

Inference to the best explanation

HOMEWORK

Submit all homework assignments on Canvas as a Word (.doc or .docx) file. So that I can grade anonymously, **please do not include your name** or any other identifying information.

In addition, some exercises include a word limit or word range. For these exercises, strive for concision and simplicity (while still using complete sentences), and **include a word count** for each of your answers.

Exercise 1. Carefully review my comments on your previous homework submission, as well as the answer key.

- (a) What are the most important mistakes that you made? If you did not make any mistakes on the homework, instead tell me the most important mistakes that you made in seminar. (Range: 30-60 words.)
- (b) What specific strategies can you use to avoid such mistakes in the future? Remember to apply these strategies to the rest of this homework! (Range: 30-60 words.)

Exercise 2. Xunzi compares learning to the process of getting blue dye from an indigo plant.

- (a) Create a table that identifies three elements in the metaphorical domain, three corresponding elements in the target domain, and the similarities between these elements.
- (b) Using this table as your guide, explain Xunzi's comparison in a paragraph. (Range: 40-50 words.)

Exercise 3. In the first paragraph of ch. 23, Xunzi offers many pieces of evidence for the conclusion that human nature is bad. Identify three of these. (Limit: 30 words in total.)

READING

In its simplest form, *inference to the best explanation* is a form of argument in which one infers from a body of evidence to the best explanation of that evidence. Scientific reasoning often takes the form of an inference to the best explanation. Schematically, a simple inference to the best explanation might be represented as follows:

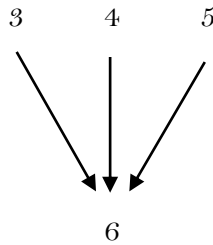
1. [Evidence.]
2. [Evidence.]
3. [Evidence.]
4. [The best explanation for all of the above evidence.]

Here are some simple examples of inferences to the best explanation:

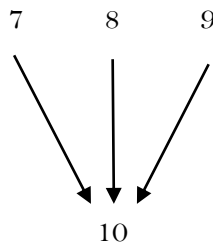
1. Whenever Quentin is around Alice, his cheeks become flushed, his heart rate quickens, and he loses his train of thought.
2. Quentin has a crush on Alice.



3. There are many small paw-prints on the ground.
4. The lettuce in the garden has been chewed up.
5. This morning, my dog was barking in the direction of the garden.
6. This morning, there was a rabbit in the garden.



7. In societies without laws, people behave chaotically.
8. Children are greedy and selfish.
9. As our technological capacities have developed, human beings have killed one another in larger and larger numbers.
10. Human nature is bad.



You may find the following test helpful: if the conclusion of an argument explains each premise of the argument taken singly, then the argument is likely an inference to the best explanation.

Be careful, however! Students often think that *any* argument in which there is some explanatory relationship between the conclusion and the premises is an inference to the best explanation. But this is not true. For example, consider this argument:

11. Dara drank three cups of espresso at midnight.
12. Dara will not fall asleep before 2 AM.

11



12

Yes, this is a perfectly reasonable argument, but it is *not* an inference to the best explanation. Why not? Because the premise explains the conclusion, not the other way around. Keep this nuance in mind when you are trying to determine the form of an argument.

One last note. Unlike a number of argument forms that we will study later, inference to the best explanation is *not deductively valid*: that is, the conclusion of an inference to the best explanation may be false *even if the premises are true*. Nevertheless, inference to the best explanation is often a *good* form of argument. (An argument form can be good without being deductively valid.) And an inference to the best explanation becomes more persuasive as the body of starting evidence grows larger.

WARM-UP EXERCISES

First complete all but the last of these exercises on your own. Then check your answers against the answer key that is included at the end of this handout, and use what you have learned to complete the last exercise. Finally, submit all of your answers on Canvas as a Word (.doc or .docx) file.

So that I can grade anonymously, please **do not include your name** or any other identifying information. In addition, some exercises include a word limit or word range. For these exercises, strive for concision and simplicity (while still using complete sentences), and **include a word count** for each of your answers.

Warm-up 1. Suppose that an argument has the following conclusion:

- (a) Human beings are naturally stupid.

Which of the premises below could reasonably support this conclusion via inference to the best explanation? (Circle *all* correct answers; there might be zero, one, or many.)

- (b) Evolution has selected for many stupid creatures.
- (c) Human beings have trouble solving simple problems.
- (d) Human beings often forego substantial long-term benefits for very small short-term rewards.
- (e) Most human beings are poorly educated.
- (f) All creatures great and small are stupid.

Warm-up 2. Let us consider the opposite question. Suppose that an argument has the following premise:

(g) There is a fire in Cendana.

Which of the conclusions below could this premise reasonably support via inference to the best explanation? (Circle *all* correct answers; there might be zero, one, or many.)

(h) Someone left metal in the microwave in Cendana.

(i) Someone dropped a lit match in Cendana.

(j) There is smoke in Cendana.

(k) The fire department will arrive soon.

Warm-up 3. Mengzi argues that human nature is good; Xunzi argues that it is bad. What is your view of human nature? Use inference to the best explanation to support your answer, and underline your interpersonal evidence. (Range: 60-120 words).

Warm-up 4. Carefully review the answer key for the warm-up exercises. Then answer the following questions.

(a) What are the most important mistakes that you made? If you did not make any mistakes, then instead reflect on the most important mistakes that you recently made in seminar. (Range: 30-60 words.)

(b) What specific strategies can you use to avoid these mistakes in the future? (Range: 30-60 words.)

ANSWERS TO WARM-UP EXERCISES

Warm-up 1. Suppose that an argument has the following **conclusion**:

- (a) Human beings are naturally stupid.

Which of the **premises** below could reasonably support this conclusion via inference to the best explanation? (Circle *all* correct answers; there might be zero, one, or many.)

- (b) Evolution has selected for many stupid creatures.

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| (c) Human beings have trouble solving simple problems. |
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| (d) Human beings often forego substantial long-term benefits for very small short-term rewards. |
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- (e) Most human beings are poorly educated.

- (f) All creatures great and small are stupid.

Note. In an inference to the best explanation, we are not looking for claims that could explain the conclusion. So, even though claims (b) and (f) could explain claim (a), these are not correct answers to the question.

Warm-up 2. Let us consider the opposite question. Suppose that an argument has the following **premise**:

- (g) There is a fire in Cendana.

Which of the **conclusions** below could this premise reasonably support via inference to the best explanation? (Circle *all* correct answers; there might be zero, one, or many.)

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|---|
| (h) Someone left metal in the microwave in Cendana. |
|---|

- | |
|---|
| (i) Someone dropped a lit match in Cendana. |
|---|

- (j) There is smoke in Cendana.

- (k) The fire department will arrive soon.

Note. In an inference to the best explanation, we are *not* looking for claims that could *be explained by* the premise. So, even though claim (g) could explain claims (j) and (k), these are not correct answers to the question.