logic of the Core

On Assumption Family questions, your job will be to evaluate the logic of the argument core. When doing so, it's important that you have the right mind-set. Let's look at the argument core again:

The sun rises only on Mondays. ➡ The sun does not rise on Fridays.

Here are two ways to think about it:

1. The real-world approach.

"No way! Terrible argument! We all know that the sun rises every day, not just on Mondays."

2. The logical approach.

"Well, if we take the premise as a given truth, that the sun rises ONLY on Mondays, is this enough to substantiate the claim that the sun does NOT rise on Fridays? Yes. Logically speaking, this argument is sound."

Now, most likely you haven't been studying for the LSAT for very long, but you've probably figured out that the LSAT folks aren't very interested in testing your ability to make evaluations of whether real-world facts are true or untrue. They are, however, very much interested in testing your ability to evaluate logic, the manner in which elements of an argument connect to one another.

In evaluating an argument, your job is NOT to evaluate the truth of its parts. Your job is to evaluate the logic: does the evidence given validate the conclusion? In this case, it does.

Let's try another one:

Everyone in the room is wearing a jacket. ➡ Jim must be wearing a jacket.

Remember, the arrow means “therefore.” We would read this argument core as follows:

Everyone in the room is wearing a jacket. THEREFORE, Jim must be wearing a jacket.

As you evaluate the logic of this argument core, you want to ask yourself if the premise allows you to draw the conclusion without any problems. Does the premise substantiate the conclusion? In this case, it doesn't. In fact, the argument makes a pretty big assumption—it assumes that Jim is one of the people in the room! Notice how the assumption, when inserted into the argument, actually strengthens the argument:

Everyone in the room is wearing a jacket. (Jim is in the room). THEREFORE, Jim must be wearing a jacket.

The assumption functions as a connecting bridge between the premise and the conclusion.

So, to this point, we've seen an argument core that was rock solid, and one that needed an assumption. **Almost all LSAT arguments have cores that require an assumption or assumptions in order to be sound.** Sometimes the assumption is easy to spot, but other times it's more difficult. You'll get better and better at recognizing and defining these gaps as you continue your study, but here is some advice to get you started.

Beware of Implicit Connections

Tendency #1: Real-world synonymous

LSAT arguments will often include assumed connections between concepts that we generally see as being synonymous in real life. In real life, it is often helpful to focus on how these concepts are similar. However, for the LSAT, it is critical that you pay attention to the differences. Take this, for example:

Hiroshi always does what is right.  Hiroshi is a moral person.

This seems to make good sense, doesn't it? If you heard this argument at the dinner table, you wouldn't bat an eye. However, on the LSAT, this argument is flawed. It assumes that doing what is right and being a moral person are equivalent concepts. Don't take this for granted. Let's insert the assumption into the core to see how it strengthens the argument:

Hiroshi always does what is right. (Always doing what is right is the same as being a moral person.) Hiroshi is a moral person.

Ah. Now it's airtight. Remember, real-world synonymous is not necessarily the same as LSAT synonymous.

Tendency #2: Subtle wording changes and modifiers

Sometimes the LSAT will make an implicit connection between two things that are subtly different based on just one word. Try this:

Great writers always imbue their writing with their own personal experiences.



It's clear, then, that the most popular writers use personal experiences in their stories.

This may seem like a good argument at first, but notice the difference between “great” in the premise and “the most popular” in the conclusion. To be great, and to be the most popular, are not the same. The argument assumes that the “most popular writers” are “great writers.” Notice how much stronger the argument becomes when we insert this assumption:

Great writers always imbue their writing with their own personal experiences. (The most popular writers are great writers.) It's clear, then, that the most popular writers use personal experiences in their stories.

2

Beware of Other Paths to the Conclusion

Many LSAT arguments will be faulty because the author will assume that one path to a certain outcome is the only path to that outcome.

Have a look at this one:

Bert lost 15 pounds last summer.



Bert must have been on a diet last summer.

Sure, that's one possibility, but are we able to conclude for certain that a diet was the reason for the weight loss? Of course not. Maybe he had a health issue that led to a drop in weight, or maybe he exercised each day over the summer. This argument assumes that nothing else, aside from a diet, could have accounted for Bert's weight loss. Let's insert it:

Bert lost 15 pounds last summer. (Nothing else, aside from a diet, could have contributed to Bert's weight loss.) Bert must have been on a diet last summer.

Much better.

Notice that this assumption helps the argument by eliminating every other possible explanation, but note that some assumptions can help the argument by partially bridging the gap, or by eliminating just one of the alternative possibilities.

Bert lost 15 pounds last summer. (Exercise did not account for Bert's weight loss.) Bert must have been on a diet last summer.

Is this assumption enough on its own to make the argument valid? No, but it's certainly necessary to make the argument valid.

Don't worry at this point if you feel unsure of your ability to spot gaps in the logic. Later on in the chapter, and for the next four chapters, you'll have a chance to work on identifying assumptions. For now, let's move on to discuss the task of finding the argument core.

Identifying the Argument Core

At this point, you've learned about the argument core, and you've had some practice evaluating the logic of the core. This is a crucial skill that you'll need to answer Assumption Family questions. Unfortunately, evaluating the logic of the core is only one piece of the process. Before you can evaluate the logic, you need to correctly identify the core. Sometimes it'll be easy to spot, as it was in the Kennedy/Nixon example from earlier. Kennedy stated a premise...

“I've been there [in Congress] now for fourteen years, the same period of time that he has [referring to Nixon's six years in Congress and eight years as Vice President]...”

and then finished with his conclusion...

“...so that our experience in, uh, government is comparable...”

The LSAT won't always make it this easy on you. Let's discuss some of the challenges that you'll be faced with.

One quick note: we are NOT suggesting you write out argument cores during the LSAT. This mostly will be an internal process.

Organizational Structure

The LSAT will often change the organizational structure (order) of the argument components to make things a bit trickier. Here are two different ways that the same argument can be ordered:

1. PREMISE-CONCLUSION

This is the ordering that Kennedy used in his argument. It's the simplest of the possible orderings:

I will be out of town more this month than I was last month. Thus, my electricity bill will be less this month than it was last month.

[By the way, if you're thinking about the inherent assumptions made in this argument, you're reading like a debater!]

2. CONCLUSION-PREMISE

The LSAT will often construct arguments that place the support after the conclusion:

My electricity bill will be less this month than it was last month because I will be out of town more this month than I was last month.

These two arguments are identical. The thing to notice here is that *organizational structure* has nothing to do with *logical structure*. Regardless of how we arrange the pieces, we still have the same argument core:

out of town more this month than last → electricity bill will be less this month than it was last month

Getting a handle on an argument's organization becomes more challenging as the argument is lengthened and other parts added. Let's continue this discussion after we've looked at these other argument components.

2

Background Information

Sometimes you'll see argument components that don't seem like supporting premises or conclusions. Often, the LSAT will include neutral background information in an attempt to orient (or disorient) the reader before the real argument starts. Don't let this confuse you, though. We're still looking for the argument core. Take this one:

Next week, our school board will vote on a proposal to extend the school day by one hour. This proposal will not pass. A very similar proposal was voted down by the school board in a neighboring town.

Here's a breakdown of the argument, point by point:

BACKGROUND: Next week, our school board will vote on a proposal to extend the school day by one hour.

CONCLUSION: This proposal will not pass.

SUPPORTING PREMISE: A very similar proposal was voted down by the school board in a neighboring town.

Maybe you correctly identified the conclusion, but had trouble figuring out which sentence, the first or the last, was the supporting premise. When this happens, identify the conclusion and then ask "Why?" The proposal will not pass. Okay, why does the author believe this? Is it because the board will vote on the proposal? No. Is it because a similar proposal failed in a nearby town? Ah, yes. This must be the supporting premise.

When looking for the argument core, you want to consider just the premise → conclusion relationship:

similar proposal voted down
in nearby town → proposal will not pass

The rest of the information is background information to provide context for the argument core. Context is important, but remember that it's only there to help you understand the core.

Intermediate Conclusions and the Therefore Test

A chain of logic will often contain an intermediate conclusion that supports the final conclusion. This adds further complexity. Take a look at the example below. Notice anything different?

A new lemonade stand has just opened for business in the town square. The stand will surely fail. A popular juice store already sells lemonade in the town square, so the new lemonade stand will not be able to attract customers.

2

You can see that as more and more complicating elements are added in, the argument core becomes more difficult to track. In this case, there seem to be two possible conclusions, or opinions: (1) the stand will surely fail, or (2) the new lemonade stand will not be able to attract customers. Remember, before you can answer any question related to such an argument, you **MUST** know what the main point, or final conclusion, is. There can be only one. Let's use what we call "The Therefore Test" to identify the final conclusion. We'll propose two possible $P \rightarrow C$ relationships between our two candidates:

Case #1: The new lemonade stand will surely fail. **THEREFORE**, the new lemonade stand will not be able to attract customers.

Case #2: The new lemonade stand will not be able to attract customers. **THEREFORE**, the new lemonade stand will surely fail.

The first case doesn't make a whole lot of sense. In the second case, however, the first part of the statement clearly supports, or leads into, the second part of the statement. Because the stand will not be able to attract customers, it will surely fail. (If you're having trouble, try thinking about it in terms of chronology—what happens first? The stand doesn't attract new customers, and this leads to the failure of the stand.) Thus, the final conclusion, the main conclusion, is that "The stand will surely fail." Any conclusion that supports the final conclusion is called an intermediate conclusion. Intermediate conclusions are always supported by a premise.

Let's break this argument down:

BACKGROUND: A new lemonade stand has just opened for business in the town square.

CONCLUSION (final opinion): The stand will surely fail.

SUPPORTING PREMISE (fact): A popular juice store already sells lemonade in the town square,

INTERMEDIATE CONCLUSION (opinion): so the new lemonade stand will not be able to attract customers.

Here it is in argument core form: (P) premise \rightarrow (IC) intermediate conclusion \rightarrow (C) conclusion.

popular juice store
already there \rightarrow new store won't be able
to attract customers \rightarrow new store will fail

Notice that we actually have two embedded arguments in this complex core: (1) $P \rightarrow IC$, and (2) $IC \rightarrow C$. In the context of the real exam, we would need to evaluate both arguments for potential issues. However, the LSAT tends to base questions on the gap between the intermediate conclusion and the final conclusion.

Opposing Points

Think about the arguments that you make on a daily basis (you probably make more than you realize). Sometimes you can add to your argument by conceding a point or two to the other side. In doing so, you show that you've considered alternate viewpoints, and you also steal the thunder of the person who might be arguing against you! The LSAT does this all the time. Let's revisit the lemonade argument with an added twist:

A new lemonade stand has just opened for business in the town square. The price per cup at the new stand is the lowest in town, but the store will surely fail. A popular juice store already sells lemonade in the town square, so the new lemonade stand will not be able to attract customers.

In this case, the fact that “the price per cup at the new stand is the lowest in town” is an opposing point; it is a counter premise that would seem to support the opposite claim (that the lemonade stand will NOT fail). Notice that the contrast with the main conclusion is set up with the word “but.” Here's another, slightly different example:

A new lemonade stand has just opened for business in the town square. The columnist in the local paper writes that the stand will succeed, but it will surely fail. A popular juice store already sells lemonade in the town square, so the new lemonade stand will not be able to attract customers.

Notice again the contrast word “but.” In this case, the opposing point (“the columnist in the local paper writes that the stand will succeed”) is actually a counterclaim. It is directly opposed to the claim made by the author (that the stand will surely fail).

Again, the LSAT often uses opposing points to add more texture (and confusion!) to a passage. Some opposing points are counter premises, others are counterclaims. Regardless, it'll be important that you separate the opposing points from the elements of the argument core. Don't confuse the sides! In this case, the argument core is still:

popular juice store already there → new store won't be able to attract customers → new store will fail

Multiple Premises

The LSAT often presents arguments that seem to contain multiple premises. In these cases, it can be difficult to figure out what the real core of the argument is. There are a few ways that the LSAT structures multiple-premise arguments.

1. Complementary Premises

Last year, Karina spent 20% of her income on rent. This year, she spent 30% of her income on rent. Thus, Karina spent more money on rent this year than last year.

Here's a breakdown of the argument structure:

SUPPORTING PREMISE: Last year, Karina spent 20% of her income on rent.

SUPPORTING PREMISE: This year, she spent 30% of her income on rent.

CONCLUSION: Thus, Karina spent more money on rent this year than last year.

Notice that the author uses the two premises in a complementary way in order to arrive at the conclusion. One premise is no more important than the other, and both are needed to arrive at the conclusion. One way to tell that both premises are going to be important is to notice that the conclusion makes a relative comparison between two things (money spent on rent last year vs. money spent on rent this year). In a case like this where such a relative comparison is made, supporting information generally comes from two premises (in this case, one stating a fact about last year and one stating a fact about this year). We can think of the argument core as follows: $P + P \rightarrow C$:

last year 20% on rent	+	→	more rent money spent this year
this year 30% on rent			

(By the way, are you seeing the issue with this argument? What assumption is made? Hint: I spend 50% of my income on rent. Donald Trump spends 40% of his income on rent. Therefore, I spend more money on rent than Donald Trump does. Hmmm.)

2. Duplicate Premises

In recent years, global sales of so-called “smartphones” have skyrocketed. In increasing numbers, people from all over the world are purchasing devices that have the capability to play music, snap photos, surf the internet, and receive incoming phone calls. It must be the case that smartphone manufacturers are making huge profits.

Here's a breakdown of the argument structure:

SUPPORTING PREMISE: In recent years, global sales of so-called “smartphones” have skyrocketed.

SUPPORTING PREMISE: In increasing numbers, people from all over the world are purchasing devices that have the capability to play music, snap photos, surf the internet, and receive an incoming phone call.

CONCLUSION: It must be the case that smart-phone manufacturers are making huge profits.

Wow. Lots of information! How do we know what the argument core is? Should we use the first premise or the second? Maybe the two premises complement each other as in the example we saw previously? Look closely and note that the two supporting premises actually say the same thing in slightly different words. From a logical perspective, the premises are duplicates, not complements. In essence, the argument core is this:

increasing sales of smart phones → manufacturers must be making huge profits

(Again, be sure you're thinking about the assumption that is made in this argument. Are sales figures the only important factor in determining profit levels?)

2

Here's another, slightly different example:

Some people claim that a low-carbohydrate diet is essential to maintaining a healthy body weight. This is simply not true. Many Europeans regularly eat foods that are very high in carbohydrates. Italians, for instance, eat lots of breads and pastas.

What's the conclusion? What's the supporting premise? Think about it before reading on.

OPPOSING POINT: Some people claim that a low-carbohydrate diet is essential to maintaining a healthy body weight.

CONCLUSION: This is simply not true.

SUPPORTING PREMISE: Many Europeans regularly eat foods very high in carbohydrates.

SUPPORTING PREMISE: Italians, for instance, eat lots of breads and pastas.

Okay, so we have the conclusion, but what's the premise that supports this conclusion? Both of the premises seem to support the conclusion, but note that the second premise is simply an example of the first! The second premise doesn't really say the same thing (it's more detailed), but it doesn't add any crucial additional information. Our core would simply be:

many Europeans eat lots of carbs → low-carb diet NOT essential to maintaining healthy body weight

(What is this argument assuming about Europeans? It assumes that they maintain a healthy body weight!)

Borrowed Language

Take another look at the argument core above. Notice that we reworded the conclusion from “this claim is simply not true” to “low-carb diet NOT essential to maintaining healthy body weight.” The LSAT will often try to make things difficult on you by using borrowed language to hide or disguise the argument core. It sounds complicated, but it's really not. If you know your English grammar rules, you're already familiar with the concept of borrowing information from other parts of the sentence or from other sentences. Here's an example:

Jack spends his Saturday afternoons driving his Porsche on the mountain roads. He loves doing that.

This short paragraph has two sentences. The second sentence borrows information from the first. “He” borrows the “Jack” from the first sentence, and “that” borrows the “driving his Porsche on the mountain roads” from the first sentence.

In Logical Reasoning arguments, premises and conclusions sometimes borrow information from other parts of the passage. When this happens, it’s easy to get things confused and end up with a misinterpretation of the core. Take this simple example:

Some doctors recommend taking aspirin to relieve the symptoms of a fever. This is bad advice. A fever is part of the body’s natural defense against illness.

Here’s a breakdown of the argument structure:

OPPOSING POINT: Some doctors recommend taking aspirin to relieve the symptoms of a fever.

CONCLUSION: This is bad advice.

SUPPORTING PREMISE: A fever is part of the body’s natural defense against illness.

The core of the argument is:

fever part of body’s natural
defense against illness → this is bad advice

Hmm. Read that again. Taken on its own, this argument core makes no sense because we don’t know what “this” is. What is bad advice? Here, the conclusion borrows language from the opposing point! “This” refers to the recommendation to take aspirin to relieve the symptoms of a fever. In order to correctly analyze the logic of the core, we need to know exactly what that advice is. Thus, when we consider the core argument, we need to consider it as follows:

fever part of body’s natural
defense against illness → shouldn’t take aspirin to
relieve symptoms of a fever

Now we’re in a position to evaluate the logic of this core. Does the premise validate the conclusion? Are any assumptions made? Yes. For one, the argument assumes that relieving the *symptoms* of a fever hinders the fever’s ability to provide defense against illness.

Here’s another, more difficult example of language borrowing:

Teacher: Many of our students think that the earth is further from the sun in the winter than in the summer. This erroneous thinking shows that our science curriculum has not been effective.

What’s the core of the argument? Go ahead and think about it for a moment before reading on.

It’s very difficult to classify the parts of this passage. We always need to start by finding the conclusion, and in this case we can use a word/phrase cue to help us. The phrase “This ... shows that...” is the same

as saying, “this demonstrates X” or “this supports X.” So, the conclusion will likely be the X. This is the main point, or primary opinion of the argument:

CONCLUSION: Our science curriculum has not been effective.

Now we need to ask ourselves “why?” What supports this claim? Well, “This erroneous thinking” shows that the science curriculum has failed. What is “this erroneous thinking?” The word “this” borrows information from the first sentence. The erroneous thinking is believing that the earth is further from the sun in the winter. We have the conclusion, and we now have the supporting premise, so we’ve got our core:

students erroneously
believe earth is further
from sun in winter ➔ our science curriculum has
not been effective

We’ve covered a host of issues that increase the challenge when it comes to identifying the argument core. Most of the information above is meant to illuminate common patterns and argument structures so that you can more easily identify the pieces of the text that matter most. In this last example, we used a language cue (“this shows that”) in order to help us find the core. Let’s take a closer look at language cues.

Language Cues

The English language is full of cue words or phrases that are designed to serve as signposts for the listener or reader. Below, we will list the most common of these cues. That said, please note that the LSAT is on to you. They know that when you see the word “thus” you will automatically be thinking “conclusion!” Sometimes, the LSAT will attempt to fool you. All of this is to say that these cues are good helpers, but they are tendencies, NOT absolutes. Below are four language cues:

1. Conclusion Cues. The following words or phrases typically (not always) are indicators of opinions or claims. The LSAT will often use them to introduce a conclusion or an intermediate conclusion:

so	thus	therefore	thereby	consequently
clearly	as a result	for this reason	this demonstrates that	they conclude that

2. Supporting Premise Cues. The LSAT will often use the following words or phrases to introduce a supporting premise:

since	because
the reason is	for (as in, “...for he’s a jolly-good fellow”)

3. Opposing Point Cues. Opposing points often come at the start of an Logical Reasoning passage, and they are commonly introduced with the following type of language:

Some believe that	Some say that
Most people claim that	Experts have asserted that

4. Transition Cues. Transition, or pivot, words are extremely common on the exam. They are used to indicate a change in direction, or a change in opinion (usually from an opposing point to a supporting premise or the main conclusion). Some common transition words and phrases are:

but	however	nonetheless	even so
despite this	rather	yet	

Here's an example chock-full of language cues:

Some of my friends say that skiing is the best way to burn calories, but this is ridiculous. Since the act of skiing down a mountain is primarily driven by the pull of gravity, skiing requires very little physical exertion. Thus, skiing doesn't burn many calories.

We start off with an opposing point (“Some of my friends say...”), and then we encounter a big transition word (“but”) that indicates a change in direction. Sure enough, we get the author's opinion/conclusion next (“this is ridiculous”). The word “this” serves to borrow language from the opposing point. “This” refers to the claim that skiing is the best way to burn calories. Essentially, the author is saying “skiing is NOT the best way to burn calories.” At this point, we should expect some supporting reasoning. We encounter a supporting premise cue (“since”), which leads into the supporting fact: gravity is the primary driver. What does it support? It supports the intermediate conclusion (“skiing requires very little physical exertion”). Then we get a fake-out “thus!” In this case, “skiing requires very little physical exertion” supports the intermediate conclusion that “skiing doesn't burn many calories,” which supports the final conclusion that skiing is NOT the best way to burn calories. Watch out for the fake-out “thus!” So, here's the argument core: P → IC → IC → C:

skiing primarily driven by gravity → requires little physical exertion → doesn't burn many calories → not best way to burn calories

DRILL IT: Identifying the Argument Core

Identify the argument core for each of the passages given below. For the purposes of this exercise, take the time to write the core, in arrow form, on your paper. Be sure to check your answers against the solutions we've given (check your answer after each question so that you can learn from your mistakes before attempting the next one). Your paraphrases may not always be identical to ours—that's okay. Just make sure the general $P \rightarrow C$ relationship is the same.

The first 10 arguments are of average LSAT difficulty. The final 5 arguments come from questions of high difficulty. "PT, S, Q" refers to the LSAT PrepTest from which the question was taken, the section of that PrepTest, and the question number.

2

[For copyright reasons, this question set and all associated explanations have been removed from this downloadable sample document]

Conditional Logic 101

Introduction

Conditional logic is a logical structure that the LSAT tests in the Logical Reasoning and Logic Games sections of the exam. Over the course of your LSAT preparation with Manhattan LSAT, you will get many “touches on the ball” when it comes to conditional logic. In fact, there will be an entire chapter dedicated to conditional logic principles later on in this book. However, because we will often make reference to conditional logic principles before then, we want to be sure you understand the basics right from the start. To that end, let’s dig in.

Conditional Logic in Logical Reasoning

Conditional logic comes up frequently enough in Logical Reasoning questions to warrant preparation. Here’s a very simple example to illustrate:

When Jasmine wakes up early in the morning she is not productive at work that day. Jasmine woke up early in the morning on Wednesday.

If the above statements are true, which one of the following must also be true?

- (A) If Jasmine was unproductive at work on any particular day, then she must have woken up early on that day.
- (B) Jasmine was not productive at work on Wednesday.

This abbreviated Logical Reasoning question contains a conditional relationship. If condition X (waking up early) is met, then Y (unproductive at work) is guaranteed. Thus, if Jasmine woke up early on Wednesday, then we can infer that she was not productive at work on Wednesday. Answer (B) is correct.

But (A) seems correct too, doesn’t it? In fact, it is NOT necessarily correct. Let’s explore the ins and outs of conditional logic in order to explain why not.

What Is a Conditional Statement?

Conditional statements have two parts: the trigger and the outcome. The most basic type of conditional statement uses “If ... then” phrasing, where the “if” portion is the trigger and the “then” portion is the outcome:

IF John attends the party, THEN Mary attends as well.

We can express this using an arrow symbol: $J \rightarrow M$ (trigger \rightarrow outcome).

[NOTE: We use an arrow symbol to indicate a conditional relationship, and we’ve also used an arrow symbol to express the “therefore” in an argument core. These aren’t the same thing—don’t confuse them.]

This essentially means that John attending the party (the trigger) is enough to guarantee that Mary will attend as well (the outcome). John's attendance is sufficient to trigger Mary's attendance. Another way to think of it is that Mary necessarily attends if John attends. You can't have John without Mary. So, we can say that the first part of the statement is the sufficient condition, and the second part is the necessary condition. In fact, this is the formal way to refer to the two parts of a conditional statement.

SUFFICIENT CONDITION: John attends the party. (The trigger is enough, or sufficient, to guarantee the outcome.)

NECESSARY CONDITION: Mary attends the party as well. (The outcome necessarily happens when the trigger occurs.)

Conditional Inferences

When you are presented with a conditional statement on the LSAT, your primary job will be to figure out what inferences you *can* make from the given statement and what inferences you *cannot* make. Take the following example:

If Sally lives in Boston, then Sally lives in Massachusetts. $B \rightarrow M$

Given the statement above, consider the following inferences. Which ones do you think are valid? Think about them from a common sense standpoint based on what you know about geography.

1. If Sally does not live in Boston, then Sally does not live in Massachusetts. $\neg B \rightarrow \neg M$
2. If Sally lives in Massachusetts, then Sally lives in Boston. $M \rightarrow B$
3. If Sally does not live in Massachusetts, then Sally does not live in Boston. $\neg M \rightarrow \neg B$

If you said that the third inference is the only valid inference, you are correct! The first two don't make any sense because Sally could certainly live in a different part of Massachusetts, say Worcester, MA.

Let's summarize all the statements in notation form:

Given	$B \rightarrow M$	
Bad inference	$\neg B \rightarrow \neg M$	Illegal negation
Bad inference	$M \rightarrow B$	Illegal reversal
VALID INFERENCE!	$\neg M \rightarrow \neg B$	Reverse & Negate!

From this example, we can make a general rule. This rule states that whenever we have a conditional statement, we can make one valid inference from that statement. That inference is called the contrapositive:

CONTRAPOSITIVE: The reversed and negated version of a given conditional statement.

All other inferences are invalid! Don't be tempted to make any other inferences aside from the contrapositive. Let's practice this. Take the contrapositive of the following conditional statement:

If a passenger has no ticket, she cannot board the plane.

We can diagram this statement as:

-ticket \longrightarrow -board

To get the contrapositive, we'd reverse and negate:

board \longrightarrow ticket

Now, putting that back into English:

If a passenger has boarded the plane, she has a ticket.

Revisiting Jasmine

Here's our example from earlier. Take a second now to think about why (A) is NOT a correct answer:

When Jasmine wakes up early in the morning she is not productive at work that day. Jasmine woke up early in the morning on Wednesday.

If the above statements are true, which one of the following must also be true?

- (A) If Jasmine was unproductive at work on any particular day, then she must have woken up early on that day.
- (B) Jasmine was not productive at work on Wednesday.

If you said (A) illegally reverses the logic, you would be correct! The original statement says: When Jasmine wakes up early in the morning she is not productive at work that day.

We can symbolize this as: $E \rightarrow \neg P$.

Answer (A) says: If Jasmine was unproductive at work on any particular day, then she must have woken up early on that day.

We can symbolize this as: $\neg P \rightarrow E$.

Notice that this is simply the reverse of the original. Bad inference! Couldn't there be other reasons why she was unproductive at work? Maybe her phone kept ringing. Maybe the fire alarm went off. Maybe she was sick.

Okay. Now you know the very basics when it comes to conditional logic. There's much more to learn later on, but for now let's get back to the last example question. Let's review where we left off...

Conclusion

In this chapter, we've emphasized the following:

1. Assumption Family Questions. These are the most common questions on the exam. While they appear in various forms, all Assumption Family questions require you to analyze an argument and identify gaps in logic.

2. Read Like a Debater. To read quickly and efficiently, you must read with a purpose. On Assumption Family questions, think about reading through the eyes of a debater. What's the main conclusion? What's the evidence used to support the conclusion? What are the gaps in the logic? Be critical!

3. The Argument Core. We defined the basic concept of the argument core: $P \rightarrow C$. We developed skills for identifying the $P \rightarrow C$ relationship, and we examined common variations on the standard $P \rightarrow C$ form.

4. Using the Core to Solve Assumption Family Questions. We've shown examples of how to use the core to solve Assumption Family questions.

Now it's time to examine the various Assumption Family question types in greater detail. Let's get to it.

If you want some extra practice in identifying the parts of arguments, try playing "Name That Role" in the LSAT Arcade: www.manhattanlsat.com/arcade.