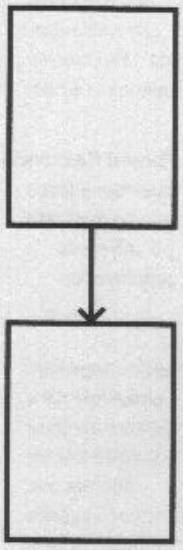
## Parallel Reasoning Questions

Parallel Reasoning questions ask you to identify the answer choice that contains reasoning most similar in structure to the reasoning in the stimulus. Since this task 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, these questions can be quite time consuming (a fact known to and exploited by the test makers).

Like Method of Reasoning and Flaw in the Reasoning questions, Parallel Reasoning questions are in the First Family and have the same information structure. However, because of the abstract nature of these questions, comparing the stimulus to the answer choices takes on a different dimension, and we will address this issue in a moment in the section entitled *Solving Parallel Reasoning Questions.*

First Family Information Model:



Question stem examples:

> "Which one of the following is most closely parallel in its reasoning to the reasoning in the argument above?"
>
> "Which one of the following exhibits a pattern of reasoning most similar to that exhibited by the argument above?"
>
> "Which one of the following arguments is most similar in its logical features to the argument above?"
>
> "Which one of the following arguments is most similar in its pattern of reasoning to the argument above?"
>
> "The structure of the reasoning in the argument above is most parallel to that in which one of the following?"

Parallel Reasoning questions appear infrequently on the GMAT, but as with all the rare question types, they appear more frequently if you are doing well.

## Parallel Flaw Questions

The stimulus for a Parallel Reasoning question can contain either valid or invalid reasoning. When a Parallel Reasoning stimulus contains flawed reasoning, we identify it as a Parallel Flaw question. Like Flaw in the Reasoning questions, Parallel Flaw questions use many of the common forms of erroneous reasoning.

If the reasoning is flawed, the question stem will state that the reasoning is bad by using words such as "flawed" or "questionable."

Here are two Parallel Flaw question stem examples. They are virtually identical to the previous Parallel Reasoning questions stems with the exception that they contain a term indicating that the reasoning in the stimulus is invalid:

> "The flawed reasoning in which one of the following is most similar to the flawed reasoning in the argument above?"

> "The questionable pattern of reasoning in the argument is most similar to that in which one of the following?"

## The Peril of Abstraction

Parallel Reasoning questions force you to evaluate six different arguments.

Parallel Reasoning questions are challenging because they are the most abstract type of question on the GMAT. Not only must you understand the structure of the argument in the stimulus, you must also understand the structure of the arguments in each of the five answer choices. Juggling all this abstract information is difficult, and you will learn how to effectively approach Parallel Reasoning questions in the following pages.

We will address several effective ways to handle the abstract nature of these questions, but first you must understand what approach *not* to take. Some companies recommend that you make general abstract diagrams for the elements in each stimulus and do the same for each answer choice. This "general symbolization" approach involves representing the premises and conclusion as "A," "B," "C," etcetera, and writing them next to the stimulus. This approach, while well-meaning, is hopelessly flawed. Parallel Reasoning questions are difficult *because* they involve a great deal of abstraction. The use of non-specific symbols such as "A," "B," and "C" further abstracts the stimulus elements, increasing the difficulty instead of alleviating it.

Please note that the method described above is different from the symbolization described in the causal reasoning chapter of this book. In that chapter, we recommend diagramming in response to specific logical formations, and we strongly recommend using symbols that directly represent elements in the stimulus. That approach, when properly used, makes the questions easier to attack.

## Solving Parallel Reasoning Questions

Because you must find the answer with a similar pattern of reasoning to that in the stimulus, using the details of the stimulus to attack the answer choices works differently in Parallel Reasoning questions than in other First Family questions. For example, 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 big-picture 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. Comparing these elements is like using an Abstract Fact Test—you must examine the general features of the argument in the answer choice and match them to the argument in the stimulus.

Parallel Reasoning questions are a continuation of Method of Reasoning questions: first you must identify the reasoning in the argument, and then you must find the answer with the same reasoning.

First, let us examine the elements of an argument that do *not* need to be paralleled in these questions:

1. Topic of the stimulus

   In Parallel Reasoning questions, the topic or subject matter in the stimulus and the answer choices is irrelevant because you are looking for the argument that has a similar pattern of *reasoning*. Often, same-subject answer choices are used to attract the student who fails to focus on the reasoning in the stimulus. For example, if the topic of the stimulus is banking, you need not have an answer choice that is also about banking.

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

   The order of presentation of the premises and conclusion in the stimulus is also irrelevant. As long as an answer choice contains the same general parts as the stimulus, they need not be in the same order because the order of presentation does not affect the logical relationship that underlies the pieces. So, for example, if the stimulus has an order of conclusion-premise-premise, you need not have the same order in the correct answer.

Answer choices with the same subject matter as the stimulus are almost always incorrect, and are generally used to lure students who fail to consider the reasoning in the stimulus. You should still consider answer choices with the same topic as the stimulus, but be wary.

Neither of the elements above has any bearing on the correctness of an answer choice. Now, let's look at the elements that must be paralleled, and how to use these elements to eliminate wrong answer choices:

1. The Method of Reasoning

   It may sound obvious, but the type of reasoning used in the stimulus must be paralleled. When you see an identifiable form of reasoning present—for example, causal reasoning or conditional reasoning—you can proceed quickly and look for the answer that matches the form of the stimulus. Given the numerous forms of reasoning we have examined (both valid and invalid), you now have a powerful arsenal of knowledge that you can use to attack these questions. First and foremost, if you recognize the form of reasoning used in the stimulus, immediately attack the answers and search for the answer with similar reasoning.

2. The Validity of the Argument

   The validity of the reasoning in the correct answer choice must match the validity of the reasoning in the stimulus.

   Often, answer choices can be eliminated because they contain reasoning that has a different logical force than the stimulus. 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.

Because Parallel Reasoning questions contain six different arguments, they are often lengthy.

3. The Conclusion

   Every Parallel Reasoning stimulus contains an argument and therefore a conclusion. Because your job is to parallel the argument, you must parallel the subcomponents, including the premises and conclusion. You can use this knowledge to attack specific answer choices: if an answer has a conclusion that does not "match" the conclusion in the stimulus, then the answer is incorrect. Using this approach is especially helpful if you do not see an identifiable form of reasoning in the stimulus.

   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. For example, a stimulus conclusion containing absolutes ("must," "never," "always") will be matched by a conclusion in the correct answer choice using similar absolutes; a stimulus conclusion that gives an opinion ("should") will be matched by the same idea in the correct answer choice; a conditional conclusion in the stimulus will be matched by a conditional conclusion in the correct answer choice, and so on. This knowledge allows you to quickly narrow down the answer choices to the most likely candidates. This advice can initially be confusing, so let us discuss it in more detail.

First, answers that have identical wording to the conclusion are Contenders (assuming there is no other reason to knock them out of contention). Identical wording for our purposes means answers where the controlling modifiers (such as "must," "could," "many," "some," "never," etcetera) are the same. For example, if the conclusion of the argument stated, "The reactor can supply the city power grid," an answer that had similar wording, such as "The bank can meet the needs of customers," would be a Contender. In brief, the advice in this paragraph is fairly simple: if the conclusion in the answer choice has similar wording to the conclusion in the stimulus, then the answer is *possibly* correct.

Second, because there are many synonyms available for the test makers to use, do not eliminate answers just because the wording is not identical. For example, an answer could state, "The majority of voters endorsed the amendment." The quantity indicator in the sentence—"majority"—has several synonyms, such as "most" and "more than half." Make sure that when you examine each sentence you do not eliminate an answer that has wording that is functionally identical to the wording in the stimulus.

Third, 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). For example, a conclusion could state, "The councilmember must be present at the meeting." That conclusion could just as easily have been worded as, "The councilmember must not be absent from the meeting." In the same way, an answer choice can use opposite language (including negatives) but still have a meaning that is similar to the stimulus.

If the stimulus has a positive conclusion, then the presence of negative terms in the conclusion is not grounds for eliminating the answer; if the stimulus has a negative conclusion, then the lack of a negative term in the conclusion is not grounds for eliminating the answer.

4. The Premises

Like the conclusion, 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, unless you notice that one (or more) of the premises has an unusual role in the argument. If so, you can immediately look at the answer choices and compare premises.

Because the four components above must be paralleled in the correct answer choice, the test makers have an array of options for making an answer *incorrect*. They can create answer choices that match several of the elements but not all of the elements, and to work through each answer choice in traditional fashion can be a painstaking process. However, since each element must be matched, you can analyze and attack the answer choices by testing whether the answer choice under consideration matches certain elements in the stimulus. If not, the answer is incorrect.

Be wary of Parallel Flaw question stems that ask you to identify *both* the logical flaws in the stimulus. When this occurs, there is always an incorrect answer that contains only one of the flaws.

Upon hearing this advice, most students say, "Sounds good. In what order should I examine the elements?" Although the process can be reduced to a step-by-step procedure, a better approach is to realize that examining the elements is like a waterfall and that everything will happen very quickly. Performing well on the GMAT is about flexibility and correctly responding to the clues provided. Rigidly applying the methods below will rob you of the opportunity to accelerate through the problem. Therefore, in Parallel Reasoning questions your job is to identify the features of the argument most likely to be "points of separation"—those features that can be used to divide answers into Losers and Contenders. Sometimes matching the conclusion will knock out several answer choices, other times matching the premises will achieve that same goal. The following list outlines the four tests you can use to evaluate answers, in rough order of their usefulness:

This section of four tests for Parallel Reasoning questions describes the unique and original Elemental Attack™ used in all of the PowerScore GMAT Courses.

1. Match the Method of Reasoning

   If you identify an obvious form of reasoning (use of analogy, circular reasoning, conditional reasoning, etc.), move quickly to the answer choices and look for the answer with an identical form of reasoning.

2. Match the Conclusion

   If you cannot identify the form of reasoning, or if you still have two or more answer choices in contention after matching the reasoning, or if the conclusion seems to have unusual language, examine the conclusion of each answer choice and match it against the conclusion in the stimulus. Matching the conclusion can be a critical time-saver because it often eliminates one or more answers. On occasion, all five conclusions in the answer choices will be identical to that in the stimulus. That is not a problem—it just means that the other elements must be used to knock out the wrong answers.

   The key to successfully matching the conclusion is that you must be able to quickly pick out the conclusion in each answer choice. This is where the conclusion identification skills discussed in Chapter Two come into play.

3. Match the Premises

   If matching the method of reasoning and conclusion does not eliminate the four wrong answer choices, try matching 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.

4. Match the Validity of the Argument

   Always make sure to eliminate any answer choice that does not match the logical force (valid or invalid) of the argument. This test rarely eliminates all four answers, but it can often eliminate one or two answer choices.

Different methods can be used to eliminate different answers, and the process should be fluid and based on the signals you derive from the stimulus. This question required a combination of checking the reasoning, the conclusion, and the validity of the argument. Other problems will require different combinations. Remember that you have four basic tests at your disposal, and be prepared to use them when you encounter a Parallel Reasoning problem.

Parallel Reasoning Decision time: suppose you complete answer choice (A) and you are virtually certain that you have the correct answer. Should you read the remaining answer choices, or should you skip to the next problem? The answer, in part, depends on the time remaining in the section. If it is late in the section, most students are pressed for time and it would not be unreasonable to make a calculated choice to move on without reviewing answer choices (B) through (E). Before doing so, you would be well-advised to make sure that you are certain about the reasoning in the stimulus.

On the other hand, if this question were to appear early in the section, it would be worthwhile to quickly check the remaining answer choices because early in the section one of your goals is to accumulate as many correct answers as possible.

Please take a moment to complete the following problem:

1. No one in the French department to which Professor Alban belongs is allowed to teach more than one introductory level class in any one term. Moreover, the only language classes being taught next term are advanced ones. So it is untrue that both of the French classes Professor Alban will be teaching next term will be introductory level classes.

   The pattern of reasoning displayed in the argument above is most closely paralleled by that in which one of the following arguments?

   (A) The Morrison Building will be fully occupied by May and since if a building is occupied by May the new tax rates apply to it, the Morrison Building will be taxed according to the new rates.

   (B) The revised tax code does not apply at all to buildings built before 1900, and only the first section of the revised code applies to buildings built between 1900 and 1920, so the revised code does not apply to the Norton Building, since it was built in 1873.

   (C) All property on Overton Road will be reassessed for tax purposes by the end of the year and the Elnor Company headquarters is on Overton Road, so Elnor's property taxes will be higher next year.

   (D) New buildings that include public space are exempt from city taxes for two years and all new buildings in the city's Alton district are exempt for five years, so the building with the large public space that was recently completed in Alton will not be subject to city taxes next year.

   (E) Since according to recent statute, a building that is exempt from property taxes is charged for city water at a special rate, and hospitals are exempt from property taxes, Founder's Hospital will be charged for city water at the special rate.

The structure of the stimulus is as follows:

Premise: No one in the French department to which Professor Alban belongs is allowed to teach more than one introductory level class in any one term.

Premise: Moreover, the only language classes being taught next term are advanced ones.

Conclusion: So it is untrue that both of the French classes Professor Alban will be teaching next term will be introductory level classes.

The more complex the argument structure, the more important it is to match the premises. The more simple the argument, the more important it is to match the conclusion.

First note that the reasoning is valid. If you are uncertain, check the question stem.

Most people find that there is no clearly identifiable (or easily described) form of reasoning used to draw the conclusion, and each of the answer choices except (B) contains a conclusion with similar language to the conclusion in the stimulus. Thus, you must look elsewhere for the factor that separates the answer choices. Take a moment to consider each premise and how it relates to the conclusion; the argument is unusual in that both premises independently prove the conclusion, and this structure must be paralleled in the correct answer.

Now examine each premise:

Premise: No one in the French department to which Professor Alban belongs is allowed to teach more than one introductory level class in any one term.

The premise contains two pieces of information: no one in the French department is allowed to teach more than one introductory level class and Professor Alban belongs to the French department. Combining those two pieces yields the conclusion that Professor Alban can teach at most one introductory level class in a term. This fact is reflected in the language of the conclusion.

Premise: Moreover, the only language classes being taught next term are advanced ones.

If only advanced language classes are being taught next term, then no person could teach an introductory level French class next term. That truth is encompassed in the conclusion when the author states that "it is untrue that both of the French classes Professor Alban will be teaching next term will be introductory level classes."

Turning to the answers, you should look for the answer that has two independent premises that both prove the conclusion. Because there are two

premises, this "premise test" will take longer to apply and this is one reason we typically look at the conclusion in a Parallel Reasoning question before examining the premises.

Answer choice (A): This answer contains a conditional Repeat form, and as such, the two premises work together. Since the structure of the answer is different from that of the stimulus, the answer choice is incorrect.

Answer choice (B): Only the first premise in this answer choice proves the conclusion; the second premise is irrelevant to the conclusion. Therefore, this answer is incorrect.

As mentioned before, this answer choice is also suspect because the conclusion is different from that in the stimulus.

Answer choice (C): There are two excellent reasons to eliminate this answer choice:

1. The answer choice contains invalid reasoning.

2. The two premises work together and are not independent as in the stimulus.

Answer choice (D): This is the correct answer. As with the argument in the stimulus, each premise in this answer choice separately supports the conclusion.

Note that as mentioned previously, the negative term in the conclusion of the answer choice is not a factor that should be considered. For the purposes of matching the conclusion, "will be" and "will not be" are identical.

Answer choice (E): This answer is very similar to answer choice (A), and contains a valid form of reasoning based on the Repeat form. Since the two premises work together and neither proves the conclusion alone, this answer choice is incorrect.

This problem is difficult because you must go deeper in your analysis of the argument structure to find the point of separation. If you see that the reasoning is not easy to identify, and the conclusions in most of the answer choices are similar to the conclusion in the stimulus, carefully examine the premises as they are likely to be the part of the argument that will allow you to find the correct answer.

## 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. Although less precise than the previous tests, abstracting the stimulus allows for one last shot at the problem.

To abstract the structure of the stimulus, create a short statement that summarizes the "action" in the argument without referring to the details of the argument. For example, if the argument states, "The bank teller had spotted a thief once before, so she was certain she could do it again," turn that argument into an abstract description such as "she had done it once, so she knew it could be done again." Then, take the abstraction and compare it to each argument. Does it match your generalized version of the stimulus? If not, the answer is incorrect. Your description should be a reasonable approximation of what occurred in the stimulus, but it does not have to be perfect.

*Here is another example of creating an abstract statement: if the argument states, "I nearly won the marathon several times so I have a good idea of how it feels to win the race," turn that argument into an abstract description such as "I was close, so I know what it is really like."*

In creating the abstraction above, the "it" in the short summary is purposely left indefinite so that when you attack the answer choices, you can plug in the "action" to the abstraction and see if it fits. Let's continue the discussion of the basic method we can use to solve Parallel Reasoning problems. Please take a moment to complete the following problem:

2. An independent audit found no indication of tax avoidance on the part of the firm in the firm's accounts; therefore, no such problem exists.

   The questionable reasoning in the argument above is most closely paralleled by that in which one of the following?

   (A) The plan for the introduction of the new product has been unmodified so far; therefore, it will not be modified in the future.
   (B) The overall budget for the projects has been exceeded by a large amount; therefore, at least one of the projects has exceeded its budget by a large amount.
   (C) A compilation of the best student essays of the year includes no essays on current events; therefore, students have become apathetic toward current events.
   (D) A survey of schools in the district found no school without a need for building repair; therefore, the education provided to students in the district is substandard.
   (E) An examination of the index of the book found no listing for the most prominent critic of the theory the book advocates; therefore, the book fails to refer to that critic.

The question above was selected to help you better understand how to create an abstraction of the argument and apply it to the answer choices. Approach the question from the following perspective:

> Imagine for a moment that when you first read the stimulus you were completely lost. Nothing in the argument stood out, and although you recognized the premise and conclusion, you did not feel that either was notable.

First, take the "action" of the stimulus and turn it into a generalized summary. Following is the stimulus and then an abstraction of that stimulus:

| | |
|---|---|
| Stimulus: | "An independent audit found no indication of tax avoidance on the part of the firm in the firm's accounts; therefore, no such problem exists." |
| Abstraction: | "Since they looked and didn't find anything, it doesn't exist." |

Remember, our abstraction does not have to be perfect—it simply needs to be a reasonable description of what occurred in the stimulus. If we can only eliminate three of the answer choices by applying the abstraction, then we can refine our description until one of the remaining answers is eliminated.

Answer choice (A): Does this answer match our short description of the stimulus? No, this answer is about "no changes from the past translate into no changes in the future." There is no element of "searching and not finding."

Answer choice (B): Again, quickly, does this answer match our short description of the stimulus? No, this answer is about cost overruns on projects.

Answer choice (C): This answer is superior to answers (A) and (B). The first lines indicate that essays on current events are missing from a compilation of the best essays. This knowledge implies a search has taken place and no essay fitting the description was found. So far, so good. The conclusion, however, fails to match what we are seeking. Based on the premise in this answer choice, we need a conclusion that states something to the effect of, "therefore no such student essay on current events exists." Instead, we get an entirely different type of conclusion: "therefore, students have become apathetic toward current events." Since this conclusion fails to match our abstract description of the stimulus, this answer is incorrect.

Answer choice (D): This answer has an element that is similar to the stimulus, but in the final analysis it fails to match our abstract description. First, just like the stimulus, the answer contains a search (the "survey"). However, the search in the stimulus did not turn up anything whereas the search in answer choice (D) turns up results ("no school without a need" is the same as "every school

has a need"). Most damning, however, is that the conclusion of the answer choice does not have the same abstract form as the conclusion in the stimulus. Since the general intent and execution of this answer does not match our abstraction, this answer is incorrect.

Answer choice (E): This is the correct answer choice. First, let's revisit our general description of the stimulus:

> "Since they looked and didn't find anything, it doesn't exist."

Now, compare that to the answer choice:

> "An examination of the index of the book found no listing for the most prominent critic of the theory the book advocates; therefore, the book fails to refer to that critic."

A search was conducted but no results were found, and on that basis a conclusion is drawn that no such thing exists. This perfectly matches our description, and this answer is correct.

Creating an abstract description of the stimulus is just one more weapon in your arsenal. As with the previous four tests in this section, you should use it when you feel it is most applicable. Thinking on your feet is important when attacking any GMAT question, but never more so than with Parallel Reasoning questions. You have a variety of techniques at your disposal; you just need to logically think through each stimulus to decide which ones are most applicable.

## Parallel Reasoning Question Review

Parallel Reasoning questions ask you to identify the answer choice that contains reasoning most similar in structure to the reasoning in the stimulus.

Parallel Flaw questions are Parallel Reasoning questions where the stimulus contains flawed reasoning.

The following elements do *not* need to be paralleled:

1. Topic of the stimulus
2. The order of presentation of the premises and conclusion in the stimulus

Instead, you must parallel *all* of these elements:

1. The Method of Reasoning
2. The Validity of the Argument
3. The Conclusion
4. The Premises

Because each element must be matched, you can analyze and attack the answer choices by testing whether the answer choice under consideration matches certain elements in the stimulus. If not, the answer is incorrect. The following list outlines the four tests you can use to evaluate answers, in rough order of how useful they are:

1. Match the Method of Reasoning
2. Match the Conclusion
3. Match the Premises
4. Match the Validity of the Argument

If all else fails, create a short statement that summarizes the "action" in the argument. Then, take the abstraction and compare it to each argument. Does it match your generalized version of the stimulus? If not, the answer is incorrect.

## Parallel Reasoning Question Problem Set

Please complete the problem set and review the answer key and explanations. *Answers on Page 255*

1. The student body at this university takes courses in a wide range of disciplines. Miriam is a student at this university, so she takes courses in a wide range of disciplines.

   Which one of the following arguments exhibits flawed reasoning most similar to that exhibited by the argument above?

   (A) The students at this school take mathematics. Miguel is a student at this school, so he takes mathematics.
   (B) The editorial board of this law journal has written on many legal issues. Louise is on the editorial board, so she has written on many legal issues.
   (C) The component parts of bulldozers are heavy. This machine is a bulldozer, so it is heavy.
   (D) All older automobiles need frequent oil changes. This car is new, so its oil need not be changed as frequently.
   (E) The individual cells of the brain are incapable of thinking. Therefore, the brain as a whole is incapable of thinking.

2. Commentator: Because of teacher hiring freezes, the quality of education in that country will not improve. Thus, it will surely deteriorate.

   The flawed reasoning in which one of the following is most similar to that in the commentator's argument?

   (A) Because Raoul is a vegetarian, he will not have the pepperoni pizza for lunch. It follows that he will have the cheese pizza.
   (B) Given that over 250 years of attempts to prove the Goldbach conjecture have failed, it will probably never be proved. Hence, it is more likely to be disproved than proved.
   (C) Since funding levels for social programs are being frozen, our society will not become more harmonious. Thus, it may become more discordant.
   (D) Since there is a storm moving in, the outside temperature cannot rise this afternoon. Therefore, it must fall.
   (E) The starter in Mary's car gave out weeks ago, and so it is impossible for the car to start. Therefore, it will not start.