

CHAPTER 14

Solutions to the Even-Numbered Questions in the Text

14.1A

2. No.
4. No.
6. Yes.
8. Yes.
10. Yes.

14.1B

2. General.
4. Particular.
6. Particular.

14.1C

2. Remote.
4. Remote.
6. Proximate.

14.1D

2. Necessary.
4. Necessary.
6. Necessary.

14.1E

2. Compound.
4. Compound.
6. Simple.

14.1F

2. Deterministic.
4. Statistical.
6. Deterministic.

14.2

2. It certainly makes sense to suspect that high GPA causes increased self-esteem. It seems less plausible that increased self-esteem causes higher GPA—perhaps high self-esteem might make a student more patient to study hard, but it might also make the student feel that he or she is so smart that he or she doesn't need to study. It is also possible that something—say, genetic endowment or the right kind of upbringing—causes both high GPA and high self-esteem. It is also possible that high GPA and high self-esteem cause each other. Lastly, it is possible that high GPA and some other factor—say, high I.Q.—could work together to cause high self-esteem.

4. It seems reasonable that exercise would lower heart disease risk. It is also possible that a higher risk of heart disease would lower the rate of exercise, when your doctor tells you to take it easy. It does not seem likely that some third factor causes both a higher tendency to exercise and a lower tendency to heart disease—although it is possible (perhaps a genetic predisposition to happiness might work). It seems unlikely that they are reciprocal effects. It is possible that exercise plus something else (such as an innate lack of stress) lowers heart disease.

14.3

2. Agreement + Difference.
4. Agreement.
6. Difference.

14.4A

2.

Cases	C	R	S	T	$C \rightarrow R$	$C \rightarrow S$	$C \rightarrow T$	$C \rightarrow (S \vee \neg R)$	$C \rightarrow (R \& \neg T)$	$C \rightarrow (\neg S \& \neg T)$
1	T	T	F	T	F T F	F F F	F T F	F F F F F	F F F F F	F F F F F
2	T	F	T	T	F F F		F T F			
3	T	F	F	T			F T F			

Only T survives as a necessary cause.

4.

Cases	C	B	D	T	$C \rightarrow \neg B$	$C \rightarrow (D \vee T)$	$C \rightarrow (T \& B)$
1	T	T	T	T	F F F F	F T F F F	F T F F F
2	T	F	T	T		F T F F F	F F F F F
3	T	F	F	F		F F F F F	
4	T	F	T	T	*		

None of these survives as a necessary cause.

* This case just repeats case 2; need not be considered.

14.4B

2.

Cases	H	A	B	C	$A \rightarrow H$	$B \rightarrow H$	$C \rightarrow H$	$\neg B \rightarrow H$	$\neg C \rightarrow H$	$(A \vee \neg B) \rightarrow H$	$(B \& \neg C) \rightarrow H$
1	F	T	F	T	T F F	F T F	T F F	T F F	F T F	T T F F F F	F F T F
2	F	T	T	F		T F F			T F F		T T F F
3	F	T	T	F							
4	F	F	F	T							

None of these hypotheses survives.

4.

Cases	P	L	M	N	$L \rightarrow P$	$M \rightarrow P$	$N \rightarrow P$	$\neg N \rightarrow P$	$\neg M \rightarrow P$	$(L \& M) \rightarrow P$	$(N \& L) \rightarrow P$
1	F	T	F	T	T F F	F T F	T F F	F T F	T F F	T F F T F	T T F F
2	F	F	T	T		T F F		F T F		F F T T F	
3	F	F	T	F				T F F		T F F T F	
4	F	T	T	F						T T T F F	
5	F	F	T	F							

All these hypotheses are eliminated.

14.4C

2.

Cases	L	Z	X	R	$Z \leftrightarrow L$	$X \leftrightarrow L$	$R \leftrightarrow L$	$\neg X \leftrightarrow L$	$\neg R \leftrightarrow L$	$(R \& Z) \leftrightarrow L$	$(\neg R \& \neg Z) \leftrightarrow L$
1	T	T	F	F	T T F	F F F	F F F	T T F	T T F	F F F F F	T F F F F F
2	F	F	F	F	F T F			T F F	T F F		
3	F	T	T	T	T F F						
4	F	T	F	T							

None of these hypotheses survives.

4.

Cases	Q	M	N	$M \leftrightarrow Q$	$N \leftrightarrow Q$	$\neg M \leftrightarrow Q$	$\neg N \leftrightarrow Q$	$(\neg M \& \neg N) \leftrightarrow Q$	$(\neg M \vee \neg N) \leftrightarrow Q$
1	F	T	T	T F F	T F F	F T F	F T F	F F F T F	F F F T F
2	T	T	T			F F T	F F F	F F F F T	F F F F T
3	T	F	T						
4	T	T	F						

None of these hypotheses survives.

14.7

2. It is more likely that higher education causes both higher socioeconomic status and bigger vocabulary, than merely having a good vocabulary causes higher status.
4. The crime rate might have gone down because the percentage of young men in the population has gone down—remember, crimes are committed disproportionately by young men in any society.
6. Perhaps the reversal of luck the writer reports after carrying the prayer card is the placebo effect.
8. Perhaps the crime rate rose because the percentage of young men in the population rose.
10. Perhaps the people reporting being healed by Princess Diana’s touch are experiencing the placebo effect.

14.9

2. Problem = the speaker tries to overturn a reasonable rule—that dogs usually make good pets—by citing an atypical case (of a rabid dog).
Label = faulty instantiation.
4. Problem = if a big business fails, hundreds of thousands of people are unemployed. Not so if a small business fails.
Label = faulty analogy.
6. Problem = giving people a second chance is generally good, but not if it violates justice and releases a dangerous criminal.
Label = faulty instantiation.
8. Problem = sharing possessions is generally good, but not if it enables cheating.
Label = faulty instantiation.
10. Problem = clinic not identified (and the sample size is only one).
Label = faulty appeal to authority (and faulty generalization).
12. Problem = turning the other cheek applies to insults and slights, not to child murder.
Label = faulty instantiation.
14. Problem = Heinlein compares “pruning” people with “pruning” a branching plant. But humans have rights, plants don’t.
Label = faulty analogy.
16. Problem = sample consists solely of Californians, so is biased.
Label = faulty generalization.
18. Problem = the nationwide study is not identified.
Label = faulty appeal to authority.

14.10

2. Problem = the question presupposes that Americans hate automobiles, which is the opposite of the truth.
Label = loaded question.
4. Problem = the other team's playing better that night is a better explanation for them winning than your absence from the stands.
Label = faulty causal reasoning.
6. Problem = no evidence is given that Tony's psychic predictions are accurate; instead, the ad talks about how popular he is.
Label = irrelevant appeal to identity.
8. Problem = by capitalizing the word "sex," it appears that the message is about sexual activity. Instead, the small print makes it clear all it says is that men and women are paid the same compensation.
Label = accent.
10. Problem = genetics may be a better explanation for Uncle Ed's long life than a vitamin that he took. In addition, only one case is cited, which is too small a sample size.
Label = faulty causal reasoning; also, faulty generalization.
12. Problem = the claim "You'll turn that stuff down" is merely repeated.
Label = circular argument.
14. Problem = no proof is given that Omoro works; instead, the ad says that it is very popular.
Label = irrelevant appeal to identity.
16. Problem = the need for civil rights legislation should be addressed on its merits, not on the merits of Rev. Smith.
Label = irrelevant appeal to antipathy.
18. Problem = it is quite possible that some third factor, such as the breakdown of the family structure, causes both the desire for violent entertainment and the increase in violent crime.
Label = faulty causal reasoning.
20. Problem = only two cases of middle-class people being audited are cited—sample size too small.
Label = faulty generalization.
22. Problem = the President doesn't say whether the economy will recover in the spring, but instead talks about it bottoming out perhaps next year.
Label = ignoring the issue.
24. Problem = the Cub Scout is exaggerating the effects of the neighbor's failure to contribute, including the chance of burglary, instead of explaining why the Scouts deserve support.
Label = irrelevant appeal to fear.

26. Problem = the salesman assumes that the customer will buy the suit, without giving any real evidence why the customer should.
Label = loaded question.
28. Problem = five students is too small a sample for reliable generalization.
Label = faulty generalization.
30. Problem = the claim that Suzie is immoral is repeated in different words.
Label = circular argument.
32. Problem = accountants may average \$80k yearly, but that figure only applies to the group collectively.
Label = division.
34. Problem = headline can be read as individuals Germans drink that much, or the German nation collectively does.
Label = equivocation (or division).
36. Problem = maybe those with an addictive personality take up both pot and heroine. Also, the sample here is only of drug-addicted prisoners—the sample is biased.
Label = faulty causal reasoning. Also, faulty generalization.
38. Problem = the writer generalizes on only his grandmother's case. Sample size is too small.
Label = faulty generalization.
40. Problem = unless Mom has relevant training (a Ph.D. in economics, political science, or history), her word on who to vote for is no more authoritative than any other's.
Label = faulty appeal to authority.
42. Problem = Wilberforce jokes about Huxley, distorting the concept that humans descended from ape-like beings to mean they did so two generations ago.
Label = ignoring the issue.
44. Problem = the conductor only says he will mix in some new music, not dump all the classical music.
Label = ignoring the issue.
46. Problem = the question presupposes that by dialing that number, you will get the best dental care. No evidence is given for this debatable claim.
Label = loaded question.
48. Problem = Luisa never said being rich was the most important thing in life, only that a marriage should be based on a sufficient income.
Label = ignoring the issue.