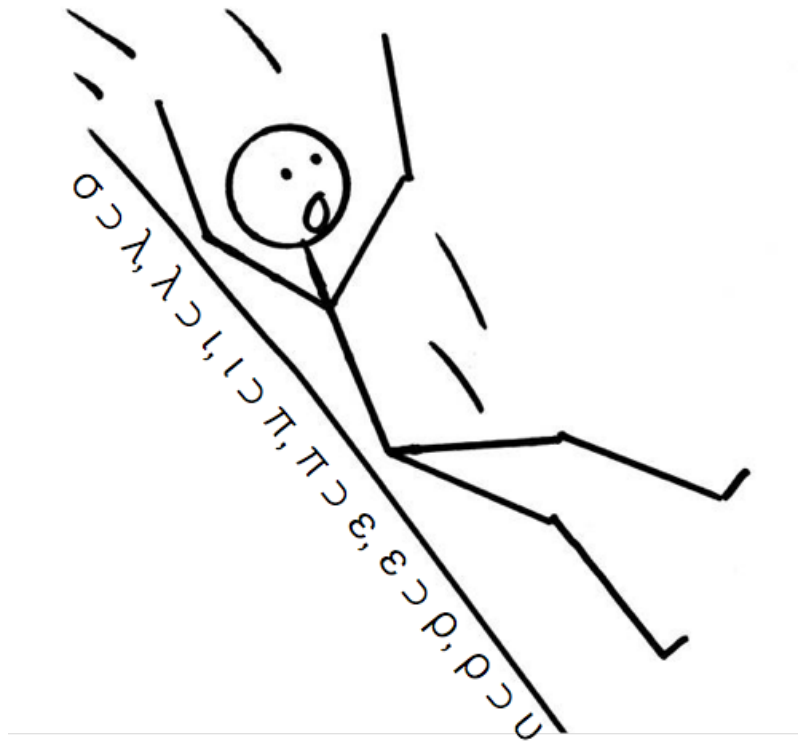


Introduction to Logic and Critical Thinking

Version 1.4



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1.2 Identifying arguments

The best way to identify whether an argument is present is to ask whether there is a statement that someone is trying to establish as true by basing it on some other statement. If so, then there is an argument present. If not, then there isn't. Another thing that can help in identifying arguments is knowing certain key words or phrases that are premise indicators or conclusion indicators. For example, recall Sally's abortion argument:

Abortion is morally wrong *because* it is wrong to take the life of an innocent human being, and a fetus is an innocent human being.

The word "because" here is a premise indicator. That is, "because" indicates that what follows is a reason for thinking that abortion is morally wrong. Here is another example:

I know that the student plagiarized *since* I found the exact same sentences on a website and the website was published more than a year before the student wrote the paper.

In this example, the word "since" is a **premise indicator** because what follows it is a statement that is clearly intended to be a reason for thinking that the student plagiarized (i.e., a premise). Notice that in these two cases, the premise indicators "because" and "since" are interchangeable: I could have used "because" in place of "since" or "since" in the place of "because" and the meaning of the sentences would have been the same. In addition to premise indicators, there are also conclusion indicators. Conclusion indicators mark that what follows is the conclusion of an argument. For example,

Bob-the-arsonist has been dead for a year, *so* Bob-the-arsonist didn't set the fire at the East Lansing Starbucks last week.

In this example, the word "so" is a **conclusion indicator** because what follows it is a statement that someone is trying to establish as true (i.e., a conclusion). Here is another example of a conclusion indicator:

A poll administered by Gallup (a respected polling company) showed candidate x to be substantially behind candidate y with only a week left before the vote, *therefore* candidate y will probably not win the election.

In this example, the word “therefore” is a conclusion indicator because what follows it is a statement that someone is trying to establish as true (i.e., a conclusion). As before, in both of these cases the conclusion indicators “so” and “therefore” are interchangeable: I could have used “so” in place of “therefore” or “therefore” in the place of “so” and the meaning of the sentences would have been the same.

Table 1 contains a list of some common premise and conclusion indicators:

Premise indicators	Conclusion indicators
since	therefore
because	so
for	hence
as	thus
given that	implies that
seeing that	consequently
for the reason that	it follows that
is shown by the fact that	we may conclude that

Although these words and phrases can be used to identify the premises and conclusions of arguments, they are not failsafe methods of doing so. Just because a sentence contains them does not mean that you are dealing with an argument. This can easily be shown by examples like these:

I have been running competitively *since* 1999.

I am so happy to have finally finished that class.

Although “since” can function as a premise indicator and although “so” can function as a conclusion indicator, neither one is doing so here. This shows that you can’t simply mindlessly use occurrences of these words in sentences to show that there is an argument being made. Rather, we have to rely on our understanding of the English sentence in order to determine whether an argument is being made or not. Thus, the best way to determine whether an argument is present is by asking the question: Is there a statement that someone is trying to establish as true or explain why it is true by basing it on some other statement? If so, then there is an argument present. If not, then there isn’t. Notice that if we apply this method to the above examples, we will

see that there is no argument present because there is no statement that someone is trying to establish as true *by basing it on some other statement*. For example, the sentence “I have been running competitively since 1999” just contains one statement, not two. But arguments always require at least two separate statements—one premise and one conclusion, so it cannot possibly be an argument.

Another way of explaining why these occurrences of “so” and “since” do not indicate that an argument is present is by noting that both premise indicators and conclusion indicators are, grammatically, conjunctions. A grammatical conjunction is a word that connects two separate statements. So, if a word or term is truly being used as a premise or conclusion indicator, it must connect two separate statements. Thus, if “since” were really functioning as a premise indicator in the above example then what followed it would be a statement. But “1999” is not a statement at all. Likewise, in the second example “so” is not being used as a conclusion indicator because it is not conjoining two separate statements. Rather, it is being used to modify the extent of “happy.” In contrast, if I were to say “Tom was sleeping, so he couldn’t have answered the phone,” then “so” is being used as a conclusion indicator. In this case, there are clearly two separate statements (“Tom was sleeping” and “Tom couldn’t have answered the phone”) and one is being used as the basis for thinking that the other is true.

If there is any doubt about whether a word is truly a premise/conclusion indicator or not, you can use the **substitution test**. Simply substitute another word or phrase from the list of premise indicators or conclusion indicators and see if the resulting sentence still makes sense. If it does, then you are probably dealing with an argument. If it doesn’t, then you probably aren’t. For example, we can substitute “it follows that” for “so” in the Bob-the-arsonist example:

Bob-the-arsonist has been dead for a year, *it follows that* Bob-the-arsonist didn’t set the fire at the East Lansing Starbucks last week.

However, we cannot substitute “because” for “so” in the so-happy-I-finished-that-class example:

I am *because* happy to have finally finished that class.

Obviously, in the latter case the substitution of one conclusion indicator for another makes the sentence meaningless, which means that the “so” that occurred originally wasn’t functioning as a conclusion indicator.

Exercise 2: Which of the following are arguments? If it is an argument, identify the conclusion of the argument.

1. The woman in the hat is not a witch since witches have long noses and she doesn’t have a long nose.
2. I have been wrangling cattle since before you were old enough to tie your own shoes.
3. Albert is angry with me so he probably won’t be willing to help me wash the dishes.
4. First I washed the dishes and then I dried them.
5. If the road wasn’t icy, the car wouldn’t have slid off the turn.
6. Albert isn’t a fireman and he isn’t a fisherman either.
7. Are you seeing that rhinoceros over there? It is huge!
8. The fact that obesity has become a problem in the U.S. is shown by the fact that obesity rates have risen significantly over the past four decades.
9. Bob showed me a graph with the rising obesity rates and I was very surprised to see how much they’ve risen.
10. Albert isn’t a fireman because Albert is a Greyhound, which is a kind of dog, and dogs can’t be firemen.
11. Charlie and Violet are dogs and since dogs don’t sweat, it is obvious that Charlie and Violet don’t sweat.
12. The reason I forgot to lock the door is that I was distracted by the clown riding a unicycle down our street while singing Lynyrd Skynyrd’s “Simple Man.”
13. What Bob told you is not the real reason that he missed his plane to Denver.
14. Samsung stole some of Apple’s patents for their smartphones, so Apple stole some of Samsung’s patents back in retaliation.
15. No one who has ever gotten frostbite while climbing K2 has survived to tell about it, therefore no one ever will.

Exercise 1

- | | |
|---|-----------------------------------|
| 1. Statement | 8. Statement |
| 2. Statement | 9. Statement |
| 3. Not a statement (question) | 10. Statement |
| 4. Statement | 11. Not a statement (question) |
| 5. Not a statement (command) | 12. Not a statement (exclamation) |
| 6. Not a statement
(command/request) | 13. Not a statement (command) |
| 7. Statement | 14. Statement |
| | 15. Statement |

Exercise 2

1. Argument. Conclusion: The woman in the hat is not a witch.
2. Not an argument
3. Argument. Conclusion: Albert won't be willing to help me wash the dishes.
4. Not an argument
5. Not an argument
6. Not an argument
7. Not an argument
8. Argument. Conclusion: Obesity has become a problem in the U.S.
9. Not an argument
10. Argument. Conclusion: Albert isn't a fireman.
11. Argument. Conclusion: Charlie and Violet don't sweat.
12. Argument (explanation). Conclusion: I forgot to lock the door.
13. Not an argument
14. Argument (explanation). Conclusion: Apple stole some of Samsung's patents.
15. Argument. Conclusion: No one who gets frostbite while on K2 will ever survive.

Exercise 3

1. Explanation. Conclusion: Wanda rode the bus today.
2. Explanation. Conclusion: Wanda has not picked up her car from the shop.
3. Argument. Conclusion: Bob rode the bus to work today.
4. Argument. Conclusion: It can't be snowing right now.
5. Explanation. Conclusion: Some people with schizophrenia hear voices in their head.
6. Argument. Conclusion: Fracking should be allowed.
7. Argument. Conclusion: Wanda did not ride the bus today.