HOW DO WE DISTINGUISH ARGUMENTS AND CAUSAL EXPLANATIONS? © 2007 Claude Gratton

Compare the following passages, and identify the argument and the causal explanation.

A (1) You will succeed in this course because you are intelligent and industrious.

A (2) You have succeeded in this course because you are intelligent and industrious.

When contrasting the conclusions of (1) and (2) in this limited context, the past tense in (2) suggests that the conclusion is assumed to be true, while the future tense in the conclusion of (1) suggests that it is NOT assumed to be true. Do NOT assume that the past tense of a conclusion entails that the conclusion is assumed to be true! For example, historians can argue for or against the occurrence of a past event.

Statement S is used to ARGUE for / SUPPORT the truth or acceptability of conclusion C

IF (i) Statement S provides some evidence that C is true/acceptable.

(ii) The conclusion of an argument is NOT supposed to be assumed to be true/acceptable. If an argument does assume its conclusion, then the argument is circular, and consequently, the conclusion cannot be accepted from that argument.

Statement S is used to EXPLAIN causally conclusion C

IF (i) Statement S is used to help us understand why statement C is true: S refers to an event(s) that causes or that are part of the cause of the event(s) mentioned or described in the conclusion.

(ii) Conclusion C IS assumed to be true. We usually speak only of truth in the case of causal explanations because they deal with only natural events.

CAUTION. We also use the word “explain” to mean something other than a causal explanation:

(i) Sometimes we use "explain" in a descriptive sense, e.g. "Explain to me what happened".

(ii) Sometimes our understanding of something is based on how something else functions, or how something is to be done. For example, “That individual is a provider because that is his/her role in that culture” is an example of a functional explanation: we understand why s/he is a provider because of his/her function. The sentence, “One bakes a cake by doing x, y, z” is a conditional statement, “If one does x, y, z, then one bakes a cake”, in which the proposition, “one does x, y, z” explains how to bake a cake.

(iii) Sometimes we understand something because we know its goals. For instance, “That individual is a provider because s/he wants to feed his/her family (i.e. because his/her goal is to feed his/her family”. This is a goal-based explanation (teleological explanation).

These are NOT examples of causal explanations. Do not confuse them with causal explanations.

(I) Questions to raise to determine whether reasoning is an argument or an explanation:

(1) Is the conclusion interpreted as a fact, or assumed to be a true about some natural event? Explanation

(2) Is the author trying to make me understand why a statement is true? Explanation

(3) Is the conclusion interpreted as something doubtful that needs to be supported? Argument

(4) Is the author trying to convince/persuade me to believe or do something? Argument

Given these notions of an argument and explanation, it is reasonable to interpret A(1) in the first paragraph as an argument, and A(2) as an explanation. NOTE: The premise indicator "because" can be used to introduce reasons of either arguments or explanations.

There is another way to help us distinguish arguments from explanations. Consider the following examples.

(a) Compare/contrast their reasons. (b) Which one of the following reasoning is an explanation? argument?

Someone forgot the pen on the table.

1. I see a pen on the table. & 2. Observations conditions are good. & 3. Nothing physical or psychological is hindering my vision.

(II) Procedure to determine whether reasoning is an argument or a causal explanation:

(1) Identify the main/final conclusion, C.

(2) Temporarily discard the actually given reasons.

(3) Focus only on conclusion C.
(4) Give some reasons that would support the truth or acceptability of \( C \). Either write them down or mentally note them. It’s not important that they be good supportive reasons. What you want to do is invent a sufficient number of supportive reasons in order to have a sense of the kind of reason that would support the truth or acceptability of \( C \).

(5) Temporarily assume that the conclusion \( C \) is true, and give some reasons that would make us understand why \( C \) is true. Either write them down or mentally note them. Again, it’s not important that they be good (causally) explanatory reasons. What you want to do is invent a sufficient number of reasons in order to have a sense of the kind of reason that would help us to understand why \( C \) is true.

(6) Generally, these two groups of reasons will be different because an (a) argument and a causal explanation have different goals, and (b) a causal explanation assumes that its conclusion is true, but an argument attempts to show that its conclusion is true.

(7) Compare your two groups of reasons to the given reasons in the reasoning.

(8) If the given reasons resemble more your reasons in (4), then it’s probably an argument.

(9) If the given reasons resemble more your reasons in (5), then it's probably a causal explanation.

**NOTE** that approach (II) assumes that the reasons of an argument and an explanation are different. This is NOT always the case: for instance, the reasons of argument A(1) and explanation A(2) in the first paragraph are identical.

**APPLICATIONS OF APPROACH (II):**

**FIRST EXAMPLE** (1) <New England’s seasons are different from those of Europe>. (2) <Its summers are hotter and its winters colder>. 2→1

<table>
<thead>
<tr>
<th>Reason</th>
<th>Argument</th>
<th>Causal explanation</th>
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<tbody>
<tr>
<td>The average seasonal temperatures are different.</td>
<td>New England has a coast, but many European countries do not.</td>
<td></td>
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<tr>
<td>The length of the seasons are different.</td>
<td>Europe has mountains, but not New England.</td>
<td></td>
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<tr>
<td>The winters in N.E. have more snow.</td>
<td>They are located at different latitudes.</td>
<td></td>
</tr>
<tr>
<td>The autumns in N.E. are more colorful.</td>
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As you can see, the given reason in the passage resembles more the reasons in the argument. So the charitable/generous interpretation is that this is an argument. **Note** that the reasons in the argument would be totally inadequate reasons in an explanation; and the reasons in the explanation would be totally inadequate reasons in an argument. This is generally the case.

**SECOND EXAMPLE** The different tense in the conclusions of examples A(1) and A(2) in the first paragraph might suggest the past tense in a conclusion is sufficient for its conclusion to be assumed to be true. The past tense is NOT such a sufficient condition because of many examples like the following:

**B (1)** You have succeeded in this course because you go an A+.

**B (2)** You have succeeded in this course because you worked efficiently.

(a) Though both conclusions are expressed in the past tense, the charitable/generous interpretation of B(1) is that it is an argument because the given reason is similar to the kind of reasons that could be advanced in support of the truth or acceptability of the conclusion: your instructor told me that you succeeded; I saw your transcripts. **Note** that these supportive reasons would all be inadequate reasons to explain the conclusion.

(b) Though both conclusion are expressed in the past tense, the charitable/generous interpretation of B(2) is that it is a causal explanation because the given reason is similar to the kind of reasons that could be advanced to help us understand why the conclusion is true: you cheated; the test was easy; you had a great teacher; you are brilliant; you had a great textbook. **Note** that these explanatory reasons would all be totally inadequate reasons to support the truth or acceptability of the conclusion. This is generally the case.
Why is the distinction between arguments and explanations important?

(1) Reasons that explain an event referred to in a conclusion are typically different from reasons that support the truth or acceptability of a conclusion. So, if we give explanatory reasons when we are trying to present an argument, it will typically be a defective argument. And if we give supportive reasons when we are trying to advance a causal explanation, it will typically be defective causal explanation.

(2) The evaluation of a causal explanation and an argument is different in one very important respect: alternative/competing reasons are advanced only against causal explanations. Reasons advanced to explain an event CAN (but not necessarily) compete against each other, while reasons advanced to support the truth or acceptability of a claim generally “collaborate”: they “work together” to increase the likelihood of the conclusion.

(3) When evaluating causal explanations, people often confuse alternative/competing reasons counterexamples against the sufficiency of an event mentioned in a reason to cause the event referred to in its conclusion. So, if we remind that we are evaluating a causal explanation rather than an argument, and that we have this tendency to confuse alternative/competing reasons and counterexamples, we can more easily avoid that confusion.

Here is a simple example illustrating the similarities and difference between the evaluation of a causal explanation and an argument.

1. The door is shut because of the strong wind. CAUSAL EXPLANATION
   (a) Is the reason true? Since I don’t have the context, I cannot really assess its truth.
   (b) Is the event referred to in the reason sufficient to cause the event mentioned in the conclusion? (This question addresses the strength of the causal connection.) No, for there are counterexamples against the explanatory connection: it is possible that there is something (a door stopper, or an adequately heavy object, or extremely rusty door hinges) preventing the door from shutting despite the strong wind. Hence, this explanation is not valid. The absence of a context prevents me from estimating the combined likelihood of these counterexamples, and thus prevents me from estimating the strength of the explanatory connection.
   (c) Are there any alternative/competing reasons/causes that
      (i) are at least as likely as the given reason, and
      (ii) express an explanatory connection to the conclusion is at least as strong as that of the given reason?
   For instance, the door is shut because someone shut it; or because an animal (e.g., a pet) pushed it. The absence of a context prevents me from estimating whether the alternative/competing reasons are more likely than the given on, and whether these alternative/competing reasons express a stronger explanatory connection to the conclusion than that of the given reason. Nevertheless, they are realistic alternative/competing reasons.
   In conclusion, this causal explanation has some serious problems: I cannot verify the truth of the given reason (due to the lack of a context); the event mentioned in the given reason is not sufficient to cause the event referred to in the conclusion, in other words, the explanation is invalid; and there are realistic alternative explanations/causes.

2. The door is shut because I no longer feel a draft. ARGUMENT
   (a) Is the reason true? Since I don’t have the context, I cannot really assess its truth.
   (b) Is the reason sufficient for the truth of the conclusion? (This question addresses the strength of the supportive connection.) No, for there are counterexamples against the supportive connection:
it is possible that the external wind simply died down (which is consistent with the given reason) and that the door is not shut. The absence of a context prevents me from estimating the probability of this counterexample.

In conclusion, this argument has some problems: I cannot determine the truth of its reason (due to the lack of a context); its reason is not sufficient for the truth of its conclusion, in other words, the argument is invalid.

These examples illustrate that the central difference in the evaluation of a causal explanation and an argument is that alternative/competing reasons are advanced only against causal explanations.

JUSTIFICATION of action / EXPLANATION of action

Compare and contrast the following examples:

(a) I did that because it is the right thing to do in such a situation.
(b) I will do that because it is the right thing to do in such a situation.
(c) I did that because I was brain washed to do that in such a situation.

Example (a) contains a reason that justifies an action. Justificatory reasons of a human action can partly explain that action, for as thinking beings we are moved or influenced by reasons, even if the reasons are not rational. Hence, reasons that justify human action also partly explain that action when and only when the action has occurred or is currently occurring. A justification of an action is an argument, because in justifying an action (i) we are trying to convince someone to believe that an action is appropriate or acceptable according to some criterion/standard, and (ii) we are giving reasons, which sometimes describe the criterion/standard.

Example (b) contains the same reason that justifies the same action, but in this case the reason does not explain that action because the future tense of the sentence indicates that the action cannot be assumed to have occurred or to be currently occurring. Causal explanations always assume that the conclusion is true or acceptable.

Example (c) contains a reason that explains the same action, but it does not justify the action.

The goals of questions such as, "Why did you behave that way?", “Why are you behaving that way?" can be to seek reasons that either justify or explain, and the reasons that justify the behavior will also partly explain it. Such questions can be ambiguous, and so sometimes we may need to ask the questioner to specify his/her goal. For if s/he wants justification, and we give only an explanation, we will not answer the question; though if s/he seeks an explanation, and we give a justification, we will at least partly answer the question. Questions such as “Why will you behave that way?” can only be legitimately used to request a justification, for they do not presuppose that the behavior has occurred or is occurring, and causal explanations always assume that the conclusion is true.

Summary of the procedure to distinguish arguments and causal explanations

Procedure to follow when unsure whether reasoning is an argument or a causal explanation:

1. Identify the main/final conclusion, C.
2. Mentally discard temporarily the actually given reasons.
3. Focus only on conclusion C.
4. What kind of reasons would support the truth of C, would show that C is true? Either write down or mentally note them. These would be reasons of an argument.
5. What kinds of reasons would make me understand why C is true? Either write down or mentally note them. These would be the reasons of an explanation.
(6) Generally, these two groups of reasons will be different because an (a) argument and a causal explanation have different goals, and (b) a causal explanation assumes that its conclusion is true, but an argument attempts to show that its conclusion is true.

(7) Compare your two groups of reasons to the given reasons in the passage.

(8) If the given reasons resemble your reasons in (4), then it's probably an argument.

(9) If the given reasons resemble your reasons in (5), then it's a causal explanation.

INSTRUCTIONS: 1. Number the statements consecutively. 2. Circle conclusion indicators. 3. Box in premise indicators. 4. Diagram the reasoning. 5. Identify the arguments and the causal explanations.

1. The door is shut because of the strong wind. PARAPHRASED: The door is shut. There is/was a strong wind.
2. The door is shut because I no longer feel a draft.

3. Dogs do not like being alone, for they are a sociable species.
4. Dogs do not like being alone, for they bark loudly when alone.

5. Movie X is the highest grossing movie of all time. Hence, it is the best movie of all time [HINT: value claim].
6. Movie X is the highest grossing movie of all time. This follows from its being the best movie of all time.

7. In the light of the fact that water was such a common resource, it was not used efficiently.
8. Inasmuch as water is such a common resource, it will not be used efficiently.

9. The popular press gave the inventors a lot of press coverage. This is based on the fact that it described their inventions in many pages for ten consecutive days.
10. The popular press gave the inventors a lot of press coverage. Here’s why: their invention will have a dramatic impact on everyone in society.

11. The pipes burst due to the fact that the water in them froze.
12. There was water in the pipes, and the pipes are located in the outside walls. The temperature got down to zero degrees F last night. The house was not heated. Water freezes at 32 degrees F. Water expands when it freezes. So the pipes burst.
13. I know what a cracked pipe looks like. When I installed the pipes they were not cracked. I examined them yesterday, and noticed that they were cracked. A cracked pipe is a burst pipe. So the pipes burst.

14. The Opera House profits have declined for the reason that it brought obscure or unpopular operas without big-name stars.
15. The Opera House profits have declined. The proof: this year’s profits are smaller than last year’s.

16. Minority groups live apart from whites This is established from the fact that one does not see any people from minority groups living in the white neighborhoods.
17. Minority groups live apart from whites, for that’s what whites want.

18. The plane crashed on account of the fact that its pilot was intoxicated.
19. The plane crashed for the simple reason that all its parts were scattered over a distance of three hundred meters.

20. The core cause of homophobia is that even the most virulent homophobes are themselves repressed sexually, even with same sex attraction.
PARAPHRASED: There is homophobia. Even the most virulent homophobes are themselves repressed sexually. Homophobes are sexually repressed even with same sex attraction.

21. Communication in a court of law differs from communication on a basketball court. This is explained by the fact that people know from experience that these “courts” are very different.

22. As a planet orbits a star, its gravity tugs on the star, creating a slight wobble.

23. Ready for anything under the sky. Ready because you’re that kind of guy.
24. S/he is disgusting. The reason is that s/he had an affair with someone married.

25. Parents are often ignorant of how much the world has changed since their youth, and thus misunderstandings often arise between them and their children.

23. Ready for anything under the sky. Ready because you’re that kind of guy.

24. S/he is disgusting [Hint: the conclusion is a value claim]. The reason is that s/he had an affair with someone married.

25. Parents are often ignorant of how much the world has changed since their youth, and thus misunderstandings often arise between them and their children.

26. Our lower back muscles are put under a lot of stress in everyday life. For that reason we should maintain strong backs [HINT: prescriptive claim].

27. Our lower back muscles are put under a lot of stress in everyday life. For most of us spend a lot of time sitting, and have bad sitting postures.

28. Players of sport X are the best-paid athletes among all the professional sports. This indicates that, they are the best athletes among all professional sports. [HINT: the conclusion is a value claim.]

29. Players of sport X are the best-paid athletes among all the professional sports. This follows from the fact that they are the best athletes among all professional sports.

30. A high percentage of body fat is associated with an increased risk of heart disease. Then body fat is an important aspect of physical health for the reason. [HINT: the conclusion is a value claim.]

31. The combination of both primary and secondary sources in one’s research is valuable because primary sources provide a check against inaccuracies that may exit in a secondary source. [HINT: the conclusion is a value claim.]

32. As physics focuses on properties that are truly basic to the way nature works, it can be applied fruitfully to objects as different as subatomic particles, distant stars, and speeding automobiles.

33. Here is why water is effective as a heat bank: it can absorb or release a relatively large amount of heat with only a slight change in its own temperature.

34. Foreign businessmen should be very cautious about trying to keep up with their Japanese hosts at business drinking rituals. [HINT: the conclusion is a prescriptive claim.] It is all too common to see visiting businessmen being returned to their hotels well after midnight, sodden drunk.

35. Modernization theory uses the world’s most economically developed countries as the standard for judging the rest of humanity, thus modernization theory has an ethnocentric bias.

36. Most people have a very limited understanding of the design of musculoskeletal system for balance; this state of ignorance is, in itself, an impediment to the improvement of posture.

PARAPHRASED: Most people have a very limited understanding of the design of musculoskeletal system for balance. Most people have difficulty improving their posture.

37. Fat is an efficient storage form for energy. The evidence is that each gram contains over twice the energy content of either carbohydrate or protein.

38. Electrical power outages caused by bad weather or equipment failure do happen. Hence, people who depend on electrically operated medical equipment should take measures to protect themselves against occasional interruptions of electrical service by providing for an alternate power supply. [HINT: the conclusion is a prescriptive claim.]

39. Since honey is quickly absorbed by the body, it’s a popular pick-me-up for athletes.

40. As the sale of honey to athletes has increased dramatically, it’s a popular pick-me-up for athletes.
41. The participating narrator is telling his story in the first person. This being so, some details in the story stand out more than others.

42. The same kind of recurring details of the story are mentioned by the readers of the story. I would have to say that some details of the story stand out more than others.

43. The public response to criminal violence has become correspondingly bitter. 3/5 of the American public expressed their support for a self-styled vigilante who shot down four young black men after they asked him for $5.

44. John R. Craise M.D., a professor at Wale Forest University, Winston-Salem North Carolina recently discovered that a daily intake of soy protein high in soflavones can lower LDL (bad) cholesterol by as much as 10 percent. If we consume a diet with a high intake of soy protein, our cholesterol level will be lowered.

45. We need you to work longer hours because we have insufficient workers.

46. Because profit is total revenue minus total cost, the profit from an additional worker is the worker’s contribution to revenue minus the worker’s wages.