

# reason and argument

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## Arguments and validity

Monty Python say: “An argument is a connected series of statements intended to establish a definite proposition.”

The goal of an argument is establishing a “definite proposition.” That's just a fancy way of saying that an argument gives good, perhaps conclusive, reasons for believing some claim or statement. What you believe depends on what you think is *true* and *statements* are the kinds of things that can be true or false. That sounds basic, but it's a very important point to keep in mind and it will help us understand what belongs in a good argument and what does not. So, an argument is supposed to give reasons for thinking that some statement is true.

Arguments are rather simple, in that the reasons for believing a statement are just other statements. The reasons, like the conclusion, are the kinds of things that can be true or false. So, “ouch!” is not a statement, and will not occur in any good arguments. Similarly, questions (“Huh?”), imperatives (“sit down!”), and the like will not appear in good arguments. If you stumble over something that looks like a question, imperative, exclamation or some other beast in an argument, beware. Nothing but a statement will help to establish some conclusion. Why? Well, as a first pass at the question, you are trying to figure out what is *true*, and what is true is going to depend on what *else* is true, not on questions, imperatives, exclamations and the like.

That's not to say that you should *ignore* things such as questions and imperatives when you see them written out in an argument. Your task is much more difficult. What looks linguistically like a question can convey that someone endorses a statement, which might be quite important for the argument. Similarly, metaphors are usually literally false, but they can express claims that are true. Also, not every statement that appears in an argument is a statement that matters to the argument.

Sometimes another statement, suggested by the one expressed, does the work, and sometimes the statement is just irrelevant.

As a responsible consumer and producer of arguments, you must cut through all of the rhetorical devices to its hard core, which is a list of connected statements. Before you ignore anything that is not a statement, you need to make sure it does not imply or implicate a statement that is important for the argument. And before you just use a statement you need to make sure that *it*, and not one of its implications, is what matters.

Consider the following example of someone trying to sell you a watch.

You look like a smart person. You know Rolexes cost at least \$5000 if you're silly enough to buy one in the store. I'm offering you this Milgauss for \$500. Think about it. When's the last time you got a 90% discount? I hate to do this. I'd rather not, in fact, but I need the cash now. You're not one of those people who turns down a great deal, right? Why not think of this as your lucky day, and you help me out too. How about it?

This is an argument, or at least it's productive to think of it as an argument. Not everything said by the salesman is a straightforward statement, and not everything that is a statement matters for the argument. Trying to reconstruct the argument as a connected series of statements might get us something like the following, though there are other ways of doing it:

Rolexes cost at least \$5000 in the store. (He said it.)  
This is a Rolex. (He almost said this explicitly.)  
This is not stolen. (He doesn't say this, but suggests it.)  
I will sell it to you for \$500. (That's his offer.)  
You get a 90% discount. (Just a little math.)

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Therefore, this is a great deal.

Premises, like conclusions, are just statements: the kinds of things that can be true or false. We call them premises because they play a supporting role in the argument. They present grounds upon which one

can build support for the conclusion. The parentheticals indicate whether the premise is given support elsewhere, is baldly asserted, or is derived from other premises one way or another.

The argument above does not get all the way to the main conclusion. What does the salesman want? He wants you to buy this watch, here and now. He has offered reasons for thinking this is a great deal. Some of those premises gain limited support from other things he said:

When's the last time you got a 90% discount?

This suggests that such discounts are rare. This contributes to the appeal of the deal.

I hate to do this, but I need the cash now.

This suggests that the watch is not stolen, that it is genuine, and that you are the beneficiary of such a great deal because of someone else's financial problems. Notice that this claim is not given any support. It is not the conclusion of some other argument; it is just a premise. How does this claim support the premise about the watch being genuine?

I just need money right now, or I would not offer it so cheaply.

I say this is a Rolex.

Therefore, this is a Rolex.

As it stands, this is one weak argument. I'm not sure we want to include it in our statement of the whole, since it doesn't add much support to the claim about the Rolex. Let's keep it to one side, since it will help as a response to an objection to the argument later on. Notice that I can make a similar argument about the watch not being stolen.

You're not one of those people who turns down a great deal, right? It must be your lucky day.

The implication here is that you would be a bad, or at least silly, person for turning down this deal. He can't come out and say that, because then you would probably walk away. Instead, he says something else, which carries that implication. These claims are related to the main conclusion of the argument, as we will see, but they don't give it much weight. The

idea is that you are being offered a great deal, and if offered a great deal you should take it. You should buy this watch.

Let's bring everything together:

1. Rolexes cost \$5000 in the store. (assumed)
  2. This is a Rolex. (assumed; there is a weak argument for it)
  3. I will sell it to you for \$500. (he can sell his stuff as he wants)
  4. Therefore, you get a 90% discount on a Rolex.  
(follows from 1, 2, and 3)
  5. This watch is not stolen. (assumed; weak argument for it)
  6. So, this is a great deal.  
(follows from 4 and 5)
  7. If you are offered a great deal, you should take it.  
(assumed)
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8. Therefore, you should buy the watch.  
(follows from 6 and 7)

That's quite a bit of work for an argument that's easily understood anyway, but doing this work helps us understand arguments better. Notice that the argument above, unlike the one presented by the salesman, consists entirely of statements. The role that each statement plays in supporting the conclusion is clear. And every statement in the argument plays some role in establishing the conclusion. How can we be sure? Look at the comments in parentheses. They tell you whether a premise is assumed or whether it follows from another set of premises, and if so, which ones. You find that 1, 2, and 3 are important for establishing 4; 4 and 5 are important for establishing 6; and 6 and 7 get you 8. Everything in the argument does something, and the argument explains what each part does. This is an *argument in standard form*. Often, it can help a lot to put an argument into standard form. The work required to do so allows you to see where you might want to object, or to understand why you want to agree. Let's consider a few points about arguments like this.

First, notice that each conclusion, even if it is an interim conclusion, is marked off with a word—‘therefore’, ‘thus’, or ‘so’—that indicates it follows from something else. This is a good practice, as it keeps clear the relationships between the different premises in an argument. The larger the argument, the more important it will be to do this.

Second, consider claim 4. Imagine I added another premise, 3a, just before 4:

3a. If Rolexes cost \$5k in the store and I will sell you this Rolex for \$500 then you get a 90% discount.

4. Therefore, you get a 90% discount.  
(follows from 1, 2, 3, and 3a)

This amendment seems unnecessary. It’s clear how 4 follows from 1-3 and we don’t need to add 3a to show how this works. The same thing happens with 8, which follows from 6 and 7. We don’t feel the need to include a conditional premise, 7a, that explicitly links 6, 7, and 8. But it does seem worthwhile to include 7, which just articulates a relationship between 6 and 8. We will have occasion to return to this issue in the future. Some might feel the need to include 3a and to add a 7a as well, just to show the full structure of our reasoning here, but it’s hard to see how it could help.

Third, each of the conclusions is listed as *following* from some other premises. So far, I have not said what it is for one statement to follow from another statement, but isn’t it interesting that we have fairly strong intuitions about how it’s supposed to work? Without a theory of any of this you can fairly easily see that 4 follows from 1-3, whatever that means. We want to make that implicit sense of one statement following from others explicit, so we can work with it more effectively. It turns out that there are many senses in which one statement might follow from others, but the following condition captures one that is very important for deductive arguments.

B follows from A if it is impossible for  
A to be true while B is false.

This captures what we mean when we say an argument is *deductively valid*. The truth of the premises leaves no wiggle room with respect to the conclusion. Or, there is no way to make the premises could be true and the conclusion false. When trying to build an argument from the salesman's pitch, we were looking for statements that would demand the truth of the conclusion in this manner. If we want to resist the argument, we will take aim at the premises offered, as the examples below show.

Once you are convinced the argument is valid, you need to check whether the premises are true. All that validity tells you is that *if* the premises are true, then the conclusion is also true. If you then check it out and the premises are true, you know you have good reason to believe your conclusion (well, we'll consider worries about this later on). Any valid argument whose premises are all true is called *sound*. An argument can fail to be sound for either of two reasons: at least one of its premises is false or it is invalid. As long as you stick to true premises and valid arguments, you will never be led astray, but it will become clear that not all sound arguments are good, because they can be very unhelpful.

Here are some responses someone might have to the argument about buying a Rolex. Notice how each one of them suggests, sometimes obliquely, that one or another premise is false.

That's not a Rolex.	This <i>contradicts</i> one of the premises.
That is a knock-off.	This is <i>contrary</i> to one of the premises.
I don't need a watch.	An <i>implicature</i> of this is contrary to one of the premises. Which implicature and which premise?
Why are you selling it for only \$500?	Good question. And it is a <i>question</i> . This question challenges 2 premises.
What am I, crazy?	Good <i>rhetorical</i> question, though not very original.

By implication, this challenges any of a number of premises.

You must think I am crazy. By implication, it challenges many premises.

If that is a Rolex,  
then it is stolen. A conditional! This is a *statement*.  
How does it engage the argument?

If that is a Rolex,  
then it's broken. Same question as above.

If that is a Rolex,  
then I am the Pope. My favorite.

The last conditional shows just how strange conditionals are. If this is your response to the salesman, then you likely think the first part of the conditional, its *antecedent*—that is a Rolex—is false. You also presumably think the conditional's *consequent*—I'm the Pope—is false, and my guess is that the salesman agrees with that part. Nevertheless, you assert something true when offering the conditional. It's true, even though both of its parts are false. Not all conditionals work this way, but an important class of them does, and we will talk quite a bit about them in the coming weeks. Just for now, compare the conditional above with the following. Are they true too?

If that were a Rolex, then I would be the Pope, and

Necessarily, if that is a Rolex, then I am the Pope.

Earlier, I asked about whether a premise that explicitly relates the first few premises to the conclusion is necessary, or whether we can dispense with it. How might we answer this question? Well, the obvious thing to note is that we did not feel a need to include all of the other conditionals for the sub-conclusions in the argument. Sometimes you might want to include such a premise because the argument is complicated, and it helps to clarify things. Similar claims could not be made about the simpler conclusions drawn along the way to our final one. But if that is the only reason, then it seems strictly speaking unnecessary to include a conditional premise relating the conclusion to the other premises.

Validity is important because if we can make an argument valid, we know how we might resist it or how we might go about supporting it. You cannot undermine the conclusion of a valid argument without showing that one or more of the premises is false. This can help organize our thoughts about a topic in a very productive fashion. You should not take this to mean that validity in itself is always useful, however, or that it always makes an argument good. Here are some really bad, single-premise valid arguments:

It rained today. Therefore, it rained today.

It rained today and it did not rain today.  
Therefore, the moon is made of cheese.

Triangles have four sides.  
Therefore, Sept 21 is the fall equinox.

It rained today. Therefore, triangles have three sides.

Can you explain why they are valid? Why they are nevertheless terrible?  
For the first question, consult the explanation of validity above.

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