

## Exercise 22

1. Hasty generalization (you can't infer something general from just one case here—the sample size is way too small). There is also a sampling bias present: even if many others people from Silverton, CO drove pickups, it doesn't follow that people generally do. There is a high percentage of trucks in Silverton because the rough roads there almost require trucks.
2. Biased sample: even if he has an adequate sample size, Tom needs to sample from different times during the morning to be sure that he has a representative sample. If morning doves are disproportionately represented during the early morning hours, then his sample will be biased.
3. Even more clearly than the previous example, this one is a biased sample: even if he has an adequate sample size, Tom needs to sample from different times of the day. It is likely that morning doves will be disproportionately represented in the morning, since they are more likely to be out in the morning than other kinds of birds.
4. This example corrects the problems of the previous two: Tom has sampled from different times during the day. As long as he has taken these samples on multiple different days (preferably in different seasons too), then his sample is representative and his generalization is good.
5. Biased sample. Same problem, mutatis mutandis, as #3.
6. This seems to be a good generalization, assuming that he keeps up this regimen on multiple days. The difference, of course, is that instead of making his generalization cover the whole day, his generalization is only about the birds that land in his tree during the night.
7. Biased sample. Of course the home owners will be likely to support a policy that slashes property taxes. Most likely, those on Medicaid (governmental health care support for the elderly) will not be homeowners but will be in nursing home facilities. If the poll had been administered to Medicaid recipients (who are less likely to own homes), the results would likely have been different.

8. This seems a good generalization. Telephone polls are a good way of getting a random sample, and the sample size is large enough if a good random sampling technique is used.
9. Sampling bias because of the biased way the question is asked: “killing innocent children” uses strong, evaluative language and may influence how people answer, making them more likely to choose option b over option a (who wants to say they support “killing innocent children”?).
10. Steve’s problem is that he has gotten a biased sample. Ani Difranco concert-goers are not representative of concert-goers tout court. Since Ani Difranco is very political (and from a feminist perspective), we should expect to see a much higher proportion of such speech at an Ani Difranco concert. In contrast, Tom Petty is about as apolitical as any musician.
11. Biased sample. We should expect students in detention to be less satisfied, on average, than students generally. Thus, since the principal’s survey was only administered to students in detention, the rate of dissatisfaction will be much higher, which will make the sample unrepresentative and the generalization bad.
12. This seems to be a good generalization. Her generalization only covers “all Pistons games” (rather than all NBA games or all professional sports games, more generally) and she has attended many games over many years. Thus the sample seems to be both representative (i.e., non-biased) and large enough.
13. Unlike the last example, Alice’s generalization now applies to all NBA games, but still uses only her experience at Pistons games. But unless we are given some reason for thinking that Pistons games are representative of all NBA games, we should not assume that Pistons games are representative of all NBA games. Thus, the sample is probably biased (although we do not know for sure that it is, we cannot assume it isn’t without further investigation).
14. Even more than the last example, this one is biased sample. Unless we have a good reason for thinking that Pistons games are representative of all professional sporting events, we cannot assume that they are.
15. Although we can understand Bob’s fear, this is clearly a hasty generalization since he is generalizing from only one case at one Burger King to all Burger Kings, all the time.

Exercise 23 (Note: for many of these, there is more than one correct answer. The important thing to do is to give the correct explanation for why the explanation lacks the virtue you have chosen.)

1. This could be any number of them, including: depth (why would the aliens have kidnapped him and then returned him to his home?), power (this explanation cannot be used in a range of different circumstances—a better explanation is simply that he has some kind of amnesia), or simplicity (if we don't have any other reason to admit there are aliens, then we should simply chalk it up to some kind of amnesia).
2. Modesty. There is no reason she should posit all of those specific details about the badger, even if it was a badger. However, even just saying it's a badger or a large rodent is an explanation that seems to lack simplicity. If houses naturally creak and windows rattle from the wind, then positing a large rodent seems unnecessary. A better explanation would simply be that the house creaks naturally as it slightly shifts and the wind is rattling the windows.
3. Simplicity and modesty. It is simpler to simply assume that there is someone who looks like Bob, whether or not he is Bob's identical twin. It is also more modest since positing someone who looks like Bob could include someone that is Bob's identical twin, but also leaves open the possibility that it's just an unrelated person who happens to look like Bob. The explanation might also lack power insofar as it raises more questions than it answers. For example, why did Bob never tell you about his identical twin?
4. Conservativeness: people don't die and come back to life, as far as we know. Thus, we could also say it lacks power since this kind of explanation doesn't apply in any other cases we know. A better explanation is that there is someone who looks just like Tom.
5. Modesty. Like #3, a more modest explanation is that this is someone who looks like Tom, whether or not it is Tom's son. The explanation might also lack depth since we would want to know why you had never seen or heard of Tom's son for 20 years.
6. The last line is the giveaway: this explanation lacks falsifiability. The reason is that Elise says that there is no way to prove that this happened (she just knows it). The explanation also lacks depth since we would want to know why and how this replacement was done!
7. If this explanation lacks an explanatory virtue, it is probably falsifiability: there is no way (within current science) to show that there wasn't such a being. Furthermore, it might also lack depth since it raises the question: where did this all-powerful being come from?
8. Modesty. Why think that it is her 5<sup>th</sup> grade teacher rather than just some person following her? The explanation is far more specific than it needs

- to be in order to explain the observations she has made. Thus, it lacks modesty.
9. Again, this explanation lacks modesty. Why not just say that it is “an animal” rather than “an escaped zoo animal.” Unless she has some evidence relevant to the escaped zoo animal hypothesis, she should just leave it at the more general “animal” hypothesis. Furthermore, the explanation may be said to lack power, as well. Since most such noises are made by creatures in the wild, not escaped zoo animals, the “creatures in the wild” explanation is more powerful, since it is used to explain a much wider range of similar observations (i.e., hearing rustling in the bushes and sticks cracking on the ground while in the woods).
  10. Simplicity. The simpler explanation is that Bill was speeding, not that they had tracked his overdue library book. It also lacks power since most of the time when people are pulled over on the highway it is for speeding, not unreturned library books.
  11. This is a good explanation and seems to lack no explanatory virtue.
  12. This explanation clearly lacks modesty. Why say that someone was going precisely 13.74 mph over the speed limit rather than saying that they were going over the speed limit (without specifying how far)? That specificity is not justified by the observed facts.
  13. Conservativeness. We have no good reason for positing some whole new breed of rats—especially if the claim is that they evolved in her apartment only. This would violate what we know about how evolution works (i.e., we probably need a much larger population for this to happen than the population of rats that are contained in only her apartment). Furthermore, the explanation lacks power since a better explanation that applied to a wider range of circumstances is simply that the rats were not taking the bait.
  14. Even more clearly than #13, this one lacks conservativeness. There are no known cases of anything being immortal and this idea violates our understanding of the basic laws of nature. Nothing is immortal.
  15. Again, this explanation lacks conservativeness (i.e., it violates our understanding of nature which says that nothing is immortal). A better explanation is that the bullets Bob put in his gun were blanks (cf. the movie, *Crash*).

#### Exercise 24

1. Weak: if the painting is hanging in your high school, it probably isn't a Rembrandt. That is the disanalogy: even if the colors are very similar, almost all Rembrandts hang in galleries, not in high schools.
2. Weak. Although the similarity is that they are both poodles, there is probably some other characteristic that accounted for me being bitten. That is, it probably wasn't the fact that the dog that bit me was a poodle, but more likely that I was invading its space or it felt threatened, etc. It could have likely been some other breed in the same circumstances. So it isn't "poodleness" that accounts for the biting. That said, if we had evidence that poodles are much more likely to bite than other breeds then this argument would be stronger.
3. Strong. Unlike, the last one, this argument delivers a much stronger analogy between past events (poodle-encounters and poodle-bitings) and the current event (poodle-encounter).
4. Strong. The relevant similarities are: 1) Van Cleave's class doesn't change much from semester to semester, 2) the person has the same abilities as their friend who got the A.
5. Weak. Although both are crimes, there are many relevant differences between committing rape and robbing a bank.
6. Weak. There is no particular relationship between having seats, wheels, and brakes, on the one hand, and being safe to drive, on the other. So having seats, wheels and brakes is not a relevant similarity between the two cars, if what we are interested in is how safe they are.
7. Strong. The car company (Volvo) is a relevant similarity between the old cars and the new car. We can expect similar quality between cars from the same company. In contrast, knowing that a car has wheels, brakes and seats tells us essentially nothing about its quality, including its safety.
8. Strong.
9. Weak. A birthday party and a funeral are not relevantly similar in this case. A funeral is a much more important family event than a birthday party (typically). So we should not expect similarity with respect to a professor's absence policy when comparing birthday parties to funerals.
10. Weak. Although both may influence happiness, the relevant difference is that whereas heart and brain surgery are typically a matter of life and death (and hence much more likely to be paid for by insurance), cosmetic surgery is not a matter of life and death.

11. Weak. Although a knife and spoon share the property of being eating utensils, that is not a relevant similarity on which we can expect that they will share functional properties like cutting.
12. Whether this famous argument for the existence of God is strong or weak is a matter of some debate. One reason for saying it is a weak argument is that there is a disanalogy between artificial objects and natural objects, since complex natural objects may evolve without being designed by an intelligent designer, whereas no artificial objects (yet) can evolve on their own.
13. Weak. Running the same number of miles as an elite runner is not a relevant similarity for determining how fast one will run a race. The relevant dissimilarity here is that although Bekele runs his mile repeats at close to 4:00 flat, I can only run mine at 5:30. So it is the pace at which one runs, rather than the number of miles one runs, that is the better predictor of how fast one can run a race.
14. Strong. The fact that we are both humans is relevant to determining whether someone will feel pain. Humans all have similar physiology, which is why we should expect that if x causes one person physical pain, then x will also cause anyone else a similar pain. (However, this argument also raises a famous problem in philosophy of mind called “the problem of other minds.” The issue is whether or not we can ever know that people have mental states, such as pain, like my own. Even if you exhibit pain behavior in similar instances in which I experience pain, how do I know that you are actually feeling what I am feeling—that you are having the experience of pain, rather than simply exhibiting pain behavior without have the mental experience of it? Many philosophers have argued that we cannot overcome this problem and must admit that we cannot know whether people other than ourselves actually have mental states like ours.)
15. Again, the common sense answer would be that this is a strong argument based on a strong analogy. Since you and I are both human and share similar perceptual systems, we should expect that we will perceive the world very similarly (even if not exactly the same). (However, we can raise the same “problem of other minds” problem here as I did in #14 above. Suppose we both point at the grass and say that it is green. However, how do I know that your experience of green is like my experience of green? Maybe your experience of green is more like my experience of red and vice versa.)