Charta | LESSON NOTES

Assumption questions: find the missing link

Verbal Reasoning

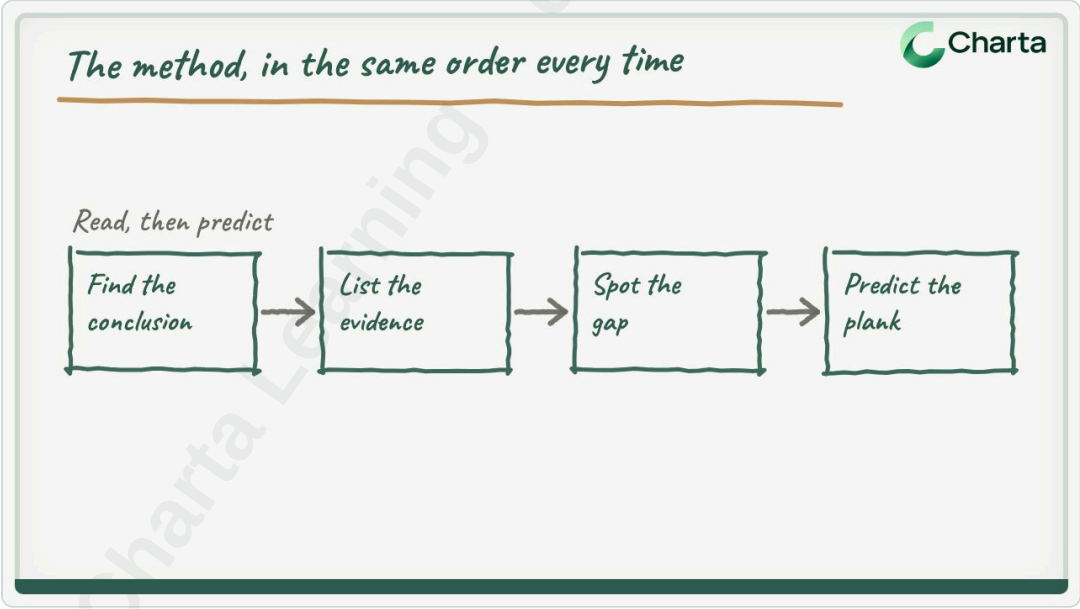
1 What the question asks

- Question line: an assumption the argument depends on
- Assumption: a fact the author needs but never says
- It is the missing plank between evidence and conclusion
- Remove it, and the conclusion no longer follows

IN THE LESSON

- First, how do you know you are facing an assumption question?
- The question line gives it away.
- It says something like, which of the following is an assumption on which the argument depends, or, the argument relies on which of the following.
- An assumption is a fact the author needs but never says.
- Think of the argument as a bridge from the evidence to the conclusion.
- The author has built most of the bridge in words.
- The assumption is the missing plank.
- Without that plank, the bridge falls down, and the conclusion no longer follows.
- So your job is not to find a fact that is true, or a fact that sounds nice.
- Your job is to find the plank the argument cannot do without.

2 The method, in the same order every time



IN THE LESSON

- Here is the method, and we will use it on all four questions.
- Step one, find the conclusion: the claim the author wants you to accept.
- A good test is to ask, why should I believe this?
- The sentence that has reasons given for it is the conclusion.
- Step two, list the evidence: the reasons.
- Step three, look for a new idea that appears in the conclusion but not in the evidence.
- That is the gap.
- Step four, predict the missing plank in your own words before you read the choices.
- Then test the choices.
- Why predict first?
- Because the wrong choices are written to sound right.
- If you already know roughly what you need, they are much easier to resist.

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3 The negation test

- Turn the choice into its opposite
- Argument falls apart? It is the assumption
- Argument still stands? Not needed
- Not all is the opposite of all; none is the opposite of some

IN THE LESSON

- The best check for an assumption is the negation test.
- Take a choice and turn it into its opposite.
- Then ask, does the argument still work?
- If the argument falls apart, the choice is an assumption the argument needs.
- If the argument is still fine, the choice is not needed, however true or helpful it sounds.
- Be careful to negate precisely.
- The opposite of, all residents borrow books, is not, no residents borrow books.
- It is, not all residents borrow books, which means at least one does not.
- The opposite of some is none.
- You do not need to negate all five choices.
- Use the test to decide between the last two choices you are unsure about.
- That keeps you accurate and quick.

4 The traps in the wrong choices

- Too strong: all, every, never, when some will do
- Restates a premise: says what is already said
- Out of scope, or an irrelevant comparison
- Helps a little, but is not needed

IN THE LESSON

- Before we start, meet the traps.
- Every wrong choice in an assumption question falls into a few families, and naming them makes them easy to spot.
- The first is too strong: a choice that says all, every or never when the argument needs only some.
- The second restates a premise: it repeats a fact the argument already gives, but an assumption is something unstated.
- The third is out of scope: it is about a related topic, not about the gap.
- The fourth is the irrelevant comparison: it compares two things the argument never compares.
- The fifth helps but is not needed: it makes the argument a little stronger, but the argument survives without it.
- Watch for these four times over.

5 Question 1: longer Sunday hours

- The Fernhill public library plans to extend its Sunday opening from four hours to eight hours. The library director argues that the change will increase the number of books borrowed on Sundays, because many residents have told the library that they cannot visit during the current Sunday hours.
- Which of the following is an assumption on which the argument depends?

IN THE LESSON

- Question one is an easy one.
- Read it with me, and try it yourself first.
- The Fernhill public library plans to extend its Sunday opening from four hours to eight hours.
- The library director argues that the change will increase the number of books borrowed on Sundays, because many residents have told the library that they cannot visit during the current Sunday hours.
- The question: Which of the following is an assumption on which the argument depends?
- Before reading the choices, let us find the conclusion and the gap.

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6 Question 1: find the gap

Fernhill library: eight Sunday hours instead of four

Conclusion	more books borrowed on Sundays	**the claim**
Evidence	residents cannot come now	**the reason**
New idea	borrowing, not just visiting	**the gap**
Prediction	some new visitors borrow	**the plank**

IN THE LESSON

- Step one, the conclusion.
- Ask why should I believe it?
- The director claims the longer hours will increase the number of books borrowed on Sundays, and gives a reason, so that is the conclusion.
- Step two, the evidence: many residents say they cannot visit during the current Sunday hours.
- Step three, the gap.
- The evidence is about visiting.
- The conclusion is about borrowing.
- Those are different ideas.
- People could come in the extra hours just to use the computers, read a newspaper or sit somewhere warm.
- Step four, predict.
- The argument needs at least some of these new visitors to borrow books.
- That is our missing plank.
- Hold that prediction in your head as we read the five choices.

7 Question 1: the five choices

- A. Residents generally prefer visiting the library on Sundays rather than on Saturdays.
- B. At least some residents who cannot visit during the current Sunday hours would borrow books if they came during the added hours.
- C. Many residents have told the library that they are unable to visit during its present Sunday hours.
- D. Every resident who visits the library on a Sunday borrows at least one book.
- E. Extending Sunday hours will cost the library less than extending its weekday hours would.

IN THE LESSON

- Here are the five choices.
- Choice A.
- Residents generally prefer visiting the library on Sundays rather than on Saturdays.
- Choice B.
- At least some residents who cannot visit during the current Sunday hours would borrow books if they came during the added hours.
- Choice C.
- Many residents have told the library that they are unable to visit during its present Sunday hours.
- Choice D.
- Every resident who visits the library on a Sunday borrows at least one book.
- Choice E.
- Extending Sunday hours will cost the library less than extending its weekday hours would.
- Which one matches the prediction?

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8 Question 1: test each choice

Prediction: at least some new visitors borrow books

A: Sundays over Saturdays	the claim is only about Sundays	**out of scope**
B: some would borrow	negate it and the plan fails	**the plank**
C: residents told the library	the passage already says it	**restates**
D: every visitor borrows	some new borrowers are enough	**too strong**
E: cost against weekdays	the claim is about borrowing	**comparison**

IN THE LESSON

- Now test each choice.
- Choice A compares Sundays with Saturdays.
- The argument never mentions Saturdays, so this is out of scope.
- Choice B matches our prediction.
- Negate it: none of these residents would borrow books in the extra hours.
- Then the longer hours add no borrowing, and the argument collapses.
- So B is needed.
- Choice C repeats the evidence, that residents told the library they cannot come.
- An assumption is unstated, so a restated premise is a trap.
- Choice D says every Sunday visitor borrows a book.
- That is too strong.
- Negate it, not every visitor borrows, and the argument still stands, because some new borrowers are enough.
- Choice E compares costs, but the conclusion is about borrowing, not money.
- The answer is B.

9 Question 2: baking fewer loaves

- Hartley Bakery bakes its loaves overnight and sells them from seven in the morning. On a typical day about a fifth of the loaves are unsold at closing and thrown away. The manager plans to bake a fifth fewer loaves each night and says this will cut waste without reducing the bakery's sales of bread.
- Which of the following is an assumption on which the argument depends?

IN THE LESSON

- Question two is a medium one.
- Again, read it with me.
- Hartley Bakery bakes its loaves overnight and sells them from seven in the morning.
- On a typical day about a fifth of the loaves are unsold at closing and thrown away.
- The manager plans to bake a fifth fewer loaves each night and says this will cut waste without reducing the bakery's sales of bread.
- The question: Which of the following is an assumption on which the argument depends?
- Notice that the manager makes two claims, not one.

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10 Question 2: find the gap

Hartley Bakery: bake one fifth fewer loaves each night

Conclusion	less waste, and sales kept	**two claims**
Evidence	a fifth unsold on a typical day	**typical**
New idea	every day, even busy days	**the gap**
Prediction	busy days fit the new batch	**the plank**

IN THE LESSON

- The conclusion has two parts: baking a fifth fewer loaves will cut waste, and it will not reduce sales of bread.
- The first part is easy, because fewer unsold loaves means less waste.
- The second part is where the gap is.
- The evidence is about a typical day, when about a fifth of the loaves are left over.
- But not every day is typical.
- On a busy day, the bakery might sell almost everything it bakes now.
- If it bakes a fifth fewer on that day, it would run out, and lose sales.
- So predict: the argument needs demand on every day, even the busiest, to fit inside the smaller batch.
- When the evidence is about a typical case and the conclusion is about every case, look for exactly this gap.

11 Question 2: the five choices

- A. The bakery sells none of its bread at a reduced price in the last hour before closing.
- B. Customers who find the bread they want sold out buy a different product from the bakery instead.
- C. The loaves that go unsold are no cheaper to bake than the loaves that sell.
- D. Baking fewer loaves each night will not lower the quality of the loaves that the bakery does bake.
- E. On the bakery's busiest days, sales do not exceed four fifths of its present output.

IN THE LESSON

- Here are the five choices.
- Choice A.
- The bakery sells none of its bread at a reduced price in the last hour before closing.
- Choice B.
- Customers who find the bread they want sold out buy a different product from the bakery instead.
- Choice C.
- The loaves that go unsold are no cheaper to bake than the loaves that sell.
- Choice D.
- Baking fewer loaves each night will not lower the quality of the loaves that the bakery does bake.
- Choice E.
- On the bakery's busiest days, sales do not exceed four fifths of its present output.
- Look for the busy day.

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12 Question 2: test each choice

Prediction: even the busiest days fit in four fifths

A: no cheap bread late in the day	cheap loaves are still sales	**out of scope**
B: customers buy something else	other products are not bread	**helps a little**
C: unsold loaves cost the same	cost is not the claim	**out of scope**
D: quality will not fall	quality is not the gap	**not needed**
E: busy days within four fifths	negate it and sales are lost	**the plank**

IN THE LESSON

- Choice A is about reduced prices late in the day.
- A loaf sold cheaply is still a loaf sold, so it does not decide whether sales of bread are kept.
- Out of scope.
- Choice B says customers who find their bread sold out buy something else instead.
- That softens the loss to the till, but the claim is about sales of bread, so B does not close the gap.
- Choice C is about the cost of baking, which bears on savings, not on sales.
- Choice D, quality, may matter to customers, but nothing in the plan changes it.
- Choice E matches the prediction.
- Negate it: on the busiest days, sales are more than four fifths of today's output.
- Then the smaller batch runs out and sales fall.
- The argument collapses, so the answer is E.

13 Question 3: more cases recorded

- After a screening campaign began in the county of Rennet, the number of recorded cases of a rare skin disease tripled. Doctors in the county had long suspected that many cases went unrecognised. Health officials conclude that the campaign uncovered cases that already existed rather than that the disease became more common.
- Which of the following is an assumption on which the argument depends?

IN THE LESSON

- Question three is a hard one.
- Read it carefully.
- After a screening campaign began in the county of Rennet, the number of recorded cases of a rare skin disease tripled.
- Doctors in the county had long suspected that many cases went unrecognised.
- Health officials conclude that the campaign uncovered cases that already existed rather than that the disease became more common.
- The question: Which of the following is an assumption on which the argument depends?
- This conclusion picks one explanation over another, which is a pattern worth knowing.

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14 Question 3: two explanations

Rennet: recorded cases tripled after screening began

Conclusion	old cases found, no more disease	**one cause**
Evidence	cases tripled; many went unseen	**the reason**
Rival	the extra cases are new ones	**the gap**
Prediction	few extra cases were new	**the plank**

IN THE LESSON

- The conclusion is the officials' claim: the campaign uncovered cases that already existed, rather than the disease becoming more common.
- The evidence: recorded cases tripled after screening began, and doctors had long suspected that many cases went unrecognised.
- When an argument chooses one explanation for a fact, the gap is always the other explanation.
- Here the other explanation is that many of the extra cases were new: people who became ill after the campaign began.
- If that were true, the disease really did become more common.
- So the argument must assume that this other explanation is not the main story.
- Our prediction: few of the extra cases were new illnesses.
- When you see the words rather than in a conclusion, predict that the rival is ruled out.

15 Question 3: the five choices

- A. Most of the cases found by the campaign had been present for more than a year before they were recorded.
- B. The campaign screened at least half of the county's residents.
- C. The cases found by screening are milder than the cases diagnosed before the campaign.
- D. The recorded number of cases of the disease had been steady in the years before the campaign.
- E. Few of the extra cases were in people who fell ill after the campaign began.

IN THE LESSON

- Here are the five choices.
- Choice A.
- Most of the cases found by the campaign had been present for more than a year before they were recorded.
- Choice B.
- The campaign screened at least half of the county's residents.
- Choice C.
- The cases found by screening are milder than the cases diagnosed before the campaign.
- Choice D.
- The recorded number of cases of the disease had been steady in the years before the campaign.
- Choice E.
- Few of the extra cases were in people who fell ill after the campaign began.
- Find the one that rules out the rival explanation.

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16 Question 3: test each choice

Prediction: few of the extra cases were new illnesses

A: present for over a year	earlier is enough, not a year	**too specific**
B: half the county screened	the share screened is not needed	**out of scope**
C: milder cases found	mild cases can still be old	**out of scope**
D: steady numbers before	negated, it still stands	**not needed**
E: few fell ill after it began	negate it and the claim fails	**the plank**

IN THE LESSON

- Choice A says most cases had been present for more than a year.
- The argument needs only that they existed before the campaign, not for a whole year, so A asks for too much.
- Choice B, the share of residents screened, does not tell us whether the extra cases were old or new.
- Choice C, severity, is a different question: milder cases could still be old ones.
- Choice D is the tempting one.
- Negate it: recorded cases were climbing before the campaign.
- Does the argument fall?
- No.
- The tripling could still be mostly old cases that went unrecorded.
- So D is not needed.
- Choice E matches our prediction.
- Negate it: many of the extra cases were in people who fell ill after the campaign began.
- Then the disease did become more common, and the conclusion fails.
- The answer is E.

17 Question 4: rates and inflation

- For twenty years, whenever the central bank of Vorland has raised interest rates, inflation has fallen within eighteen months. Inflation in Vorland is now rising. An economist concludes that if the central bank raises rates now, inflation will fall within eighteen months.
- Which of the following is an assumption on which the argument depends?

IN THE LESSON

- Question four is another hard one, and it uses a pattern from the past to predict the future.
- For twenty years, whenever the central bank of Vorland has raised interest rates, inflation has fallen within eighteen months.
- Inflation in Vorland is now rising.
- An economist concludes that if the central bank raises rates now, inflation will fall within eighteen months.
- The question: Which of the following is an assumption on which the argument depends?

18 Question 4: a pattern, or a cause?

Vorland: every rate rise followed by lower inflation

Conclusion	a rise now will lower inflation	**the claim**
Evidence	twenty years: rise, then fall	**a pattern**
New idea	the rise causes the fall	**the gap**
Prediction	rises not timed to falls	**the plank**

IN THE LESSON

- The conclusion: if the central bank raises rates now, inflation will fall within eighteen months.
- The evidence: for twenty years, every rate rise has been followed by a fall in inflation.
- The gap is the jump from followed by, to caused by.
- A pattern can appear without one thing causing the other.
- Imagine the bank were very good at forecasting.
- It might raise rates only when it could see that inflation was about to fall anyway.
- Then the falls would have happened with or without the rises, and the pattern would say nothing about what a rise does.
- So predict: the argument needs the past rises not to be timed to falls that were coming anyway.
- When a prediction rests on a past pattern, ask whether something else explains the pattern.

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19 Question 4: the five choices

- A. Each past rise in rates took place at a time when inflation was already rising, as it is now.
- B. No factor other than the bank's rate rises has lowered inflation in Vorland at any time in the past twenty years.
- C. The bank did not raise rates in the past only when inflation was about to fall anyway.
- D. The present rise in inflation has the same underlying cause as the rises that came before the earlier rate increases.
- E. Rate rises in Vorland have not been followed by rises in unemployment large enough to make the bank unwilling to raise rates again.

IN THE LESSON

- Here are the five choices.
- Choice A.
- Each past rise in rates took place at a time when inflation was already rising, as it is now.
- Choice B.
- No factor other than the bank's rate rises has lowered inflation in Vorland at any time in the past twenty years.
- Choice C.
- The bank did not raise rates in the past only when inflation was about to fall anyway.
- Choice D.
- The present rise in inflation has the same underlying cause as the rises that came before the earlier rate increases.
- Choice E.
- Rate rises in Vorland have not been followed by rises in unemployment large enough to make the bank unwilling to raise rates again.
- Which one rules out the forecasting story?

20 Question 4: test each choice

Prediction: past rises were not timed to coming falls

A: inflation was rising each time	the pattern works either way	**not needed**
B: no other factor ever helped	other help is fine	**too strong**
C: not timed to coming falls	negate it and it collapses	**the plank**
D: same cause of inflation	cause of the rise not needed	**not needed**
E: unemployment and willingness	the claim says if it raises	**out of scope**

IN THE LESSON

- Choice A says inflation was already rising each past time, as now.
- It sounds like a helpful match, but the pattern of falls after rises supports the conclusion either way, so it is not needed.
- Choice B says no other factor has ever lowered inflation.
- That is too strong.
- Other factors may have helped too, as long as the rises themselves did the work.
- Choice C matches our prediction.
- Negate it: the bank raised rates only when inflation was about to fall anyway.
- Then the pattern tells us nothing about rate rises, and the conclusion collapses.
- Choice D asks for the same cause of inflation, but the argument is about what rate rises do, whatever pushed prices up.
- Choice E is about whether the bank is willing to act, and the claim begins with if.
- The answer is C.

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21 Accurate and quick

- Read the question line first
- Put the conclusion in your own words
- Cut each wrong choice with one named reason
- Negation test on the last two only
- About two minutes, then decide and move on

IN THE LESSON

- Now some habits that save time without losing accuracy.
- First, read the question line before the argument, so you know you are hunting for a missing plank.
- Second, always put the conclusion into a few words of your own before you read the choices.
- That takes ten seconds and saves a minute of rereading.
- Third, eliminate with one clear reason.
- Out of scope, restates, too strong: name it and move on.
- Fourth, save the negation test for the last two choices, and negate precisely.
- Fifth, spend about two minutes on a question.
- If you are stuck between two after that, choose the one that passes the negation test more clearly and move on.
- A steady pace across the section beats a perfect answer on one question.

22 Patterns that keep coming back

- A change of idea: visiting becomes borrowing
- Typical case becomes every case
- One explanation chosen: rule out the rival
- Past pattern used to predict: it must be a cause

IN THE LESSON

- Look back at our four questions.
- Each gap came from a pattern you will meet again and again.
- In question one, the evidence was about visiting and the conclusion was about borrowing: a change of idea.
- In question two, the evidence was about a typical day and the conclusion covered every day: from some cases to all cases.
- In question three, the conclusion picked one explanation over another: the rival must be ruled out.
- In question four, a past pattern was used to predict the future: the pattern must reflect a real cause.
- When you read a new argument, ask which of these four it looks like.
- Very often, the answer tells you the missing plank before you even read the choices.

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23 Quick check

1. What is the opposite of 'every resident borrows a book'?
   Answer: Not every resident does: at least one does not.
2. A choice repeats a stated fact. Can it be the assumption?
   Answer: No: an assumption is needed but unstated.
3. You negate a choice and the argument still works. So?
   Answer: It is not needed, so it is not the assumption.

IN THE LESSON

- Now a quick check.
- Pause after each question and answer it yourself.
- Question one.
- What is the opposite of, every resident borrows a book?
- The answer: not every resident borrows a book, which means at least one does not.
- It is not, no resident borrows a book.
- Question two.
- A choice repeats a fact that the argument already states.
- Can it be the assumption?
- The answer is no.
- An assumption is something the argument needs but does not say.
- Question three.
- You negate a choice and the argument still works.
- What does that tell you?
- The answer: the argument does not depend on that choice, so it is not the assumption, however true or helpful it sounds.

24 Recap: the assumption method

- Conclusion, evidence, gap, prediction
- Name the trap in each wrong choice
- Negation test on the last two
- Its opposite breaks the argument: that is the answer

IN THE LESSON

- Let us recap the technique.
- Find the conclusion by asking why should I believe this.
- List the evidence.
- Look for the new idea that appears only in the conclusion, because that is the gap.
- Predict the missing plank in your own words before you read the choices.
- Then cut the wrong choices, naming the trap each time: too strong, restates a premise, out of scope, irrelevant comparison, or helps but is not needed.
- Finally, use the negation test on the last two.
- The right answer is the one whose opposite makes the argument fall apart.
- Practise this order on every assumption question until it becomes a habit, and you will find these questions both quicker and more certain.

Summary notes for the Charta whiteboard lesson. Figures are from the lesson's made-up examples.

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