**Formal Logic Deconstruction**

**Formal Logic Diagrams**

1. Choosing symbols to represent each variables
2. Conditional reasoning terms and diagrams

1) The Single Arrow (🡪) Introduced by sufficient and necessary words such as: if...then, when, all, every, and only, where both elements are positive or both elements are negative.

2) The Double Arrow (🡨🡪) Introduced by “if and only if” or by situations where the author implies that the arrow goes “both ways,” such as by adding “vice versa” after a conditional statement. Double-arrow statements allow for only two possible outcomes: the two variables occur together, or the neither of the two variables occur.

3) The Double-Not Arrow (🡨l🡪) Introduced by conditional statements where exactly one of the terms is negative, or by statements using words such as “no” and “none” that imply the two variables cannot “go together.”

1. New Terms and Diagrams

1) Some

Some: at least one/some, a few, a number, several, part of a portion, possibly all (some includes the possibility of all)

Some are not: at least one is not, possibly all are not, not all

2) Most

Most: a majority, more than half, more often than not(通常，多半), almost all, usually, typically, possibly all (most includes the possibility of all)

Most are not: at majority are not, possibly all are not

3) Formal Logic Relationship Indicators Defined Numberically

All=100

Most=51 to 100 (a majority)

Some are not=0 to 99 (not all)

Most are not=0 to 49

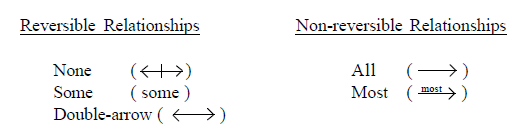
Some=1 to 100(at least one)

None=0

**The Rules of Reversibility**

Reversibility: the relationship between the two variables has exactly the same meaning regardless of which “side” of the relationship is the starting point of your analysis. You can analyze the relationship from either “side” and still arrive at the same conclusion.

Non-reversibility: a single “direction,” the relationship between the two variables is not the same.



1. *Some are not* statements are also reversible.

A some B means some A’s are not B’s, or some things that are not B are A’s. 即B some A

B some A means some B’s are not A’s 和A some B不同

所以you must be careful when doing so in order to avoid accidentally moving the “not.”

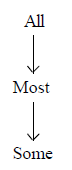
2. Non-reversible: A all B, A most B 可以替换为 reversible: A some B)

**Inherent versus Additive Inferences**

Additive inferences result from combining multiple statements through a common term and then deducing a relationship that does not include the common term.

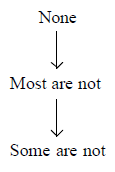
Inherent inferences follow from a single statement, and they are inferences that are known to be true simply from the relationship between the two variables.

**The Logic Ladder**



The upper rungs automatically imply the lower rungs, but the lower rungs do not automatically imply the upper rungs.

**The Negative Logic Ladder**



The upper rungs automatically imply the lower rungs, but the lower rungs do not automatically imply the upper rungs.

**Two Rules of Diagram Creation**

1. Always combine common terms

You must always combine like terms through Linkage. And each variable should appear only one time

(eg. A some B; B🡪C. B is common to both diagram. So A some B🡪C)

1. There is no traditional direction in logic

(既可以从左到右，又可以从右到左。既可以从上到下，又可以从下到上。根据个人习惯而定)

**Making Formal Logic Inferences**

The key to analyzing Formal Logic diagrams is to know where to begin your inferential analysis. The most reliable method of making inferences is to look for known patterns and relationships within the diagram.

1. Start by looking at the ends of the chain.

Variables that are linked in only one relationship are “open”; variables that are linked in two or more relationships are “closed.”

To make inferences, first examine open variables, and thereafter examine closed variables

1. The vast majority of additive inferences require either an *all* or *none* statement somewhere in the chain.

In fact, either *all* or *none* (or both) are present in almost every Formal Logic diagram that produces additive inferences.

1. When looking to make inferences, do not start with a variable involved in a double-not arrow relationship and then try to “go across” the double-not arrow.
2. The Some Train

To make an inference with a variable involved in a *some* relationship, an arrow “leading away” from the *some* relationship is required.

To make our inference, we look at two elements:

1) The weakest link in the chain (relationship in inference)

2) The presence of relevant negativity (是否需要”not” slash)

1. The Most Train

Most Train produces stronger inferences.

Most Train is that most has direction, you can only follow the most-arrow to make a *most* inference. If you go “against” the arrow, the relationship will devolve to *some*, which is the inherent inference.

Determine the weakest link:

1) Some—this is the broadest term and the least definite; therefore it is the weakest.

2) Most—this is more definite than Some.

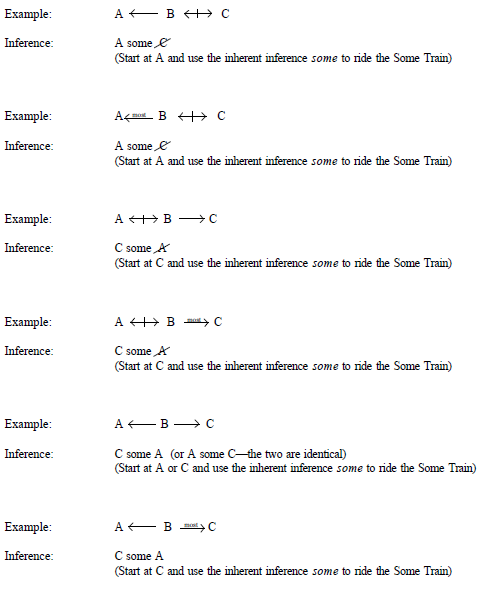
3) All and None—these two terms are the most definite, and though they are polar opposites, they are equal in power.

1. Arrows and double-not arrows

Any combination of an arrow and a double-not arrow in succession will yield an inference (although inherent inferences may be needed to make the inference). Any combination of two arrows may yield an inference depending on the configuration. A combination of two double-not arrows in succession does not yield an inference.

1. Use inherent inferences

use an inherent inference to make an additive inference



1. Watch for the relevant negativity

The presence of relevant negativity:

1) Either the first or last term is negated, or

2) There is a double-not arrow in the chain (will always appear just before the last station)

One point of irrelevant negativity is if the negative is on the middle station.

Some “intermediate” stations in a three-variable chain is negative. It should be bypassed.

1. Some and Most Combinations

In general, two consecutive *some’s*, two consecutive *most’s*, or a *some* and *most* in succession will not yield any inferences

Two most’s do not yield an inference, unless you have further numerical information about the size of the groups.

A problem involving two most’s that has appeared on the LSAT and does yield an inference  可替换为 A some C. This inference can only occur when the two most’s each “lead away” from the middle variable.

1. Analyzing Compound Statements

1) Recycle your inferences to see if they can be used to create further inferences.

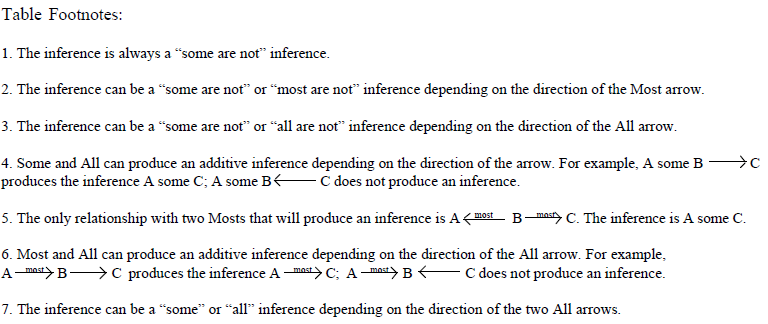
2) Make sure to check the closed variables.

1. Once an inference bridge is built, it does not need to be built again

If an inference can be made from one “side” of the relationship, that is enough to establish the inference even if the inference cannot be made from the other side.

ΔThe majority additive inferences that can be drawn by combining two relationships





**常考题点**

**If-Then Statements**Example: If you run a **red** light in Beijing, then you will get a **ticket** for 300 RMB.  
To diagram this statement, let’s shorten the original statement by representing each clause with one letter:  
If **R**, then **T**.  
**R** stands for “you run a **red** light in Beijing”  
**T** stands for “you will get a **ticket** for 300 RMB”  
From the original statement, we can infer that:  
If **not T**, then **not R**.  
In other words, if someone has never gotten a ticket (not T), then that person must not have run a red light in Beijing (not R). Basically, the new statement switches the clauses and then negates both variables. This new if-then statement or inference is called a “contrapositive.” If the original statement is true, then contrapositive must also be true. Because both the original and the contrapositive statements are logically equivalent, the contrapositive is just another way of stating the original statement.  
  
Common Mistakes  
The problem is that many people apply only one of the steps above. They only switch or they only negate. Neither of these two operations on the original statement will produce an equivalent of the original one.  
Original: If you run a **red** light in Beijing, then you will get a **ticket** for 300 RMB. (If **R**, then **T**.)  
Mistake one: If you got a **ticket** for 300 RMB, then you ran a **red** light in Beijing. (If **T**, then **R**.)  
The problem is you might be fined because you were speeding, not because you were running a red light. So we cannot conclude that “you ran a red light” simply because “you got a ticket.”  
Mistake two: If you did not run a **red** light in Beijing, then you will not get a **ticket** for 300 RMB.  
Again, this statement is obviously wrong since you could get a ticket for speeding.  
  
Negating And and Or  
When you negate and, it becomes or. And when you negate or, it becomes and.  
Example:  
Statement: If you eat a **poison**, you will get **sick** and call your **mom**.  
If P, then S and M  
Contrapositive:  
If you did not get **sick** or did not call your **mom**, you did not eat a **poison**.  
If not S or not M, then not P.  
It is important to use or here because using and would go too far.  
  
**Only If**  
Like the words if and then, the phrase only if can also create and if-then relationship. But it can be confusing. Even though only if ends with if it does not introduce the if-clause. In fact, only if introduce the then-clause; whatever comes immediately after only if is then then-clause. The rest of the statement is the if-clause.  
Example:  
Ming attends the meeting only if Hua attends.  
Translation: If Ming attends the meeting, then Hua attends.  
Only if you wear a shirt will you enter this restaurant.  
Translation: If you enter this restaurant, then you were a shirt.  
  
**If and Only If**The phrase if and only if actually introduces two rules. Consider this example:  
The Shanghai Shark will win the tournament if, and only if, it has Yao Ming as its center.  
In this sentence, both if and only if introduce the last clause—“it has Yao Ming as its center.” Yet if introduces if-clause and only if introduces then-clause.  
Translation: “If Shanghai Shark has Yao Ming as its center, then it will win the tournament” and “If the Shanghai Shark won the tournament, then it had Yao Ming as its center.”

**Unless**  
The word unless can also create an if-then relationship. But it can be the most confusing and counterintuitive “logic” word. Consider this example:  
Your CR score will not be high unless you study formal logic.  
There are two ways to translate this statement into if-then clauses:  
1) If your CR score is high, then you have studied formal logic.  
2) If you did not study formal logic, then your CR score will not be high.  
The second method is the foolproof way, which replaces unless with if not. The preferred way is the first method, which negate the clause before unless and cap it with if, and replace unless with then. Basically the clause after unless is the necessary condition which must happen for the negated form of the other clause. Back to the example we have here, “study formal logic” is a necessary step for one to get high score in CR. Without “studying formal logic”, one would not be able to score a high mark in CR. But “studying formal logic” alone might not be sufficient to help you score high in CR.  
When the unless-clause comes at the beginning of the sentence, everything between the word unless and the comma is the unless-clause.  
  
**Either**  
The word either can also create an if-then relationship. Consider this example:  
Either Peking University or Tshinghua University is on the list of my dream schools.  
Given this rule, if PKU is not on my list, then THU is on my list because one of them must be. Further, the rule does not exclude the possibility that both schools are on my list. Therefore, the correct way to say the same thing using if-then clauses is:  
If PKU is NOT on my list, then THU is.  
Notice the word NOT is added to the if-clause, not the then-clause. Otherwise, we would make the mistaken assumption that both schools cannot be on the list together, which is not necessarily true—at least on the GMAT or LSAT.  
  
**Hidden if-then statements**  
Many if-then statements on the test are hidden because they do not use if or then. Instead, they use words like all, any, when, must and so on. Consider this example:  
All Chinese students are diligent.  
Translation: If you are a Chinese student, then you are diligent. (I truly hope so!!)  
The trick here is that all means if.  
There are also words that mean then. Here is another example:  
Reading SDCAR’s posts on CR requires good understanding of English.  
Translation: If you can read SDCAR’s posts on CR, then you have good understanding of English. (Pat yourself on the back, please!!)  
Here are more words you can use to find hidden if-then statements:  
If: All, always, any, each, every, in order to, invariably, no, none, things that, those who, to, when.  
Then: Depends on, essential, must, necessary, needs, only, only if, only when, prerequisite, requires.  
Unless (if not): Except, until, without.  
  
**No**  
When you see no at the beginning of a sentence, change no to if and negate the other clause, which is your then clause. Example:  
No one who has a cold should go outside. (No X is Y.)  
Translation: If you have a cold, then you should NOT go outside. (If X, then NOT Y.)  
  
**Most, some, and not all**  
Most means more than half. Most could be all.  
Some means at least one. Some = Many. Some could be most, could be all.  
Not all means some did not. Not all could be none.

**Must be true**

Must Be True questions require you to read text and understand the facts and details that logically follow.

Your performance on Must Be True questions is often a predictor of your overall Logical Reasoning score. (说明must be true 这类题型较难，但可以反映一个人CR的真实水平)

**Question stem**

If the statements above are true/correct…

The statement above, if true…

+

…which one of following must also be true?

…which one of the following conclusions can be properly drawn on the basis of it?

…most strongly support which one of the following?

…which one of the following is most strongly/ best/ most supported by the information above?

…which one of the following can be properly inferred…

实质: What did you read in the stimulus, and what do you know on the basis of that reading?

**Correct Answer**

1. Paraphrased Answer 改写

Restate a portion of the stimulus in different terms

1. Combination Answer

Answers that are the sum of two or more stimulus statements

**Incorrect Answer**

1. Could Be True or Likely to Be True Answers

You must select an answer choice that must occur based on what you have read

1. Exaggerated Answers

Exaggerated Answers take information from the stimulus and then stretch that information to make a broader statement that is not supported by the stimulus.

the exaggeration is possible, but not proven based on the information

1. “New” Information Answers

To avoid incorrectly eliminating a New Information answer, take the following two steps:

1) Examine the scope of the argument to make sure the “new” information does not fall within the sphere of a term or concept in the stimulus.

2) Examine the answer to make sure it is not the consequence of combining stimulus elements.

1. The Shell Game

An idea or concept is raised in the stimulus, and then a very similar idea appears in the answer choice, but the idea is changed just enough to be incorrect but still attractive

5．The Opposite Answer

an answer that is completely opposite of the stated facts of the stimulus

(appear quite frequently in Strengthen and Weaken questions)

1. The Reverse Answer

It contains familiar elements from the stimulus, but the reversed statement is incorrect because it rearranges those elements to create a new, unsupported statement. Eg. 将两个不同对象之前的scope indicator互换

**做题过程/要点**

1. 认真读stimulus。Must be true的stimulus多为fact sets，少有argument。

Objective #1 a fact set (there is no conclusion in the stimulus) or an argument.

Objective #2 stimulus can be broken down into some components and examine each fact

1. 根据stimulus预测正确答案(prephrasing with answer)。Fact sets的prephrasing有些困难
2. Objective 4：Read closely and know precisely what the author said. Do not generalize!

**技巧**

1. the scope of stimulus

一个stimulus的scope有broad和narrow之分

Broad代表可能性相对较小，范围较大较普遍，以及数量上的不定 eg. some, could, many

Narrow代表可能性相对较大，范围较小，以及数量上的绝对和确定 eg. most, must, entirely

在读stimulus时，要注意这些表示scope的indicator以及他们所修饰的动词和名词，这些scope不能随意添加删除或改变。

1. When a stimulus contains only the opinions of others, then in a Must Be True question you can eliminate any answer choice that makes a flat assertion without reference to those opinions. Eg. It is… or There is…

Opinions do not let us know the actual facts of the situation

1. When you are reading a stimulus, keep a careful watch on the statements the author offers as fact, and those that the author offers as the opinion of others.

(即如果stimulus里作者陈述的是一些事实，答案也是一些事实，通常会使用it is…or there is这类表示事实存在的句子。如果stimulus里作者陈述的是他人的观点，则不会出现it is…or there is这类表示事实存在的句子)

1. 通读全文，重视最后一句。大多数正确答案都是最后一句的重写或者逆否命题和前面某句的融合，利用相同元素进行合并，特别是原文有充分必要条件推理的。排除文中找不到依据的选项以及与最后一句无关的选项。文中不能出现新信息(新比较，新地名人名，新极端词)。特别要注意数量上和可能性上的词的差别(numbers, percentages)

此类题型的答案并不是包含所有的premise，但是必须用到最后一个premise

1. 越模糊的结论越能成为此类题的答案。
2. 若问题问的是support/ infer，正确答案可能是最后一句类似表达或类似的否命题。否命题在support/ infer的归纳中是正确答案

**Main Point/Fill in the Blank**

Main Point questions are a subcategory(子范畴) of Must Be True questions and fall into the First Family type.

Fill in the Blank questions are simply Main Point questions in disguise. They are approached in the same manner as any First Family question, but the emphasis is on using the contextual clues provided in the stimulus to find the choice that best fits the blank. There is a conclusion indicator at the start of the sentence to help you recognize that you are being asked to fill in the conclusion of the argument.

**Question Stem**

Which one of the following most accurately expresses/restates the main point/conclusion of the argument?

**Correct Answer**

1. Must pass the Fact Test and be true according to the stimulus
2. Must capture and summarize the author’s point

**Incorrect Answer**

1. Answers that are true but do not encapsulate the author’s point.

2. Answers that repeat premises of the argument.

**做题过程/要点**

1. identify the conclusion of the argument, and the correct answer choice to these problems will be a rephrasing of the main conclusion of the argument

(Conclusion Identification Methodology: 先设定一个为p，另一个为c，然后用because和so连接起来看能不能make sense；不能则互换角色再验证)

**技巧**

1. many Main Point problems feature a structure that places the conclusion either at the beginning or in the middle of the stimulus
2. any answer that is a paraphrase of the conclusion of the argument will be the correct answer to a Main Point question
3. If an argument contains two conclusions you will be forced to identify which one is the main conclusion and which one is the subsidiary conclusion.
4. 综上可知，此类题的答案都是main conclusion的改写。答案必须和main conclusion有关，且必须依照stimulus
5. Main point里很多错误选项是inference（推论），尤其是用if…的句子的选项

**Conditional Reasoning**

**概念**

1. Any conditional statement consists of at least one sufficient condition and one necessary condition.

A sufficient condition can be defined as an event or circumstance whose occurrence indicates that a necessary condition must also occur.

A necessary condition can be defined as an event or circumstance whose occurrence is required in order for a sufficient condition to occur.

1. If a sufficient condition occurs, you automatically know that the necessary condition also occurs. If a necessary condition occurs, then it is possible but not certain that the sufficient condition will occur.
2. The necessary condition has been fulfilled does not mean that the sufficient condition must occur. The sufficient condition has not been fulfilled does not mean that the necessary condition cannot occur.
3. Conditional statements are often brought up using the “if...then” construction.
4. When an author makes a conditional statement, he or she believes that statement to be true without exception.
5. Sufficient condition always comes at the “beginning” of the arrow, and the necessary condition always comes at the “end” of the arrow.
6. Sufficient🡪Necessary
7. Double arrow: two terms must always occur together. Each term is both sufficient and necessary for the other.

two scenarios: either occur together or both do not occur

three ways: a. use “if and only if”

b. use “vice versa”

c. by repeating and reversing the terms (eg. if A attends then B attends, and if B attends then A attends)

1. Double Not-arrow: two terms cannot occur together

Three scenarios: A attends, B does not attend

A does not attend, B attends

Neither A nor B attends

1. Logical Features:
2. The sufficient condition does not actively cause the necessary condition to happen.

The occurrence of the sufficient condition is a sign or indicator that the necessary condition will occur, is occurring, or has already occurred.

1. Either condition can occur first, or the two conditions can occur at the same time.
2. The conditional relationship stated by the author does not have to reflect reality.

**Invalid Statements**

1. The Repeat formsimply restates the elements in the original order they appeared.
2. A Mistaken Reversal switches the elements in the sufficient and necessary conditions, creating a statement that does not have to be true.
3. A Mistaken Negation negates both conditions, creating a statement that does not have to be true.
4. The contrapositive both reverses and negates, it is a combination of a Mistaken Reversal and Mistaken Negation. A contrapositive denies the necessary condition, thereby making it impossible for the sufficient condition to occur.

Indicator Words

Sufficient: if, when, whenever, every, all, any, people who, in order to

Necessary: then, only, only if, must, required, unless, except, until, without

(Rules: 1. Either condition can appear first in the sentence.

1. A sentence can have one or two indicator)

**技巧**

1. You cannot only read the analysis of valid and invalid statements and ignore the discussion of the form of the relationships (reversal of the terms, negation of the terms, etc.) You should simply try to think through the content of the relationship.
2. Whatever term is modified by “unless,” “except,” “until,” or “without” becomes the necessary condition. The remaining term is negated and becomes the sufficient condition.

Unless/except/until/without/no A do B=if A, then not B

1. Either…or…: at least one of the two, allows for the possibility that both elements occur. Since at least one of the terms must occur, if one fails to occur then the other must occur. To further complicate the issue, occasionally our “outside” (but public domain) knowledge of the elements involved in the “either/or” construct allows us to make additional inferences.
2. Whenever you take a contrapositive of a statement with multiple terms in the sufficient or necessary condition, “and” turns into “or,” and “or” turns into “and.”

**Weaken**

**Rules**

1. The stimulus will contain an argument.
2. Focus on the conclusion.
3. The information in the stimulus is suspect. Exists reasoning errors.
4. Weaken questions often yield strong prephrases. Be sure to actively consider the range of possible answers before proceeding to the answer choices.
5. The answer choices are accepted as given, even if they include “new” information. Weaken answer choices can bring into consideration information outside of or tangential to the stimulus.
6. Stimulus里的premise的weaken在于
7. Unreasonable assumption
8. Unrepresentative survey/ samples 整体不代表部分（调查）
9. Questionable analogy/ comparison （weaken的实质是两者的本质不同）
10. Conclusion夸大了premise

**Question Stem**

Which one of the following, if true, most (seriously) weakens/ attacks/ undermines/ refute/ argue against/ call into question/ cast doubt/ challenge/ damage/ counter/ jeopardize/ rebut the argument?

**Correct Answer**

1. Attack the premises on which the conclusion rests (少用, 最好leave the premises untouched)

The one time you might see an answer choice attack a premise is when that “premise” is a sub-conclusion. That is, when a conclusion of one premise is used as a premise to support another conclusion.

1. Attack the conclusion

The key to weakening an LSAT argument is to attack the conclusion.

The correct answer choice will not simply contradict the conclusion. The correct answer will undermine the conclusion by showing that the conclusion fails to account for some element or possibility. The conclusion does not necessarily follow from the premises even if the premises are true.

1. The second key to weakening arguments is to personalize the argument.

The stimuli for weaken questions contain errors of assumption.

**Common Weakening Scenarios**

1. Incomplete Information. The author fails to consider all of the possibilities, or relies upon evidence that is incomplete. This flaw can be attacked by bringing up new possibilities or information.
2. Improper Comparison.
3. Qualified Conclusion.

**Incorrect Answer**

1. Opposite Answers: strengthen the argument as opposed to weakening it
2. Shell Game Answers

In Weaken questions, the Shell Game is usually used to attack a conclusion that is similar to, but slightly different from, the one presented in the stimulus.

1. Out of scope Answers: either not related to the argument or tangential to the argument

**Weakening Conditional Reasoning**

To weaken a conditional conclusion, attack the necessary condition by showing that the necessary condition does not need to occur in order for the sufficient condition to occur. This can be achieved by presenting a counterexample or by presenting information that shows that the sufficient condition can occur without the necessary condition.

**Attacking a cause and effect relationship**

1. Find an alternate cause for the stated effect (有它因)

Identify another cause weakens the conclusion.

1. Show that even when the cause occurs, the effect does not occur (有因无果)

a counterexample

1. Show that although the effect occurs, the cause did not occur (有果无因)
2. Show that the stated relationship is reversed (因果颠倒)
3. Show that a statistical problem exists with the data used to make the causal statement (显示因果的资料不正确)

**技巧**

1. Answer choice (E) is a great place for the test makers to place an attractive wrong answer.

Answer choice (A) is a great place to put the correct answer if the stimulus is exceedingly difficult to understand or if the question stem is extremely unusual.

1. To attack a conditional statement you must show that the necessary condition is not actually necessary for the sufficient condition to occur.
2. 表示目的的引导词: in order to, to, hope that

表示计划方案的词: plan, proposal, program

当stimulus里出现这些词，正确选项一定和计划方案所要实现的目的有关，在削弱题中即答案要使目的不能达到。如果选项仅仅有削弱作用却和目的无关，不能算作正确选项

1. 若选项中含有比较，要分清“谁与谁比”“比的是什么”
2. 表示可能或部分的模糊词不正确。Eg. some, sometimes, not at all, possible, a few, several, a small percentage of, not+极端词等，这些词只代表部分情况不能影响结论，是错误选项

**Cause and Effect Reasoning**

**概念**

1. The cause is the event that makes the other occur; the effect is the event that follows from the cause.
2. By definition, the cause must occur before the effect, and the cause is the “activator” or “ignitor” in the relationship. The effect always happens at some point in time after the cause.
3. Most causal conclusions are flawed because there can be alternate explanations for the stated relationship: another cause could account for the effect; a third event could have caused both the stated cause and effect; the situation may in fact be reversed; the events may be related but not causally; or the entire occurrence could be the result of chance.
4. Difference between Causality and Conditionality
5. The chronology of the two events can differ.

The cause must happen first and the effect must happen at some point in time after the cause.

The sufficient condition can happen before, at the same time, or after the necessary condition.

1. The connection between the events is different.

The cause physically makes the effect happen.

The sufficient condition just indicates that the necessary condition must occur.

1. The language used to introduce the statements is different.

Causal indicators are active, almost powerful words, whereas most conditional indicators do not possess those traits.

1. Understanding the assumption that is at the heart of a causal conclusion is essential to knowing why certain answers will be correct or incorrect.

When an LSAT speaker concludes that one occurrence caused another, that speaker also assumes that the stated cause is the only possible cause of the effect and that consequently the stated cause will always produce the effect.

**Indicators that introduce a cause and effect relationship**

caused by

because of

responsible for

reason for

leads to

induced by

promoted by

determined by

produced by

product of

played a role in

was a factor in

is an effect of

**Situations That Can Lead to Errors of Causality**

1. One Event occurs before another
2. Two (or more) events occur at the same time

A positive correlation is a relationship where the two values move together. A negative correlation is one where the two values move in opposite directions

**How to Attack a Causal Conclusion**

Stimuli containing causal arguments are often followed by Weaken, Strengthen, Assumption, or Flaw questions.

Attacking a cause and effect relationship in Weaken questions:

1. Find an alternate cause for the stated effect

Identify another cause weakens the conclusion.

1. Show that even when the cause occurs, the effect does not occur

a counterexample

1. Show that although the effect occurs, the cause did not occur
2. Show that the stated relationship is reversed
3. Show that a statistical problem exists with the data used to make the causal statement

**技巧**

1. If the causal statement is the conclusion, then the reasoning is flawed. If the causal statement is the premise, then the argument may be flawed, but not because of the causal statement.
2. Whenever you encounter a causal conclusion, ask yourself if the relationship must be as stated by the author or if another explanation can be found.
3. 如果stimulus里没有出现明确的因果关系标志词，“同时发生”“一前一后发生”都不是正确的因果
4. 表示可能或部分的模糊词不正确。Eg. some, sometimes, not at all, possible, a few, several, a small percentage of, not+极端词等，这些词只代表部分情况不能影响结论，是错误选项

**Strengthen, Justify the Conclusion, and Assumption Questions**

**Rules**

1. The stimulus will contain an argument.

You must identify, isolate, and assess the premises and the conclusion of the argument

1. Focus on the conclusion.
2. The information in the stimulus is suspect. Exists reasoning errors.
3. Weaken questions often yield strong prephrases. Be sure to actively consider the range of possible answers before proceeding to the answer choices.
4. The answer choices are accepted as given, even if they include “new” information. Weaken answer choices can bring into consideration information outside of or tangential to the stimulus.
5. Differences

Strengthen questions ask you to support the argument in any way possible. Any answer choice that strengthens the argument, whether by 1% or by 100%, is correct.

Justify the Conclusion questions ask you to strengthen the argument so powerfully that the conclusion is made logical. The answer to a Justify question must strengthen the conclusion so it is 100% proven; anything less and the answer choice is incorrect.

Assumption questions ask you to identify a statement that the argument assumes or supposes. An assumption is simply an unstated premise. It can therefore be defined as what is necessary for the argument to be true.

**Strengthen Questions**

**Question Stem**

Which one of the following, if true, most strengthens/ supports/ helps/ justifies/ provides the strongest ground for the argument/ statement/ conclusion above?

It can be properly inferred about…can be extended by doing which of the following?

**How to Strengthen an Argument**

1. Identify the conclusion
2. Personalize the argument
3. Look for weaknesses in the argument, close any hole or gap in the argument
4. Arguments that contain analogies or use surveys rely upon the validity of those analogies and surveys. Answer choices that strengthen the analogy or survey, or establish their soundness, are usually correct.
5. Remember that the correct answer can strengthen the argument just a little or a lot.

**Incorrect Answer**

1. Opposite Answers: weaken the argument d
2. Shell Game Answers

In Strengthen questions, the Shell Game is usually used to support a conclusion that is similar to, but slightly different from, the one presented in the stimulus.

1. Out of scope Answers: either not related to the argument or tangential to the argument

**Causality and Strengthen Questions**

To strengthen a causal argument you must perform tasks that are opposite of those that weaken a causal argument.

In Strengthen questions, supporting a cause and effect relationship almost always consists of performing one of the following tasks:

1. Eliminate any alternate causes for the stated effect

Because the author believes there is only one cause

1. Show that when the cause occurs, the effect occurs
2. Show that when the cause does not occur, the effect does not occur
3. Eliminate the possibility that the stated relationship is reversed
4. Show that the data used to make the causal statement is accurate, or eliminate possible problems with the data

Any information that eliminates error or reduces the possibility of error will support the argument.

**做题过程/要点**

看问题判断是加强argument(即加强推理过程)，还是加强conclusion/hypothesis(即加强推理中的一部分)

1. 加强argument(即加强推理过程)

要弥补gap，必须有新元素，且与premise和conclusion相关

1. 加强conclusion/hypothesis(即加强推理中的一部分)

重复conclusion(举例，否命题，解释)，有可能弥补gap

**技巧**

1. A self-selecting sample is one in which individuals decide whether to participate.

Unless a survey or poll is shown to be questionable, you can typically accept the results knowing that the test makers believe survey results are valid.

1. 表示目的的引导词: in order to, to, hope that

表示计划方案的词: plan, proposal, program

当stimulus里出现这些词，正确选项一定和计划方案所要实现的目的有关，在削弱题中即答案要使目的不能达到。如果选项仅仅有削弱作用却和目的无关，不能算作正确选项

1. 表示部分情况的词: some, sometimes, a few, small percentage of, several等，这些词只代表部分情况不能影响结论，是错误选项
2. 若选项中含有比较，要分清“谁与谁比”“比的是什么”，原文中类比的support方式是两者本质相同
3. 表示可能或部分的模糊词不正确。Eg. some, sometimes, not at all, possible, a few, several, a small percentage of, not+极端词等，这些词只代表部分情况不能影响结论，是错误选项

**Justify the Conclusion Questions: sufficient assumption**

Justify the Conclusion questions require you to select an answer choice that logically proves the conclusion of the argument.

(Strengthen questions with the phrase “most justifies” in the question stem can largely be treated like Justify questions.)

**Stimuli**

Most Justify stimuli either use Conditional Reasoning or contain numbers and percentages. Because both forms of reasoning allow for certainty when drawing a conclusion.

1. Stimuli contains conditional reasoning:
2. Premise: A occurs

Conclusion: B occurs

Answer: A🡪B

1. Premise: A🡪B

Conclusion: B occurs

Answer: A occurs

1. Stimuli that contain numbers or percentages in the stimulus also allow for the exactitude these questions require.

**Question Stem**

1. The stem uses the word “if” or another sufficient condition indicator.
2. The stem uses the phrase “allows/ enables the conclusion to be properly drawn”
3. The stem does not lessen the degree of justification.

Justifying a conclusion is an exacting task with strict requirements. You are not asked to “kind of” or “somewhat” prove the conclusion. “Most justifies” or “does the most to justify,” allows for an answer that does not justify the conclusion 100%. Thus, questions with the “most justify” construction are properly classified as Strengthen questions.

A Strengthen question can support the argument anywhere from 1% to 100%. A Justify the Conclusion question must prove the conclusion 100%.

Which one of the following, if assumed/ true, would allow/ enable the conclusion to be properly drawn/ inferred?

Which one of the following is an assumption that would serve to justify the conclusion above?

The conclusion above follows logically/ is properly drawn/ inferred if which one of the following is assumed?

(避免用一些限定词，如most，most justify)

**Correct Answer**

The correct answer proves the conclusion by adding a piece of information to the premises that makes the reasoning structure valid.

The correct answer is sufficient to make the conclusion follow logically. This does not mean that the answer choice must contain a sufficient condition indicator or that the argument must be conditional in nature (although many are)!

**技巧**

1. Justify Formula: Premises + Answer choice = Conclusion

When approaching this question, first separate the answers into Contenders and Losers. Then apply the Justify Formula to the remaining Contenders

This approach requires you to reduce the stimulus to its component parts (a process that occurs naturally as you identify premises and conclusions), and then identify which elements appear in the conclusion but not in the premises.

Rule: link new elements in the premises and conclusion and ignore elements common to both.

1. Any “new” element in the conclusion will appear in the correct answer.
2. Elements that are common to the conclusion and at least one premise normally do not appear in the correct answer.
3. Elements that appear in the premises but not the conclusion usually appear in the correct answer.
4. 正确答案常用在文章中相同的词句
5. 正确答案里常有一些strong words: all, only, no, none, most, always

**Assumption Question: necessary assumption**

**概念**

1. An assumption is simply an unstated premise of the argument; that is, an integral component of the argument that the author takes for granted and leaves unsaid.

Because an assumption is an integral component of the author’s argument, a piece that must be true in order for the conclusion to be true, assumptions are necessary for the conclusion.

Conclusion Valid 🡪 Assumption True

1. Compare Assumption Questions with Must Be True Questions:
2. Assumption answers contain statements that were used to make the conclusion; Must Be True answers contain statements that follow from the argument made in the stimulus.
3. In both cases, however, there is a stringent requirement that must be met: Must Be True answers must be proven by the information in the stimulus; Assumption answers contain statements the author must believe in order for the conclusion to be valid.

**Question Stem**

1. The stem uses the word “assumption,” “presupposition,” or some variation.
2. The stem never uses the word “if” or any other sufficient condition indicator.

Because an assumption is a necessary part of the argument, no sufficient condition indicators can appear in the question stem. The stem of an Assumption question will likely contain a necessary condition indicator such as required or unless.

“Which one of the following is an assumption/ presupposition required/ depended by the argument above?”

“The argument/ position/ conclusion above assumes/ presupposes/ relies on/ depends on which one of the following?”

“The conclusion cited does not follow unless”

**Correct Answer**

1. The answer you select as correct must contain a statement that the author relies upon and is fully committed to in the argument.
2. An assumption is described solely as a linking statement, one that links two premises or links a premise to the conclusion. Assumptions play one of two roles—the Supporter or the Defender.
3. The Supporter role is the traditional linking role, where an assumption connects the pieces of the argument. Supporters often connect “new” or “rogue” pieces of information in the argument, the Supporter role generally appears similar to the Justify the Conclusion answers discussed in the previous section. In fact, a number of correct Justify the Conclusion answers are assumptions of the argument, especially when the argument contains a conditional structure. A Supporter assumption answer will almost certainly close the gap or link the new element back to the premises.
4. The Defender role is entirely different, and Defender assumptions protect the argument by eliminating ideas that could weaken the argument. By assuming that any threat to the argument does not exist, the author can present the argument and claim it is valid.
5. Supporter answer choices lend themselves well to prephrasing. Defender answers do not because there are too many possibilities to choose from.

**Three Quirks of Assumption Question Answer Choices**

1. Watch for answers strarting with the phrase “at least one” or “at least some”.
2. Avoid answers that claim an idea was the most important consideration for the author.

These answers typically use constructions such as “the primary purpose,” “the top priority,” or “the main factor.” In every Assumption question these answers have been wrong, unless the author specifically discusses the prioritization of ideas in the stimulus.

1. Watch for the use of “not” or negatives in assumption answer choices.

Defender answer choices frequently contain negative terms such as “no,” “not,” and “never.”

**常考题型**

1. Conditionality
2. If conditional statements are linked together in the argument, the correct answer choice for an Assumption question will typically supply a missing link in the chain or the contrapositive of that link.
3. If no conditional chains are present and only a conditional conclusion exists, the correct answer will usually deny scenarios where the sufficient condition occurs and the necessary does not. In other words, the assumption in these arguments always protects the necessary condition (that is, it works as a Defender). If you see a conditional conclusion and then are asked an Assumption question, immediately look for an answer that confirms that the necessary condition is truly necessary or that eliminates possible alternatives to the necessary condition.

条件句出现在conclusion里时，

错误的选项一般是：

1. 充分条件发生而必要条件不发生的情况
2. 充分条件不能推出必要条件的发生

正确答案一般是：

1. 否认充分条件发生而必要条件不发生的情况
2. 肯定必要条件的真实必要性
3. 排除其他的必要条件

2. Causality

Because the author always assumes that the stated cause is the only cause, Assumption answer choices tend to work exactly like Strengthen answer choices in arguments with causal reasoning.

Correct answer:

1) Eliminate any alternate causes for the stated effect (无他因)

2) Show that when the cause occurs, the effect occurs (有因有果)

3) Show that when the cause does not occur, the effect does not occur (无因无果)

4) Eliminate the possibility that the stated relationship is reversed (因果没有颠倒)

5) Show that the data used to make the causal statement is accurate, or eliminate possible problems with the data (显示因果的资料是正确的)

**技巧**

1. **The Assumption Negation Technique**
2. Attention: Do not use the Assumption Negation Technique on all five answer choices. Only apply the technique once you have narrowed the field.
3. Steps
4. Logically negate the answer choices under consideration

Negating a statement means to alter the sentence so the meaning is logically opposite of what was originally stated.

1. The negated answer choice that attacks the argument will be the correct answer.

Conclusion Valid 🡪 Assumption True ==> Assumption True🡪 Conclusion Valid

Negating the answer choices turns an Assumption question into a Weaken question.

1. Negating
2. Negating a statement consists of creating the logical opposite of the statement.

All 🡪 Not all

Some 🡪 None

(Some (1 to 100) and Not All (0 to 99) are largely the same, but they differ significantly at the extremes. Some actually includes All, the opposite of Not All, and Not All includes None, the opposite of Some. As a point of definition Not All is the same as Some Are Not.)

Always 🡪 Not always

Everywhere 🡪 Not everywhere

Sometimes 🡪 Never

Somewhere 🡪 Nowhere

Will 🡪 Might not

Could 🡪 Cannot

1. To negate a conditional statement you must show that the necessary condition is not in fact necessary.

Logical negation: A 🡪 B

Mistaken negation: A 🡪 B

2．因为有时gap不明显不好找，所以可以优先考虑含有否定句的选项

3. 若选项中含有比较，要分清“谁与谁比”“比的是什么”。比较的两者本质不是不同

4. 越极端的词越不好。因为极端词取反是模糊词，无法做削弱。而一些weak language很典型，eg. possible, likely, often, many

**Flaw in the Reasoning Questions**

**Question Stem**

the question stem indicates that the reasoning in the stimulus is flawed (you need not make a determination of the validity of the stimulus)

The reasoning/argument is flawed/ vulnerable/ questionable/ fallacious because/ on the ground that it …

Which one of the following most accurately describes a flaw in the argument’s reasoning?

Common errors

1. Uncertain Use of a Term or Concept

As an argument progresses, the author must use each term in a constant, coherent fashion. Using a term in different ways is inherently confusing and undermines the integrity of the argument. (一个词在整个论证过程中只能代表一个含义，如果出现使用不同的含义，就削弱了整个argument)

“depending on the ambiguous use of a key term”

“it confuses two different meanings of the word ‘solve’ ”

“relies on interpreting a key term in two different ways”

“equivocates with respect to a central concept”

“allows a key term to shift in meaning from one use to the next”

“fails to define the term”

1. Source Argument (ad hominem 人身攻击，对人不对事)

This type of flawed argument attacks the person (or source) instead of the argument they advance. A speaker can never validly attack the character or motives of a person; instead, a speaker must always attack the argument advanced by a person.

A source argument can take different forms: Focusing on the motives of the source or the actions of the source.

“makes an attack on the character of opponents”

“it is directed against the proponent of a claim rather than against the claim itself”

“he directs his criticism against the person making the argument rather than directing it against the argument itself”

“it draws conclusions about the merit of a position and about the content of that position from evidence about the position’s source”

“assuming that a claim is false on the grounds that the person defending it is of questionable character”

1. Circular Reasoning

In circular reasoning the author assumes as true what is supposed to be proved. The premise supports the conclusion, but the conclusion equally supports the premise, creating a “circular” situation where you can move from premise to conclusion, and then back again to the premise.

“it assumes what it seeks to establish”

“argues circularly by assuming the conclusion is true in stating the premises” “presupposes the truth of what it sets out to prove”

“the argument assumes what it is attempting to demonstrate”

“it takes for granted the very claim that it sets out to establish”

“it offers, in place of support for its conclusion, a mere restatement of that conclusion”

验证方法：Could the conclusion support the premise?

🡪Yes. 🡪The argument is circular. It assumes what it is trying to prove.

🡪No. 🡪Not circular.

1. Errors of Conditional Reasoning

Focus on the error common to both: confusing the sufficient condition with the necessary condition

If you identify a stimulus with conditional reasoning and are asked a Flaw question, you can quickly scan the answers for the one answer that contains “sufficient/ assured,” “necessary/ required,” or both.

Note that the authors can either mistake a necessary condition for a sufficient condition, or mistake a sufficient condition for a necessary condition:

1. Confuses a necessary condition for a sufficient condition

“it treats something that is necessary for bringing about a state of affairs as something that is sufficient to bring about a state of affairs”

“from the assertion that something is necessary to a moral order, the argument concludes that that thing is sufficient for an element of the moral order to be realized”

1. Confuses a sufficient condition for a necessary condition

“confuses a sufficient condition with a required condition”

1. Mistaken Cause and Effect

Because of the extreme causal assumption made by LSAT authors (that there is only one cause), any of the following answer choice forms could be used to describe an error of causality.

1) Assuming a causal relationship on the basis of the sequence of events.

“mistakes the observation that one thing happens after another for proof that the second thing is the result of the first”

“mistakes a temporal relationship for a causal relationship”

2) Assuming a causal relationship when only a correlation exists.

“confusing the coincidence of two events with a causal relation between the two”

“assumes a causal relationship where only a correlation has been indicated”

3) Failure to consider an alternate cause for the effect, or an alternate cause for both the cause and the effect.

“fails to exclude an alternative explanation for the observed effect”

“overlooks the possibility that the same thing may causally contribute both to education and to good health”

4) Failure to consider that the events may be reversed.

“the author mistakes an effect for a cause”

If you identify a stimulus with causal reasoning and are asked a Flaw question, quickly scan the answers for one that contains “cause,” “effect,” or both.

1. Straw Man (在攻击对手时忽略其论据事实而歪曲或重制论据)

This error occurs when an author attempts to attack an opponent’s position by ignoring the actual statements made by the opposing speaker and instead distorts and refashions the argument, making it weaker in the process.

Often this error is accompanied by the phrase “what you’re saying is” or “if I understand you correctly,” which are used to preface the refashioned and weakened argument.

“refutes a distorted version of an opposing position”

“misdescribing the student representative’s position, thereby making it easier to challenge”

“portrays opponents’ views as more extreme than they really are”

“distorts the proposal advocated by opponents”

1. General Lack of Relevant Evidence for the Conclusion

Some authors fail to provide any information to support their conclusion or they provide information that is irrelevant to their conclusion.

“The author cites irrelevant data.”

“draws a conclusion that is broader in scope than is warranted by the evidence advanced”

“It uses irrelevant facts to justify a claim about the quality of the disputed product.”

“It fails to give any reason for the judgment it reaches.”

“It introduces information unrelated to its conclusion as evidence in support of that conclusion.”

常用和premise里相同的words所以会显得很像

1. Internal Contradiction/ Self-contradiction

This error occurs when an author makes conflicting statements.

“bases a conclusion on claims that are inconsistent with each other”

“the author makes incompatible assumptions”

“introduce information that actually contradicts the conclusion”

“offers in support of its conclusion pieces of evidence that are mutually contradictory”

“some of the evidence presented in support of the conclusion is inconsistent with other evidence provided”

“assumes something that it later denies, resulting in a contradiction”

1. Appeal Fallacies
2. Appeal to Authority

An Appeal to Authority uses the opinion of an authority in an attempt to persuade the reader. The flaw in this form of reasoning is that the authority may not have relevant knowledge or all the information regarding a situation, or there may a difference of opinion among experts as to what is true in the case.

“the judgement of experts is applied to a matter in which their expertise is irrelevant”

“the argument inappropriately appeals to the authority of the mayor”

“it relies on the judgment of experts in a matter to which their expertise is irrelevant”

“accepts a claim on mere authority, without requiring sufficient justification”

1. Appeal to Popular Opinion/Appeal to Numbers

This error states that a position is true because the majority believes it to be true. An appeal to popular opinion does not present a logical reason for accepting a position, just an appeal based on numbers.

“it treats popular opinion as if it constituted conclusive evidence for a claim”

“attempts to discredit legislation by appealing to public sentiment”

“a claim is inferred to be false merely because a majority of people believe it to be false”

“the argument, instead of providing adequate reasons in support of its conclusion, makes an appeal to popular opinion”

1. Appeal to Emotion

An Appeal to Emotion occurs when emotions or emotionally-charged language is used in an attempt to persuade the reader.

“attempts to persuade by making an emotional appeal”

“uses emotive language in labeling the proposals”

“the argument appeals to emotion rather than reason”

1. Survey Errors
2. The survey uses a biased sample.

(Self-selected sample is that the individuals being polled decided whether or not to respond. That opportunity introduces bias into the survey process because certain types of individuals tend to respond to surveys whereas others do not.)

当研究某个group时，必须用随机样本(random sample), 否则结果为flaw。

“uses evidence drawn from a small sample that may well be unrepresentative”

“generalizes from an unrepresentative sample”

1. The survey questions are improperly constructed.

The survey question is confusing or misleading.

Tempting: 引诱

Eg. Do you support reasonable reform? (这个问题会诱导回答者说they do，因为如果他们说do not会表达他们支持unreasonable reform)

Confusing: 多重否定使人confusing

Eg. Do you think we should kill A or stop searching for him? (这个问题表示只有两个选择)

Misleading: 问法趋向于某种选择

Eg. Do you have a higher elasticity for bread or cheese? (这个问题是在问Are you more sensitive to change in price for bread or cheese?或是在问which food prices do you monitor more closely? )

“states a generalization based on a selection that is not representative of the group about which the generalization is supposed to hold true”

1. Respondents to the survey give inaccurate responses.

People do not always tell the truth when responding to surveys. Two classic questions that often elicit false answers are “What is your age” and “how much money do you make each year?” (过于隐私的问题)

1. Exceptional Case/Overgeneralization

This error takes a small number of instances and treats those instances as if they support a broad, sweeping conclusion.

“supports a universal claim on the basis of a single example”

“The argument generalizes from too small a sample of cases”

“Too general a conclusion is made about investing on the basis of a single experiment”

“bases a general claim on a few exceptional instances”

1. Errors of Composition and Division

Composition and division errors involve judgments made about groups and parts of a group.

1. An error of composition occurs when the author attributes a characteristic of part of the group to the group as a whole or to each member of the group. (以偏概全)

“assuming that because something is true of each of the parts of a whole it is true of the whole itself”

“improperly infers that each and every scientist has a certain characteristic from the premise that most scientists have that haracteristic”

“takes the view of one lawyer to represent the views of all lawyers”

1. An error of division occurs when the author attributes a characteristic of the whole (or each member of the whole) to a part of the group. (大而概之)

“presumes, without providing justification, that what is true of a whole must also be true of its constituent parts”

1. 这部分对不一定另一部分也对
2. False Analogy

A False Analogy occurs when the author uses an analogy that too dissimilar to the original situation to be applicable.

“treats as similar two cases that are different in a critical respect”

“treats two kinds of things that differ in important respects as if they do not differ”

1. False Dilemma

A False Dilemma assumes that only two courses of action are available when there may be others. Phrases such as “either A or B will occur, but not both” can establish a limited set of possibilities.

当一篇文章证明A是正确的，因为A和B是仅有的两个选择而且B是错的。这时：

1. 确认A和B是仅有的选择
2. 如果不是，这个论证是根据错误的选择得出的

“fails to consider that some students may be neither fascinated by nor completely indifferent to the subject being taught”

1. Errors in the Use of Evidence
2. Lack of evidence for a position is taken to prove that position is false.

Just because no evidence proving a position has been introduced does not mean that the position is false.

“treats failure to prove a claim as constituting denial of that claim”

“taking a lack of evidence for a claim as evidence undermining that claim”

1. Lack of evidence against a position is taken to prove that position is true.

Just because no evidence disproving a position has been introduced does not mean that the position is true.

“treating the failure to establish that a certain claim is false as equivalent to a demonstration that the claim is true”

1. Some evidence against a position is taken to prove that position is false.

The introduction of evidence against a position only weakens the position; it does not necessarily prove the position false.

“it confuses undermining an argument in support of a given conclusion with showing that the conclusion itself is false”

1. Some evidence for a position is taken to prove that position is true.

The introduction of evidence for a position only provides support for the position; it does not prove the position to be undeniably true.

“the argument takes evidence showing merely that its conclusion could be true to constitute evidence showing that the conclusion is in fact true”

1. Time Shift Errors

Although this error has a rather futuristic name, the mistake involves assuming that conditions will remain constant over time, and that what was the case in the past will be the case in the present or future. Clearly, what has occurred in the past is no guarantee that the future will be the same.

“treats a claim about what is currently the case as if it were a claim about what has been the case for an extended period”

“uncritically draws an inference from what has been true in the past to what will be true in the future”

1. Numbers and Percentages Errors

When an author improperly equates a percentage with a definite quantity, or when an author uses quantity information to make a judgment about the percentage represented by that quantity.

“the argument confuses the percentage of the budget spent on a program with the overall amount spent on that program”

1. 攻击较弱的argument而不是main conclusion

**技巧**

1. The correct answer will identify the error in the author’s reasoning and then describe that error in general terms.

Beware of answers that describe a portion of the stimulus but fail to identify the error in the reasoning.

1. In errors of conditional reasoning, a Mistaken Negation and a Mistaken Reversal are contrapositives of each other, so the error behind both is identical.

**Resolve the Paradox Questions**

**Stimulus**

1. No conclusion

Just presents two sets of contradictory facts.

1. Language of contradiction (signals of contradiction)

But, however, yet, although, paradoxically, surprisingly

**Question Stem**

Which one of the following, if true, would most effectively resolve/ explain/ reconcile the apparent/ discrepancy/ paradox/ contradiction/ conflict/ puzzle above?

**Correct Answer**

1. The correct answer will allow both sides to be factually correct and it will either explain how the situation came into being or add a piece of information that shows how the two ideas or occurrences can coexist.

If an answer supports or proves only one side of the paradox, that answer will be incorrect.

1. When attempting to resolve the paradox in the stimulus, you must address the facts of the situation. The correct answer have reasonable solutions that meet the stated facts.

**技巧**

1. A ResolveX question would present four incorrect answers that resolve or explain the situation. The one correct answer would either confuse the situation, or, more likely, have no impact on the situation.
2. If the stimulus contains a paradox where two items are similar, then an answer choice that explains a difference between the two cannot be correct.

Conversely, if the stimulus contains a paradox where two items are different, then an answer choice that explains why the two are similar cannot be correct.

In short, a similarity cannot explain a difference, and a difference cannot explain a similarity.

1. 选项越模糊越不好

**Methods of Reasoning Questions**

**Stimulus**

The stimulus for a Method Reasoning question will contain an argument. As you read the stimulus, you should naturally make an assessment of the validity of the argument, and you can expect that many Method of Reasoning answer choices will reflect that assessment.

You must watch for the presence of the premise and conclusion indicators. These indicators will help you identify the structure of the argument and better help you understand the answer choices.

**Question Stem**

The method/ technique/ strategy of the argument/reasoning is to…

The argument proceeds by/ derives its conclusion by…

**Correct Answer**

1. The correct answer best describes the method used by the author to make the argument. You must identify the logical organization of the argument.
2. You can use only the information in the stimulus to prove the correct answer choice.
3. The correct answer cannot describe an element or a situation that does not occur in the stimulus.
4. Use the information in the stimulus to prove or disprove each answer choice.

**Incorrect Answer**

1. New element answers
2. Half right, half wrong answers

Half wrong equals all wrong

1. Exaggerated answers

Exaggerated Answers take a situation from the stimulus and stretch that situation to make an extreme statement that is not supported by the stimulus. Be careful, though! Just because an answer choice contains extreme language does not mean that the answer is incorrect.

1. The opposite answer
2. The reverse answer

Since the reversed statement does not describe what occurred in the stimulus, it must be incorrect.

**技巧**

1. Involve abstract thinking, which focuses on the form of the argument instead of the concrete facts of the argument.
2. You must think about the structure of the argument before examining the answer choices. However, do not expect to see your exact prephrase as the answer; there are simply too many variations on the way an argument can be described.
3. You can use the principle behind the Fact Test to destroy incorrect answers. In a Method Reasoning question, the Fact Test works as follows: If an answer choice describes an event that did not occur in the stimulus, then that answer is incorrect.

Watch out for answers that are partially true—that is, answers that contain a description of something that happened in the argument but that also contain additional things that did not occur.

If you can only find one, or neither, the answer is incorrect.

1. After you complete the problem and are reviewing each wrong answer choice, try to imagine what type of argument would be needed to fit that answer. This exercise will strengthen your ability to recognize any type of argument structure.
2. Restate one’s argument是指既restate premise，又restate conclusion，二者缺一不可
3. 选项关键词

Form the hypothesis

Reinterpret evidence (给予新的解释或说明)

Speculate about (推断)

Point out difference

Demonstrate that

Challenge the plausibility of the evidence

Reinforce the conclusion by supplying a complementary interpretation of the evidence

Agree with

Contrast the conclusion as grounds for optimism/ pessimism

**Method of Reasoning-Argument Part Question (Role/ Boldface)**

Argument Part (AP) questions are a subset of Method of Reasoning questions.

句子的作用包括句子的态度以及句子的角色

**Stimulus**

Some problems feature two conclusions (one is the main conclusion, the other is a subsidiary conclusion), and often the stimulus includes two different viewpoints or the use of counterpremises.

分析原文的结构：即某句话在原文的作用。

原文结构元素包括: main conclusion, an subsidiary/ secondary/ intermediate/ supporting conclusion, a premise, an opposing viewpoint, a view that author is trying to support, a concession, background information

**Question Stem**

The question stem cites a specific portion of the stimulus and then asks you to identify the role the cited portion plays in the structure of the argument.

“The claim/ statement/ assertion…plays/ serves which one of the following roles/ functions in the argument?”

**做题方法**

1. 分析句子的态度，找到句与句之间的转折

Eg.

A. However, B

若A加粗，则观点和作者的观点相反

若B加粗，则观点和作者的观点相同

A. However, B. However, C

C观点和作者的观点相同，B观点和作者的观点相反，A观点和作者的观点相似

1. 大转折: However, But, Yet

代表句与句之间的转折。分号作用同句号，连接两个句子

1. 句中转折: but, yet, although

句中转折不能代表意思的转变

1. Nonetheless 语气较弱的转折，不是完全转折
2. 分析句子的角色(论据/论点)，找到和黑体字相关的因果关系词

因果关系中“因”即为论据，“果”即为结论

1. 表论据的词: evidence, premise, explanation, reason
2. 表论点结论的词: conclusion, claim, position, judgment, prediction
3. 表支持的词: justify, support, endorse
4. 表反对的词: criticize, oppose, reject, challenge
5. 表中性的词: explain, access, evaluate

**技巧**

1. Method-AP questions often feature two conclusions—a main conclusion and subsidiary conclusion—where the main conclusion is typically placed in the first or second sentence, and the last sentence contains the subsidiary conclusion. In addition, the subsidiary conclusion is often preceded by a conclusion indicator such as “thus” or “therefore” while the main conclusion is not prefaced by an indicator.

If the use of premise/ conclusion identifier words fails to identify the main conclusion, then use the Conclusion Identification Method.

Subconclusion indicators:

subsidiary conclusion

secondary conclusion

intermediate conclusion

supporting conclusion

1. By consistently breaking down the structure of the argument before reading the answer choices, these problems become very easy to solve.
2. A common wrong answer is to create wrong answers that describe parts of the argument other than the part named in the question stem.
3. In argumentation, analogies are often used to clarify the relationship between the items or reveal a fundamental truth about one of the items.

Analogies can be used to challenge a position or support a position, but their strength often rests on the relevant similarities between the two items or scenarios.

1. Evidence is the same as premises.

The phrase “it helps show” describes premises.

1. A causal conterargument can be described as offering an alternative explanation/ cause.
2. 对于两个结论的文章，很多都是main conclusion在第一句，subsidiary conclusion在结尾并有指示词。文章的大结论应该是被支持的，而不是支持别的句子
3. 若文中没有句与句之间的转折，选项中就不能有反对、质疑这类词出现
4. 句首出现负面词汇，也有可能是转折:

Critics…

It is +负面词汇(eg. doubtful)

This plan is not good

**Parallel Reasoning Questions**

Parallel Reasoning questions ask you to identify the answer choice that contains reasoning most similar in structure to the reasoning in the stimulus. It requires you to first identify the method of argumentation used by the author and then to match that reasoning to the reasoning presented in each answer choice.

Parallel Reasoning questions are a continuation of Method of Reasoning questions.

This question required a combination of checking the reasoning, the conclusion, and the validity of the argument.

**Stimulus**

The stimulus for a Parallel Reasoning question can contain either valid or invalid reasoning.

If there is no mention of flawed reasoning in the question stem, the reasoning in the stimulus is valid (and vice versa).

When a Parallel Reasoning stimulus contains flawed reasoning, we identify it as a Parallel Flaw question.

**Question Stem**

1. If the reasoning is not flawed, then the question stem will not refer to flawed reasoning. Which one of the following is most closely parallel/ similar in its reasoning to the reasoning/ logical features/ pattern of reasoning/ structure of reasoning in the argument above?
2. If the reasoning is flawed, the question stem will state that the reasoning is bad by using words such as “flawed” or “questionable.”

“The flawed reasoning/ questionable pattern of reasoning in which one of the following is most similar to the flawed reasoning in the argument above?”

**做题步骤**

The Fact Test plays a minimal role in Parallel questions because the details (topic, etc.) of the stimulus and each answer choice are different. Instead, the structural basis of these questions forces you to compare the bigpicture elements of the argument: intent of the conclusion, force and use of the premises, the relationship of the premises and the conclusion, and the soundness of the argument.

1. Examine the elements of an argument that do not need to be paralleled in these questions

1) Topic of the stimulus

Often, same subject answer choices are used to attract the student who fails to focus on the reasoning in the stimulus.

2) The order of presentation of the premises and conclusion in the stimulus

1. Element must be paralleled

1) The method of reasoning

Causal reasoning, conditional reasoning, or analogy

2) The validity of the Argument

If the stimulus contains valid reasoning, eliminate any answer choice that contains invalid reasoning. If the stimulus contains invalid reasoning, eliminate any answer choice that contains valid reasoning.

3) The conclusion

You must parallel the subcomponents, including the premises and conclusion. If an answer has a conclusion that does not “match” the conclusion in the stimulus, then the answer is incorrect.

When matching conclusions, you must match the certainty level or intent of the conclusion in the stimulus, not necessarily the specific wording of the conclusion.

* Absolutes: must, never, always

Use similar absolutes

* Give an opinion: should
* Conditional conclusion

A. Identical wording for our purposes means answers where the controlling modifiers (such as “must,” “could,” “many,” “some,” “never,” etcetera) are the same.

If the conclusion in the answer choice has similar wording to the conclusion in the stimulus, then the answer is possibly correct.

B. Because there are many synonyms available for the test makers to use, do not eliminate answers just because the wording is not identical. Eg. “majority”—has several synonyms, such as “most” and “more than half.”

C. Remember that the English language has many pairs of natural opposites, so the presence of a negative term in the stimulus is not grounds for dismissing the answer when the stimulus has positive language (and vice versa). An answer choice can use opposite language (including negatives) but still have a meaning that is similar to the stimulus.

4) The premises

The premises in the correct answer choice must match the premises in the stimulus, and the same wording rules that were discussed in The Conclusion section apply to the premises. Matching premises is a step to take after you have checked the conclusion.

1. Four tests used to evaluate answers

1) Match the Method of Reasoning

If you identify an obvious form of reasoning (use of analogy, circular reasoning, conditional reasoning, etc.)

2) Match the Conclusion

The key to successfully matching the conclusion is that you must be able to quickly pick out the conclusion in each answer choice.

3) Match the Premises

The more complex the argument structure in the stimulus, the more likely you will have to match the premises to arrive at the correct answer. The less complex the argument, the more likely that matching the conclusion will be effective.

1. What to do if all else fails

If none of the four tests of analysis reveals the answer, or if nothing stands out to you when you examine the argument, you can always fall back on describing the stimulus in abstract terms.

Create a short statement that summarizes the “action” in the argument without referring to the details of the argument.

Your description should be a reasonable approximation of what occurred in the stimulus, but it does not have to be perfect.

**技巧**

1. 如果在看选项的过程中发现争取答案，是否要继续往下看取决于时间的多少

2. 先比较文章中的conclusion和选项中的conclusion，找逻辑模式最相近的，缩小答案范围之后再比较premise

3. 不会影响正确答案的差异

1) 主语不同

2) premise和conclusion的顺序不同

3) 形式不同 (A unless B=if not A, then B)

4. 会影响正确答案的差异

1) Word strength (most/ some)

2) Negative/ Positive

如果文章中的conclusion是肯定的，正确答案的conclusion不一定是否定的

但如果文章中conclusion是肯定的，正确答案一定不是否定的

1. Conditional statement

条件句中条件不可以随意增减

If A, then B 不能只说A或只说B

1. Causal statement

因果关系必须有因有果，不能有因无果也不能有果无因

1. Verbal choice

Can: what can happen

Will: what will actually happen

Must: what is required, but not necessary happening

Cause: what means things happen

**Numbers and Percentages**

**Misconceptions**

1. Increasing percentages automatically lead to increasing numbers.

This is not necessarily true because the overall size of the group under discussion could get smaller.

If the overall total remains constant, an increasing percentage does translate into a larger number. But on the LSAT the size of the total is usually not given.

If the percentage increases but the corresponding number decreases, then the overall total must have decreased.

1. Decreasing percentages automatically lead to decreasing numbers.

If the percentage decreases but the corresponding number increases, then the overall total must have increased.

1. Increasing numbers automatically lead to increasing percentages.

If the number increases but the corresponding percentage decreases, then the overall total must have increased.

1. Decreasing numbers automatically lead to decreasing percentages.

If the number decreases but the corresponding percentage increases, then the overall total must have decreased.

1. Large numbers automatically mean large percentages, and small numbers automatically mean small percentages.

The size of a number does not reveal anything about the percentage that number represents unless you know something about the size of the overall total that number is drawn from.

1. Large percentages automatically mean large numbers, and small percentages automatically mean small numbers.

Numerical situations normally hinge on three elements: an overall total, a number within that total, and a percentage within the total. LSAT problems will often give you one of the elements, but without at least two elements present, you cannot make a definitive judgment about what is occurring with another element.

**Recognize number and percentage ideas**

1. Words used to introduce numerical ideas:

Amount

Quantity

Sum

Total

Count

Tally

2. Words used to introduce percentage ideas:

Percent

Proportion

Fraction

Ratio

Incidence

Likelihood

Probability

Segment

Share

Most likely/ more prone to/ occurs with a high frequency: the percentage chances are greater than 50%

Less likely: the percentage chances are less than 50%

**General Rules for Must Be True questions**

1. If the stimulus contains percentage or proportion information only, avoid answers that contain hard numbers.

2. If the stimulus contains only numerical information, avoid answers that contain percentage or proportion information.

3. If the stimulus contains both percentage and numerical information, any answer choice that contains numbers, percentages, or both may be true.

**General Rules for Weaken and Strengthen questions**

To weaken or strengthen an argument containing numbers and percentages, look carefully for information about the total amount(s)— does the argument make an assumption based on one of the misconceptions discussed earlier?

**技巧**

1. A numbers conclusion (“amount”) cannot be drawn solely from percentage information because the overall total could change dramatically. (Weaken)

2. Markets and Market Share

Market operation includes supply and demand, production, pricing, and profit.

Market share is simply the portion of a market that a company controls. The market share can be measured either in terms of revenues (sales) or units sold.

Because market share is a numbers and percentages concept, market share can change when factors in the market change.

Regardless of the size of a market and even though the total amount of the market can shift, the total market share must always add up to 100%.

**Evaluate the Argument Questions**

**概念**

1. Evaluate the Argument questions ask you to consider the question, statistic, or piece of information that would best help determine the logical validity of the argument presented in the stimulus. In other words, you must select the answer choice that decides whether the argument is good or bad.
2. There must be a flaw in each argument, and your question, if posed correctly, can reveal that flaw or eliminate the flaw.
3. You must simply ask the question that will help best analyze the validity of the argument. For this reason, Evaluate the Argument questions can be seen as a combination of a Strengthen and Weaken question: if you ask the best question, depending on the answer to the question the argument could be seen as strong or weak.
4. Evaluate the Argument questions are actually a combination of the Second and Third Families.

1) The information in the stimulus is suspect, so you should search for the reasoning error present.

2) The answer choices are accepted as given, even if they include “new” information.

**Question Stem**

The answer to which one of the following questions would contribute most to an evaluation/ judgment/ assessment of the argument/ one’s position/ hypothesis?

Which one of the following would be most important/ relevant/ helpful to know/ investigate in evaluating the hypothesis in the passage?

**做题方法: The Variance Test**

1. The Variance Test consists of supplying two polar opposite responses to the question posed in the answer choice and then analyzing how the varying responses affect the conclusion in the stimulus. If different responses produce different effects on the conclusion, then the answer choice is correct. If different responses do not produce different effects, then the answer choice is incorrect.
2. If the answer choice is correct, one response should strengthen the argument and one response should weaken the argument.
3. The key thing to note is that the Variance Test is applied according to the nature of each answer choice. Thus, with some answer choices we might supply responses of “Yes” and “No,” and other answer choices might require responses of “0%” and “100%,” or “Very Important” and “Not Important.”

问how many，用1和100

问percentage，用0和100%

问how important，用“Very Important” and “Not Important.”

问result，用success和fail

(Variance Test can only be used with these questions and the test does not apply to any other question type. Do not apply the test to all five answers!)

1. 含有模糊和极端词的选项都不能选

**Cannot Be True Questions**

**概念**

1. Identify the answer choice that cannot be true or is most weakened by the information in the argument.
2. Accept the stimulus information and use only it to prove that one of the answer choices cannot occur.
3. If an answer choice contains information that does not appear directly in the stimulus or as a combination of items in the stimulus, then that answer choice could be true, and it is incorrect. The correct answer choice will directly disagree with the stimulus or a consequence of the stimulus.
4. Two view ways:

1) Polar Opposite Must Be True Questions

You disprove an answer choice

2) Reverse Weaken Questions

Use the information in the stimulus to attack one of the answer.

1. Cannot Be True questions are tricky because the concept of an answer choice being possibly true and therefore wrong is counterintuitive.

**Stimulus**

The stimuli in Cannot Be True questions rarely contain a conclusion, you can instead focus on the facts at hand.

Two notable stimulus scenarios

1. Numbers and Percentages

In Cannot Be True questions, the stimulus will often supply enough information for you to determine that certain outcomes must occur (for example, increasing market share while the overall market size remains constant results in greater sales). The correct answer then violates this outcome.

1. Conditional Statements

Many different scenarios can occur in Cannot Be True questions featuring conditional statements, except the following:

The sufficient condition occurs, and the necessary condition does not occur.

Correct answers often play upon the possibility that the sufficient condition occurs but the necessary condition does not occur.

Answer choices that offer groups that do not meet the sufficient condition are also popular wrong answers in Cannot Be True questions featuring conditional reasoning.

**Question Stem**

1. Stating that the answer cannot be true or does not follow.

If the statements/ argument/ information above are true, which one of the following CANNOT be true?

The statement/ argument/ information above can most reasonably/ seriously undermine/ be interpreted/ used as an objection/ evidence against which one of the following claims/ assertions/ hypotheses?

1. Stating that the answer could be true EXCEPT.
2. Stating that the answer choice must be false.

**技巧**

分析完每一句statement时都要考虑是否有因果、有条件，对于没有任何解释的statement都认为是既定的事实。任何对于解释的猜测都是有可能的，都不能成为cannot be true的答案

**Point at Issue Questions**

**Question Stem**

The question stem directs you to choose the answer that describes the point of disagreement between the two speakers, or to identify a statement that the two speakers would disagree is true.

Which one of the following most accurately expresses/ represents the point at issue between Tom and Mary?

…disagree with each other about which one of the following statements?

**Incorrect Answer**

1. Ethical versus Factual Situations

When a stimulus addresses an issue that is ethical in nature, answer choices that are factual in nature cannot be true. When a stimulus addresses an issue that is factual in nature, answer choices that are ethical in nature cannot be true.

2. Dual Agreement or Dual Disagreement

Incorrect answer choices will supply statements that both speakers will agree with, or that both speakers will disagree with.

3. The View of One Speaker is Unknown

Creating an answer where the view of only one of the speakers is known cannot be true.

**做题方法: the Agree/Disagree Test**

The correct answer must produce responses where one speaker would say “I agree, the statement is correct” and the other speaker would say, “I disagree, the statement is incorrect.” If those two responses are not produced, then the answer is incorrect.

**技巧**

* + - 1. 找观点的标志词

Look for opinion indicators (some teachers think that . . .). Opposing viewpoints usually come right before the author’s main conclusion, which usually starts with but, yet, or however

Opinion. However/ Yet, conclusion. Premise.  
Opinion. Although concession, conclusion. Premise.

* + - 1. Look for premise indicator (because, since, for, due to) to help you find premises and then the main conclusion. Although conclusion indicators (therefore, thus, hence, accordingly) can help you find conclusions, in main point questions, these indicators usually introduce intermediate conclusions to trap you. Otherwise, the question would be too easy to solve. Keep in mind, an intermediate conclusion act as both a premise for the main conclusion and a conclusion for another premise in the same argument.

错误选项：1) 重申premise

2) 列举了一些intermediate conclusion

3) 给出一些新的假设

**Principle Questions**

**概念**

Principle questions (PR) are not a separate question type but are instead an “overlay” that appears in a variety of question types.

A principle is a rule or generalization.

A principle is a broad rule that specifies what actions or judgments are correct in certain situations. Because principles must retain broad applicability and must typically meet a condition to apply, they are often conditional statements. However, there are exceptions, such as with causal principles.

The degree of generality of principles can vary considerably, and some are much narrower than others.

The question becomes more abstract, and you must analyze the problem to identify the underlying relationships.

When you encounter a Principle designator in the question stem, prepare to apply the principle to a situation that falls under the purview of the principle but is not necessarily directly addressed by the principle.

**Question Stem**

**Must-PR**

Which one of the following judgments most closely conforms to/ illustrates the principle/ precept/ proposition above?

The principle above, if established, would justify which one of the following judgments?

Which one of the following principle that the author invoke?

**Strengthen-PR**

Which one of the following principles most helps to justify the reasoning above?

The information above most closely conforms to which one of the following principles?

**Justify-PR**

Which one of the following most accurately expresses the principle underlying the argumentation above?

**Cannot-PR**

Each of the following principles is logically consistent with the columnist’s conclusion EXCEPT

**Must Be True PR**

**做题方法**

You must use the principle presented in the stimulus and then apply it to the situation in each answer choice (one principle applied to five situations).

The answer choice can address a scenario not specifically included in the stimulus; your job is to find the answer that follows from the application of the principle.

Since many, if not all, of the principles in these stimuli are conditional, you will often be able to identify that reasoning and make a quick diagram. If you cannot clearly identify the conditional nature of the principle, create an abstraction of the stimulus similar to one you would create in a Parallel Reasoning question.

The correct answer in these questions always features a scenario that addresses each part of the principle, and if an answer does not match part of the principle, it is incorrect.

**What you can conclude**

1. If the sufficient condition is met in one of the scenarios in the answer choice, then it can be concluded that the necessary condition has occurred.

A simple conditional statement combined with a premise indicating that the sufficient condition has occurred allows the conclusion that the necessary condition will occur.

2. If the necessary condition is not met in one of the scenarios in the answer choice, then it can be concluded that the sufficient condition has not occurred.

This is the essence of the contrapositive argument form.

3. If the sufficient condition is not met in one of the scenarios in the answer choice, you can conclude that the necessary condition may or may not have occurred.

4. If the necessary condition is met in one of the scenarios in the answer choice, you can conclude that the sufficient condition may or may not have occurred.

**What you cannot conclude**

1. If the sufficient condition is not met in one of the scenarios in the answer choice, you can conclude that the necessary condition has not occurred. (Mistaken Negation)

2. If the necessary condition is met in one of the scenarios in the answer choice, then you can conclude that the sufficient condition has occurred. (Mistaken Reversal)

**Strengthen/ Justify Principle Questions**

In these questions each answer choice contains a principle that acts as an additional, broad premise that supports or proves the conclusion. Functionally, five different principles are applied to the situation in the stimulus.

**技巧**

如果principle在原文，找出其条件，将条件和选项直接比较，符合条件即为答案

如果principle在选项，找出conclusion和推出conclusion的direct premise，将premise和conclusion与选项比较，看是否在选项的principle之内

**Negation**

Necessary assumption. Use negation. I said these two sentences hundreds of times here. If you master the technique of negation, you should be able to solve the necessary assumption problems easily and pass GMAT with flying colors.  
When you negate an answer, just negate it. Try not to turn it into its opposite. Also, negate either the verb or the quantity, but not both.  
To negate an **if-then statement**, negate ONLY the then clause. So "if A, then B" would become "if A, then not B"  
  
**Quantitites**                            **Negation**  
all, any, each, every, always          not all, some are not  
most, majority                       not most  
usually, likely                         not usually, not likely  
some, many, few                      none  
sometimes, often, rarely              never  
only one, only once                  more than one, none (That's right. Not one = none or more than one)  
exactly two               one, more than two, none (similar to the reason listed above)  
no, none                               some  
  
**Verbs**                                       **Negation**will                                     might, might not (Another case of paradox!)  
can, could                             cannot  
there is, there are                    there is not, there are not