Creating Argument Diagrams
By Mara Harrell

Section 1: Introduction

The word “philosophy” comes from the Greek “philos” (meaning love) and “sophia” (meaning wisdom); thus philosophy literally is the “love of wisdom.” Whatever else philosophy may be, most people agree that it still retains this spirit of its etymological roots, and that when we are engaged in philosophy we are pursuing wisdom for the sake of itself. Wisdom, however, is not the same thing as knowledge or information. We aren’t merely trying to amass list of interesting ideas, or believe anything that sounds good. Wisdom is, at least in part, the reflection on and critical evaluation of what we ourselves and others around us believe about some very heady topics.

Philosophers have always used arguments as their main tool of exploration. Part of the pursuit of wisdom is the creation and critical reflection on our own arguments, as well as the understanding, evaluation, and critical assessment of those of others.

It is often difficult, however, to determine just what the argument is when you are reading philosophy. This is where argument diagramming is useful. This activity helps us to reconstruct an argument, and shows us where the argument may be criticized.

For example, consider the following argument about global warming:

*I think everyone would agree that life is worth protecting, and that the environment sustains all of us. It stands to reason, then, that we need to protect the environment. One particular threat to the environment is the emission of greenhouse gasses. This is because greenhouse gasses trap the energy of the sun, causing the warming of the planet, and the warming of the planet could have catastrophic effects on the environment. So, we just can’t avoid the conclusion that we need to reduce greenhouse gas emissions.*

The argument presented here can be diagramed as follows.

1. The author indicates that the two premises in the first sentence will be taken for granted—i.e. not supported by other premises—by using the phrase, “I think everyone would agree…”
2. That these two premises combine to support the sub-conclusion in the next sentence is indicated by the phrase, “It stands to reason, then,…”
3. The general claim that we need to protect the environment is paired with the more specific claim that greenhouse gasses threaten the environment.
4. The three claims in the third sentence provide support for this more specific claim.
5. The main conclusion is indicated by the phrase, “we just can’t avoid the conclusion that…”
6. For the diagram, the claims are put into boxes, the inferential connections are represented by arrows, and all the excess rhetorical verbiage is removed.
For another example, consider this argument from Descartes’ *Third Meditation* concerning the origin of his idea of God:

> It only remains to me to examine into the manner in which I have acquired this idea from God: for I have not received it through the senses, [since] it is never presented to me unexpectedly, as is usual with the ideas of sensible things when these things present themselves, or seem to present themselves, to the external organs of my senses; nor is it likewise a fiction of my mind, for it is not in my power to take from or add anything to it; and consequently the only alternative is that it is innate in me, just as the idea of myself is innate in me.  

The argument that Descartes explicitly gives can be represented by the following diagram:
This diagram makes both the content and the structure of the argument clear by eliminating unnecessary language, and visually representing the way the premises work to support the main conclusion.

Of course, it may be true that there are hidden or unstated parts of an argument. Often these are implied premises that the author is implicitly using to make his or her inferences valid. In Descartes’ case, for example, we may wonder why not having the power to take from or add anything to the idea of God would support the sub-conclusion that the idea of God cannot be a fiction of the mind. One interpretation—it has to be an interpretation because we can’t read Descartes’ mind—is that Descartes believes, and is using implicitly, the premise: “If it is not in my power to take from or add anything to an idea, then that idea is not a fiction of my mind.” This can be represented in the argument diagram as follows:

And, in principle, we could do the same for all the other inferences in the argument.

Although argument diagramming may appear to be simple, quite a bit goes into it. So we need to learn some technical vocabulary first, and then learn some rules that will help us with the following skills that are needed for diagramming.

1. Identifying the premises and the conclusion
2. Eliminating non-essential verbiage (where appropriate)
3. Putting the steps of the argument in the proper order
4. Identifying the structure of the argument
Section 2: Vocabulary

Before we can dive into argument diagramming, we need to learn how to identify the various parts of an argument. And in order to do that, we need to become familiar with three very important definitions.

**Statement**: A *statement* is a sentence that can either be true or false.

**Example**: “I received an A on the final paper in my introductory philosophy course.”

This statement is either true or false depending on my actual grade on the paper. We say that this sentence has a truth-value (either true or false), and perhaps we can even know what the truth-value is. Not all sentences in English are statements—questions, commands, and propositions, for example, are not statements. Some non-statement sentences can, however, be transformed into statements with some re-wording.

**Example**: “Go to class!”

This imperative can be usefully transformed into the statement, “You should go to class,” if the context permits.

**Conditional Statement**: Conditional statements are special because they occur so often in arguments. A conditional statement has two parts: the *antecedent* and the *consequent*. A conditional statement generally has the form of an “if, then” statement, in which we have “If [the antecedent], then [the consequent].” Consider the following:

**Example**: *If* you receive an A on the final paper, *then* you receive an A in the class.

The entire statement is the conditional, “you earned an A on the final paper” is the antecedent, and “you earn an A in the class” is the consequent. It is important to remember that a conditional statement, just like a regular statement, is a sentence that has a truth-value. This conditional statement is either true or false depending on the instructor’s policies in the course.

**Argument**: For our purposes an *argument* is a technical term that has a precise meaning: an *argument* is a set of *statements*, one of which is the *conclusion*, and the others are *premises*, which are supposed to provide support for the conclusion. In other words, the conclusion asserted to be true on the basis of the premises. For example, you might make the following argument to your philosophy instructor:

“*It says in the syllabus that if a student receives an A on the final paper, then he or she will receive an A in the class. I did, in fact, receive an A on my final paper, so I should get an A in the class.*”

An argument can be good or bad based on (1) how well the premises support the conclusion, and (2) the truth-value of the premises. In this case, the premises do indeed support the conclusion, so whether it is a good argument depends on whether both premises are true.
Section 3: Identifying Premises and Conclusions

There are several tips that are useful when trying to identify the various parts of an argument that may be embedded in a lot of excess verbiage in the prose that you read.

Tip 1: Premises and conclusions are not always stated in complete independent sentences.

Above we learned that premises and conclusions are statements, which are types of sentences. However, it is not always the case that these statements are actually given as complete, independent sentences in the text.

Example: *We should abolish the death penalty because it does not deter crime.*

This is an *argument* because the author is asserting the truth of one statement (the conclusion: *We should abolish the death penalty*) on the basis of another (the premise: *The death penalty does not deter crime*).

Each of these are *statements* because they are expressions of propositions that are either true or false (though we may not know the truth or falsity), even though they were both contained in the same sentence.

Exercises (1-3)

For each of the arguments below, rewrite the premises and conclusions as complete, independent sentences.

1. Farm-raised fish are bad for the environment, so you shouldn’t eat them.
2. You shouldn’t believe that Kiera was home studying, since I saw her at the movies.
3. I should be the one to drive the car; after all, it’s mine.

Tip 2: Look for premise and conclusion indicators

We can often identify the premises and conclusions of arguments by the signals the author uses. In the example above, the author uses a common premise indicator: “because.” This alerts us that what follows “because” is supposed to support (act as a premise for) some other statement.

Some common premise indicators are:

- *because*
- *after all*
- *given that*
- *the reason that…is*
- *in light of the fact that*
- *since*
- *as*
- *for*
- *based on the fact that*
- *assuming that*

Example: *Given that it’s already 8:00, we are going to be late for the movie.*

Here, the phrase “given that” indicates that “it’s already 8:00” is a premise.

Example: *The reason that people should be allowed to own guns is that people have the right to protect themselves.*
Here, the phrase “the reason that…is” indicates that “people have the right to protect themselves” is a premise.

In addition, there are also words that signal a conclusion. Common conclusion indicators are:

- so
- therefore
- we may infer that
- thus
- accordingly
- implies that
- hence
- consequently
- shows that
- it follows that

**Example:** *It’s already 8:00; hence we are going to be late for the movie.*

Here, the phrase “hence” indicates that “we are going to be late for the movie” is a conclusion.

**Example:** *The fact that people have the right to protect themselves implies that people should be allowed to own guns.*

Here, the phrase “implies that” indicates that “people should be allowed to own guns” is a conclusion.

Note that these two arguments are the same as the two arguments above, rewritten to have conclusion indicators instead of premise indicators.

**Exercises (4-6)**

For each of the arguments above, identify the premise or conclusion indicator in the argument, and what it indicates.

**Tip 3: Look for other kinds of indicators**

The arguments we have seen in the last few examples are all two-statement arguments; they consist only in one premise that supports a conclusion. Most arguments, however, are more complex, and there are a variety of words and phrases that indicate a more complicated structure.

**Example:** *Medical researchers are constantly discovering new ways to treat and cure diseases, and the health of our citizens should be a top national priority. Thus, doctors should be eligible for government grants to support their work.*

In this argument, there are two different statements, joined by the word “and,” in the first sentence:

1. Medical researchers are constantly discovering new ways to treat and cure diseases.
2. The health of our citizens should be a top national priority.

In the second sentence we have a conclusion indicator, “thus,” telling us that what came in the first sentence supports the statement in the second. The most plausible interpretation is that the author intended the two statements in the first sentence to work together to support the conclusion, since neither claim seems to be able to be able to do the job by itself.
Thus, we can rewrite the argument:

| Premises: | Medical researchers are constantly discovering new ways to treat and cure diseases. |
| Conclusion: | Doctors should be eligible for government grants to support their work. |

| Premises: | The health of our citizens should be a top national priority. |
| Conclusion: | Doctors should be eligible for government grants to support their work. |

There are other, more subtle, ways that an author may indicate that two (or more!) premises are supposed to work together to support a conclusion. Consider this:

**Example:** *The price of gas a rising at an astronomical rate. So, since we have a limited budget, we need to start driving less.*

In the second sentence we have two statements:
1. We have a limited budget.
2. We need to start driving less.

And we have two indicator words: “so” and “since”. The phrase “since we have a limited budget” is set off by commas, so it is meant to be parenthetical. This means that the author may have wanted to make the following argument:

*The price of gas a rising at an astronomical rate. So we need to start driving less.*

but believed that this premise alone couldn’t adequately support the conclusion, and put in another premise—*we have a limited budget*—to help the first. We can rewrite the argument as:

| Premises: | The price of gas a rising at an astronomical rate. |
| Conclusion: | We need to start driving less. |

| Premises: | We have a limited budget. |

Some common combination indicators are:

| and | thus, since | in addition to the fact that |
| but | so, since | plus the fact that |

In contrast, an author may want to give several different reasons for a conclusion—reasons that can each work independently to provide support, but together make a better argument. Consider:

**Example:** *Eating animals is wrong for a variety of reasons. First, many animals are sentient creatures that have thoughts and emotions. Second, we should not cause animals to suffer if we don’t need to. Finally, raising animals for food uses resources, like grain, that could be used to feed hungry people around the world.*

Here, the author actually gives a list of different reasons that support the conclusion. The implication of such a list is that each reason can stand on its own to support the conclusion, and each reason added just makes the argument stronger. We can rewrite this argument as:
Premises: Many animals are sentient creatures that have thoughts and emotions. 
We should not cause animals to suffer if we don’t need to. 
Raising animals for food uses resources, like grain, that could be used to feed hungry people around the world.
Conclusion: Eating animals is wrong.

Exercises (7-10)
For each of the arguments below, identify which statements are the premises and which are the conclusions.

7. We need to take this animal to treat its injuries, but we can’t take it home. So, I think we should take it to the vet.
8. Taxing our earnings is the same as the government forcing us to work without pay. Thus, since it is morally wrong to force someone to be a slave, taxing our earnings is wrong.
9. A government is responsible for the safety and security of its citizens. That, plus the fact that you can’t protect anyone without any resources, supports the claim that the government is right to tax our earnings.
10. There are many reasons why we should invade Iraq. First, Saddam Hussein is an evil dictator. Second, Iraq has weapons of mass destruction. And third, Iraq should have a true democracy.
Section 4: Eliminate Non-Essential Words and Rewrite the Statements

You might often wonder why philosophers can’t just say what they mean—why they can’t just list their premises and their conclusions and be done with it. As much as we may wish for this on occasion, though, we must realize that reading would be pretty boring. And prose has many other uses besides just getting the argument across. Nonetheless, when diagramming arguments, we do want to strip the writing down to its bare bones. There are many parts to this elimination, and all of them will make reconstructing an argument much easier.

Tip 4: Rewrite statements as independent sentences, eliminating connecting words.

One way to eliminate excess verbiage, after we have identified the premises and the conclusion, is to rewrite each statement as a complete, independent sentence that can be understood by itself. Consider the example used above. We rewrote this argument as:

| Premise: The death penalty does not deter crime. |
| Conclusion: The death penalty should be abolished. |

Note two things. *First*, we did not write the premise as “it does not deter crime,” even though this is what was written. This would not have been an independent sentence, because we need the other sentence to know what “it” is.

*Second*, the word “because” does not appear in the rewritten argument because it is not a part of either statement. The author used it both as a connection between two statements, and as a premise indicator, but now that we have identified the premise, and rewritten the argument, the word itself is no longer needed.

There are some phrases, however, that may seem like connecting words, but are actually integral parts of a single statement. This happens often when we encounter **conditional** statements (explained in the Vocabulary section), and when we encounter **disjunctions**. Disjunctions are “or” statements, and when they occur, the entire statement as it is written is usually critical for the argument. Consider:

**Example:** Either you earn an A on the exam, or you will fail the class. You did not earn an A on the exam, therefore, you will fail the class.

This argument is rewritten as:

| Premises: Either you earn an A on the exam, or you will fail the class. |
| You did not earn an A on the exam. |
| Conclusion: You will fail the class. |
Conditional statements and disjunctions should **not** be broken down into their constituent parts when rewriting the statements of an argument. Common conditional-creating and disjunction-creating phrases are:

- if…then
- assuming that
- either…or
- only if
- given that
- neither…nor

**Exercises (11-13)**
For each of the arguments from exercises 1-3, determine which statement is the premise and which statement is the conclusion, rewriting the statements as complete, independent sentences.

**Exercises (14-16)**
For each of the arguments below, (a) rewrite the statements as complete, independent sentences, (b) identify the premise and/or conclusion indicators, and (c) determine which statement(s) is(are) the premise(s) and which statement is the conclusion.

14. You can get into a good medical school if you earn a high score on the MCAT, so you should study hard for it.
15. I’ll go to law school, since I can either do that or move back in with my parents, and I don’t want to live with my parents again.
16. You shouldn’t care whether you get a job in California or in Colorado, for you love both skiing and surfing.

**Tip 5: Rewrite essential imperatives and rhetorical questions as statements.**

It is also the case that many authors disguise premises or conclusions as sentences that do not look like statements. One good example is imperatives. Consider:

**Example:** Go to class! The lectures are interesting, you should get your money’s worth, and you will find out what will be on the tests. Plus, you’ll probably earn brownie points with the professor.

In this case, the premises are the list of reasons to go to class, given after the imperative. And it seems clear that by saying “Go to class!” the author means to say: “You should go to class,” or “You ought to go to class.” Thus, we rewrite the argument as follows:

**Premises:** The lectures are interesting.
- You should get your money’s worth.
- You will find out what will be on the tests.
- You will probably earn brownie points from the professor.

**Conclusion:** You should go to class.

Another example of a hidden premise or conclusion is a rhetorical question. Consider the following:

**Example:** It seems obvious to me that scientists in the future will never find a way to signal back in time. If they were to do so, wouldn’t we have heard from them by now?
In this context, the author clearly thinks that the answer to this question is “no.” And this implied answer is actually providing the support for the claim. Thus, we rewrite the argument as follows:

**Premises:** If scientists in the future could find a way to signal back in time, then we would have heard from them by now.

**Conclusion:** Scientists in the future will never find a way to signal back in time.

**Exercises (17-19)**
For each of the arguments below, (a) rewrite the statements as complete, independent sentences, (b) identify the premise and/or conclusion indicators, and (c) determine which statement(s) is(are) the premise(s) and which statement is the conclusion.

17. We have to build the bridge; can you think of any other solution?
18. Get on with your life! After all, what’s done is done, and there’s no use crying over spilled milk.
19. Do you want to fail your test? Do you want to fail this course? So, study harder!

**Tip 6: Eliminate discounts, repetition, assurances, and hedges.**

In addition to sometimes masking the premises and conclusion, the author may wrap some of the statements of an argument with information that is not really part of the argument. One example of this is a **discount**—an acknowledgement of a fact or possibility that might be thought to undercut the argument, but that the author clearly thinks does not. Consider:

**Example:** Although certain events in the subatomic realm occur at random, I still say that the universe as a whole displays a marvelous order. Perhaps the best evidence for this is the fact that scientists continue to discover regularities that can be formulated as laws.

In this case, the author is trying to convince us that “the universe as a whole has a marvelous order.” The first part of the sentence that contains this statement is a discount that ordinarily might be taken as evidence against this conclusion, but that the author seems to believe is not nearly as important as the evidence for the conclusion. This evidence is expressed in the premise contained in the next sentence. The first part of the sentence, “Perhaps the best evidence for this is the fact that,” is merely a long-winded premise indicator, and can be dropped. Thus, we can rewrite the argument as:

**Premise:** Scientists continue to discover regularities that can be formulated as laws.

**Conclusion:** The universe as a whole has a marvelous order.

Some common discount indicators are:

- although  while it may be true that  I know that…, but
- even though while I admit that  I realize that…, but
- despite the fact that  in spite of the fact that

Another kind of non-essential word is **repetition.** Many times authors will restate premises and conclusions using slightly different language. When rewriting the argument, choose the statement that best seems to capture the essence of the claim, and ignore the other version.
A third kind of non-essential word is an **assurance**. Often an author will use certain words or phrases to indicate a high confidence in the truth of the premises or conclusion. We have already seen one example of this in the argument above about future scientists signaling back in time. The first sentence in this argument is:

*It seems obvious to me that scientists in the future will never find a way to signal back in time.*

Another example is:

*Sarah will do well on the test, for she is bright and has obviously studied very hard.*

In both of these cases, the phrases “it seems obvious to me” and “obviously” indicates that the author thinks the claim should be apparent to anyone, but it is not a part of the actual claim. We rewrite the first argument as we did above:

| Premises: | If scientists in the future could find a way to signal back in time, then we would have heard from them by now. |
| Conclusion: | Scientists in the future will never find a way to signal back in time. |

In the second argument, we eliminate the assurance from the statement of the second premise, and rewrite the argument as:

| Premises: | Sarah is bright.  
|          | Sarah has studied very hard. |
| Conclusion: | Sarah will do well on the test. |

Some common assurances are:

- obviously  
- clearly  
- no one will deny that  
- no doubt  
- the fact is that  
- it is undeniable that  
- certainly  
- it is well known that  
- plainly  
- everyone knows that  

The last kind of excess verbiage we will consider is a **hedge**, which is functionally the opposite of an assurance. In some cases (especially in undergraduate writing!) the author will use words or phrases to indicate either a tentativeness about the claim being made, or to make the reader think he or she is being suitably open-minded and not dogmatic. Consider:

**Example:** *In my opinion, it is wrong to kill animals for food. Therefore, we should all be vegetarians.*

In this case, the phrase “in my opinion” makes the claim about the ethics of killing animals seem less forceful, but is not in fact a part of the argument. The actual argument is:

| Premises: | It is wrong to kill animals for food. |
| Conclusion: | We should all be vegetarians. |

Some common hedges are:

- I think that  
- I believe that  
- it is plausible that  
- it seems that  
- I guess that  
- this seems reasonable  
- perhaps, maybe  
- in my opinion  
- it is reasonable to suppose that
Exercises (20-23)
For each of the arguments below, (a) identify the non-essential words that do not contribute to the logic of the argument, (b) rewrite the statements as complete, independent sentences, eliminating the non-essentials, (c) identify the premise and/or conclusion indicators, (d) and determine which statement(s) is(are) the premise(s) and which statement is the conclusion.

20. While it is true that government officials deny that extra-terrestrials have landed on Earth, they actually have, because I have read about Area 51 in Roswell, and I’ve heard eyewitness accounts.

21. You can’t make a perpetual motion machine. Such a machine would violate the laws of thermodynamics, so it just can’t be done.

22. Everyone knows that people have the right to defend their property. So, the government shouldn’t pass laws restricting how we treat trespassers.

23. I personally believe that Americans should care about poor people in other countries. Therefore, everyone should contribute to organizations that distribute food to the starving around the world.

Tip 7: Provide missing, implied conclusions

Recall that authors don’t always provide all the parts of the argument they are making. Arguments of this sort are called enthymemes. An enthymeme is an argument in which a premise and/or the conclusion is implied but not stated. In particular, some authors seem to assume that the conclusions of their arguments are so obvious that the conclusions don’t need to be stated explicitly. Consider:

Example: If the Miranda decision is reversed, police will no longer be compelled to give those warnings; and if they aren’t compelled to give them, they won’t give them. But because police interrogations take place out of public view, the integrity of such interrogations can be safeguarded only if those Miranda warnings are invariably given.

This argument is rewritten as:

| Premise: | (1) If the Miranda decision is reversed, police will no longer be compelled to give Miranda warnings. |
| Premise: | (2) If police aren’t compelled to give Miranda warnings, then police won’t give Miranda warnings. |
| Premise: | (3) Police interrogations take place out of public view. |
| Sub-conclusion: | (4) The integrity of police interrogations can be safeguarded only if Miranda warnings are invariably given. |
| Main conclusion: | ??? |

It seems clear that the author is arguing against reversing the Miranda decision. So we can represent the conclusion as something like:

“The Miranda decision should not be reversed.”
Exercises (24-26)
For each of the arguments below, (a) rewrite the statements as complete, independent sentences, (b) and determine what the implied conclusion is.

24. No hard-working student should be prevented from getting a college education, and the students in our community are all hard-working.
25. I know you want to do well on your test, and if you want to do well on it, you need to turn off all your electronic gadgets and study.
26. Encouraging toy gun play gives children a clear message that the best way to deal with frustration and conflict is with a gun. Is this the message that we want to be sending our kids? 

Tip 8: Provide missing, implied premises (Optional)

This is optional because whether you provide the missing premises depends on what kind of reconstruction of the argument you are giving. If, for example, you are trying to represent just what the author actually says, then you should not add any extra premises; doing so would be “putting words into the author’s mouth.” If, on the other hand, you are trying to represent the most charitable interpretation of the author’s words, then you may want to add any premises that seem to be either implied or assumed by the author.

To see how to add missing premises—if that is what we want to do—look again at the argument against reversing the Miranda decision. First, let’s fill in the conclusion we think the author had in mind:

<table>
<thead>
<tr>
<th>Premise:</th>
<th>(1) If the <em>Miranda</em> decision is reversed, then police will no longer be compelled to give <em>Miranda</em> warnings.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premise:</td>
<td>(2) If police aren’t compelled to give <em>Miranda</em> warnings, then police won’t give <em>Miranda</em> warnings.</td>
</tr>
<tr>
<td>Premise:</td>
<td>(3) Police interrogations take place out of public view.</td>
</tr>
<tr>
<td>Sub-conclusion:</td>
<td>(4) The integrity of police interrogations can be safeguarded only if <em>Miranda</em> warnings are invariably given by police.</td>
</tr>
<tr>
<td>Main conclusion:</td>
<td>(A) The <em>Miranda</em> decision should not be reversed.</td>
</tr>
</tbody>
</table>

Next, let’s look at the inferences the author makes. The premise indicator “because” indicates that statement (3) is meant to support statement (4). The missing premise here is that if (3) is true, then (4) is true, i.e. “If police interrogations take place out of public view, then the integrity of such interrogations can be safeguarded only if *Miranda* warnings are invariably given by police.”

| Premise: | (3) Police interrogations take place out of public view. |
| Implied Premise: | (B) If police interrogations take place out of public view, then the integrity of such interrogations can be safeguarded only if *Miranda* warnings are invariably given by police. |
| Sub-conclusion: | (4) The integrity of police interrogations can be safeguarded only if *Miranda* warnings are invariably given by police. |
It also seems clear that the author wants to draw a conclusion from (1) and (2). The conditionals in these statements can be represented as: (1) If A happens, then B will happen, and (2) if B happens, then C will happen. The natural conclusion form this is: If A happens, then C will happen. Thus, the missing conclusion of premises (1) and (2) is: “If the *Miranda* decision is reversed, then police won’t give *Miranda* warnings.”

| Premise: | (1) If the *Miranda* decision is reversed, then police will no longer be compelled to give *Miranda* warnings. |
| Premise: | (2) If police aren’t compelled to give *Miranda* warnings, then police won’t give *Miranda* warnings. |
| Implied    | Sub-conclusion: (C) If the *Miranda* decision is reversed, then police won’t give *Miranda* warnings. |

The author also seems to be assuming that safeguarding the integrity of police interrogations is something that should be done. If we add this to the argument as an implied premise, we can see that if we combine sub-conclusion (4) with this implied premise, another sub-conclusion (that we will supply, since it was missing) follows naturally:

| Sub-conclusion: | (4) The integrity of police interrogations can be safeguarded only if *Miranda* warnings are invariably given by police. |
| Implied Premise: | (D) The integrity of police interrogations should be safeguarded. |
| Implied    | Sub-conclusion: (E) *Miranda* warnings should invariably be given by police. |

Then, if we combine the two implied sub-conclusions (C) and (E), the main conclusion (A) follows:

| Implied    | Sub-conclusion: (C) If the *Miranda* decision is reversed, then police won’t give *Miranda* warnings. |
| Implied    | Sub-conclusion: (E) *Miranda* warnings should invariably be given by police. |
| Main conclusion: | (A) The *Miranda* decision should not be reversed. |
So, the whole thing looks like this:

<table>
<thead>
<tr>
<th>Premise:</th>
<th>(1) If the <em>Miranda</em> decision is reversed, then police will no longer be compelled to give <em>Miranda</em> warnings.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premise:</td>
<td>(2) If police aren’t compelled to give <em>Miranda</em> warnings, then police won’t give <em>Miranda</em> warnings.</td>
</tr>
<tr>
<td>Implied Sub-conclusion:</td>
<td>(C) If the <em>Miranda</em> decision is reversed, then police won’t give <em>Miranda</em> warnings.</td>
</tr>
<tr>
<td>Premise:</td>
<td>(3) Police interrogations take place out of public view.</td>
</tr>
<tr>
<td>Implied Premise:</td>
<td>(B) If police interrogations take place out of public view, then the integrity of such interrogations can be safeguarded only if <em>Miranda</em> warnings are invariably given by police.</td>
</tr>
<tr>
<td>Sub-conclusion:</td>
<td>(4) The integrity of police interrogations can be safeguarded only if <em>Miranda</em> warnings are invariably given by police.</td>
</tr>
<tr>
<td>Implied Premise:</td>
<td>(D) The integrity of police interrogations should be safeguarded.</td>
</tr>
<tr>
<td>Implied Sub-conclusion:</td>
<td>(E) <em>Miranda</em> warnings should invariably be given by police.</td>
</tr>
<tr>
<td>Main conclusion:</td>
<td>(A) The <em>Miranda</em> decision should not be reversed.</td>
</tr>
</tbody>
</table>

**Exercises (27-29)**

For each of the arguments below, (a) rewrite the statements as complete, independent sentences, (b) identify the premise and/or conclusion indicators, (c) and determine what is(are) the implied premise(s) and/or conclusion.

27. Some professors undermine the evenhanded enforcement of the rules laid out in the syllabus, because accepting late work when the syllabus says that no late work will be accepted does that.

28. Only a truly outstanding musical could win 12 Tony Awards, and *The Producers* has done just that.

29. All college students have plenty of free time, so Jason should have free time.
Section 5: Putting the Steps of the Argument in the Proper Order

It is usually clear in the simple arguments above what are the steps of the argument. All we have seen are single conclusions that follow from one set of premises. Often, however, arguments are more complicated, and involve many small arguments in the service of supporting the main conclusion.

Tip 9: Do not confuse sub-conclusions with final (or main) conclusions

In these types of arguments, premises are stated that support one or more sub-conclusions, and these sub-conclusions in turn become the premises that support the main conclusion, or even more sub-conclusions. Here it is helpful to rely on premise indicators and conclusion indicators to determine which statements are supporting which other statements. Consider:

Example: It is not always moral to save five lives at the cost of one life. For if it is always moral to save five lives at the cost of one life, then it is moral to remove the organs of a healthy person against his wishes and transplant them into five people who need organ transplants. But it is not moral to perform such transplants because doing so violates the rights of the healthy person.

This argument is rewritten as:

| Premise: | (4) Removing the organs of a healthy person against his wishes and transplanting them into five people who need organ transplants violates the rights of the healthy person. |
| Sub-conclusion: | (3) It is not moral to remove the organs of a healthy person against his wishes and transplant them into five people who need organ transplants. |
| Premise: | (2) If it is always moral to save five lives at the cost of one life, then it is moral to remove the organs of a healthy person against his wishes and transplant them into five people who need organ transplants. |
| Main conclusion: | (1) It is not always moral to save five lives at the cost of one life. |

In this case, the main conclusion is the first statement, and one premise supporting this conclusion is the second statement, as indicated by the word “for.” This premise, however, is a conditional (if, then) statement, and needs the help of the statement (3) in order to fully support the main conclusion. Statement (3), is in turn a sub-conclusion, supported by statement (4), as indicated by the word “because.”

Thus, if we put the statements of the argument in the right order, we can begin to see how the support flows from the premises to the sub-conclusions and ultimately to the main conclusion.
For each of the arguments below, (a) rewrite the statements as complete, independent sentences, (b) identify the premise and/or conclusion indicators, and (c) determine which statement(s) is(are) a sub-conclusion(s) and which statement is the main conclusion.

30. All of your poetry is clever but meaningless, and no one in their right mind wants to sit through a reading of clever but meaningless poetry. So, since no one wants to sit through a reading of your poetry, you should not be surprised that I am leaving.

31. People who can’t read English shouldn’t be allowed to vote, because they can’t be well-informed about politics. And if you can’t be well-informed, then you shouldn’t be allowed to make decisions about the community. So, people who can’t read English shouldn’t be allowed to make decisions about the community, and so they shouldn’t be allowed to vote.

32. Every person eventually dies, so you will as well. And, since you’ll definitely die some day, you should plan for when that day comes. And this means, of course, that you should buy life insurance.
Section 6: Identifying and Displaying the Structure of the Argument

Unfortunately, this method of listing the claims in an argument may still be somewhat confusing. Especially for more complicated arguments, even if we mark the sub-conclusions, it is not always clear which premises support which sub-conclusions. In addition, and perhaps more importantly, it is definitely not clear how the premises support the sub- or main conclusions. Drawing an argument diagram will help us visualize these relationships more clearly than a list, but first…

Tip 10: Be careful to distinguish linked, convergent and chain arguments.

As in the example above, some premises need to be combined in order to support a conclusion. You may have learned (in a logic class, for example) about certain argument forms, like modus ponens. This is the form of the following argument:

| Premises: | If you earned an A on the final paper, then you earn an A in the course. |
| Conclusion: | You earned an A on the final paper. |

This particular argument exhibits the form modus ponens:

| Premises: | If A, then B. |
| A. |
| Conclusion: | B. |

In this case, neither premise alone could support the conclusion; rather, the premises act together to create a deductively valid argument. An argument in which two or more premises must be combined in order to support a conclusion is called a linked argument. This would be clearer if we had some sort of visual way of representing the argument. This is what argument diagramming does.

The above argument can be diagramed as follows:

The line between the two premises means that they are linked—that the intention of the author is that these to premises work together—and the arrow means that they support the conclusion. It is most common to use this kind of representation when the author’s argument is an example of a known valid argument form. Sometimes, though, premises are meant to be combined, even if the argument does not exemplify one of these forms, so be aware.
In other cases, the premises given by the author are supposed to provide independent reasons for believing the conclusion; that is, each premise by itself would support the conclusion, and using all of them merely makes the conclusion more likely. A **convergent argument** is an argument in which two or more premises are given, but each is a separate, independent reason supporting the conclusion. Consider:

**Example:** *David is a good student. He studies hard, he always participates in class discussions, and he comes in for help on all of his papers.*

This argument is rewritten as:

<table>
<thead>
<tr>
<th>Premises:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>David studies hard.</td>
<td></td>
</tr>
<tr>
<td>David always participates in class discussions.</td>
<td></td>
</tr>
<tr>
<td>David comes in for help on all of his papers.</td>
<td></td>
</tr>
<tr>
<td><strong>Conclusion:</strong></td>
<td>David is a good student.</td>
</tr>
</tbody>
</table>

In this case, as in the one above, this linear representation obscures the important structure of the argument. In particular, it does not show us that each of these premises provide independent support for the conclusion.

If we diagram this argument, these details about the structure are apparent:

It is often the case that an author will indicate premises that are meant to support the conclusion independently by listing the premises (using 1, 2, 3 or a, b, c), or by introducing them using words like “firstly,” “secondly,” etc.

Finally, an author may be making a chain of inferences in the argument. A **chain** argument is one in which two or more premises are given, in which one premise supports the conclusion, the other premise supports the first, etc. Consider:

**Example:** *Politicians should not be trusted, because they lie all the time. I know this because every time I see them on TV, they say something that just isn’t true.*
This argument is rewritten as:

**Premises:**  
Politicians lie all the time.  
Every time I see a politician on TV, he or she says something that just isn’t true.

**Conclusion:**  Politicians should not be trusted.

This argument can be diagramed as follows:

![Diagram]

Some arguments combine some of these elements. Consider:

**Example:** Pool maintenance can cost hundreds of dollars a year and we really don’t have that kind of money. So, I don’t think we should put a pool in this summer. Besides, pools pose a real drowning danger to small children.

This argument is rewritten as:

**Premises:**  
Pool maintenance can cost hundreds of dollars a year.  
We don’t have hundreds of dollars a year to spare.  
Pools pose a real drowning danger to small children.

**Conclusion:**  We should not put in a pool this summer.

This argument can be diagramed as follows:

![Diagram]
Exercises (32-34)
For each of the arguments below, (a) rewrite the statements as complete, independent sentences, (b) identify the premise and/or conclusion indicators, (c) determine which statement(s) is(are) the premise(s) and which statement is the main conclusion, and (d) construct an argument diagram that represents the structure of the argument.

14. If Holly was going to be late, she would have called. But she didn’t call, so she won’t be late.
15. Either Clark is going to win, or Alison is. History has demonstrated that Clark never wins, so Alison will.
16. If it rains today, I’ll get all wet. And if I get all wet, my job interview will not go well. So, I hope it doesn’t rain today because if it does my job interview won’t go well.

Tip 11: Remember the syntax and semantics of argument diagrams

The syntax and the semantics of argument diagrams are as follows: boxes are used to represent the claims that comprise the argument, lines are used to represent the linking of claims, and arrows are used to represent the inferences made from premises to (sub)conclusions, with the head of the arrow always pointing to the box that contains the (sub)conclusion.

Consider the argument from above:

It is not always moral to save five lives at the cost of one life. For if it is always moral to save five lives at the cost of one life, then it is moral to remove the organs of a healthy person against his wishes and transplant them into five people who need organ transplants. But it is not moral to perform such transplants because doing so violates the rights of the healthy person.

To diagram the argument, we first put the claims in boxes:

(1) It is not always moral to save five lives at the cost of one life.
(2) If it is always moral to save five lives at the cost of one life, then it is moral to remove the organs of a healthy person and transplant them into five people who need organ transplants.
(3) It is not moral to remove the organs of a healthy person and transplant them into five people who need organ transplants.
(4) Removing the organs of a healthy person and transplanting them into five people who need organ transplants violates the rights of the healthy person.
Then, we use the premise, conclusion and combination indicators to determine which boxes are connected, and where the arrows go:

The “For” at the beginning of the second sentence indicates that the second statement supports the first statement. In addition, the “But” at the beginning of the third sentence indicates that the third statement combines with the second statement. And finally, the “because” in the middle of the third sentence indicates that the fourth statement supports the third statement.

Notice in this argument that statements 1-3 constitute a *modus ponens* argument, which is valid. The sub-argument constituted by statements 3 & 4, however, is not quite a valid argument. One interpretation is that the author believes the following: “It is not moral to do something to someone that violates his or her rights.” If we combine this statement with statement 4, then statement 3 follows quite naturally.
Consider another example:

Although some have argued that nuclear weapons introduce nothing genuinely new into the disputes about the morality of war, I believe that nuclear weapons raise novel moral issues. First, nuclear weapons have new and undreamed-of long-term effects since the radioactive fallout pollutes the environment and alters human genes. Second, a nuclear war could destroy human civilization in its entirety. Third, in the case of nuclear war, the dust caused by the explosions would prevent the sun’s rays from reaching the earth’s surface. So, a nuclear war would result in a drastic lowering of the earth’s temperature. In other words, a nuclear war would result in a “nuclear winter.” And no human or human group has the right to gamble with the very climate on which life itself is based.

Let us rewrite the statements contained in the argument:

1) Some have argued that nuclear weapons introduce nothing genuinely new into the disputes about the morality of war.
2) Nuclear weapons raise novel moral issues.
3) Nuclear weapons have new and undreamed-of long-term effects.
4) The radioactive fallout [from nuclear weapons] pollutes the environment and alters human genes.
5) A nuclear war could destroy human civilization in its entirety.
6) In the case of nuclear war, the dust caused by the explosions would prevent the sun’s rays from reaching the earth’s surface.
7) A nuclear war would result in a drastic lowering of the earth’s temperature.
8) A nuclear war would result in a “nuclear winter.”
9) No human or human group has the right to gamble with the very climate on which life itself is based.

In order to diagram this argument, note a few important things.
First, statement (1) is a discount, so we will not include it in the representation of the argument.
Second, statement (2) is the main conclusion, and the author has given us three separate reasons to believe it, as indicated by the use of “first,” “second,” and “third” to introduce each branch of the argument.
Third, statement (4) supports statement (3) as indicated by the premise-indicator “since,” and (6) supports (7) as indicated by the conclusion-indicator “So.”
Fourth, statement (8) is just a repetition of (7), and so will not be included in our representation.
And finally, statements (7) and (9) seem to be meant to be combined in their support for the main conclusion, as indicated by the “And,” plus the fact that they are both contained in the “third” branch.
The diagram for the explicit argument, then, is:

(2) Nuclear weapons raise novel moral issues.

(3) Nuclear weapons have new and undreamed-of long-term effects.

(4) The radioactive fallout [from a nuclear weapon] pollutes the environment and alters human genes.

(5) A nuclear war could destroy human civilization in its entirety.

(6) In the case of nuclear war, the dust caused by the explosions would prevent the sun’s rays from reaching the earth’s surface.

(7) A nuclear war would result in a drastic lowering of the earth’s temperature.

(9) No human or human group has the right to gamble with the very climate on which life itself is based.

On a charitable interpretation, however, the author seems to be assuming that if a weapon has new effects—effects dramatically different from any other weapon before—then the possibility of them being used in war raises new kinds of ethical questions. We might write this statement as: “If a weapon has new effects, then the possible use of that weapon raises novel moral issues.”

Then, we can combine this statement with statement 3 to support the first branch of the author’s argument.
In fact, the author seems to be assuming the truth of this statement for both the first and second branches of the argument. In the second and third branches, however, the author seems to be making additional assumptions: that both destroying human civilization in its entirety and drastically lowering the earth’s temperature are new effects of a weapon. In these two branches, the author just claimed that novel moral issues were raised, but did not specify what these issues are; in the third branch, though, the author does seem to specify the new moral issue that nuclear weapons raise: whether humans have the right to gamble with the very climate on which life itself is based. If we include all of these assumptions, what would the argument diagram look like?

And now we can return to the first argument with which we started: a selection from Descartes’ *Third Meditation*.

\[
It\ only\ remains\ to\ me\ to\ examine\ into\ the\ manner\ in\ which\ I\ have\ acquired\ this\ idea\ from\ God;\ for\ I\ have\ not\ received\ it\ through\ the\ senses,\ \textbf{[since]}\ it\ is\ never\ presented\ to\ me\ unexpectedly,\ as\ is\ usual\ with\ the\ ideas\ of\ sensible\ things\ when\ these\ things\ present\ themselves,\ or\ seem\ to\ present\ themselves,\ to\ the\ external\ organs\ of\ my\ senses;\ nor\ is\ it\ likewise\ a\ fiction\ of\ my\ mind,\ for\ it\ is\ not\ in\ my\ power\ to\ take\ from\ or\ add\ anything\ to\ it;\ and\ consequently\ the\ only\ alternative\ is\ that\ it\ is\ innate\ in\ me,\ just\ as\ the\ idea\ of\ myself\ is\ innate\ in\ me.\]

As we did with the argument above, let us rewrite the statements contained in the argument:

1) It only remains to me to examine into the manner in which I have acquired [the] idea [of God] from God.
2) I have not received [the idea of God] through the senses.
3) [The idea of God] is never presented to me unexpectedly.
4) It is usual that the ideas of sensible things when these things present themselves, or seem to present themselves, to the external organs of my senses unexpectedly.
5) [The idea of God is not] a fiction of my mind.
6) It is not in my power to take from or add anything to the idea of God.
7) [The idea of God] is innate in me.

And again, in order to construct the diagram, note a few important things. First, statement (1) is merely an introduction to the topic of the argument, and so will not be included.

Second, I have used brackets to indicate where I have replaced pronouns, etc. with the referent so that each sentence can be understood independently of all the others.

Third, statements (3) and (4) support statement (2), as indicated by the premise-indicator “since,” and statement (6) supports statement (5), as indicated by the premise indicator “for.”

Fourth, statement (7) is the main conclusion, as indicated by the conclusion-indicator “consequently.” In addition, the phrase “the only alternative is that” is an assurance and so I have not included it in the statement of (7).

Finally, I believe that statements (2) and (5) jointly provide support for the final conclusion because it is clear that these are the only two alternatives (as a source for the idea of God) that Descartes is considering. He seems to be implying that it has to be one of the three (2, 5 or 6), and since it cannot be (2) or (5), it must be (6).
So, as we indicated at the beginning, the diagram for this argument is:

![Argument Diagram](image)

But we remarked at the beginning that Descartes seems to have several unstated assumptions that allow him to make the inferences in this argument. We discussed one such assumption above. What would the rest look like?

**Exercises (36-38)**

For each of the arguments below, (a) rewrite the statements as complete, independent sentences, (b) identify the premise and/or conclusion indicators, (c) determine which statement(s) is(are) the premise(s) and which statement is the main conclusion, and (d) construct an argument diagram that represents the structure of the argument.

17. A person cannot survive her own death, for death means losing consciousness and having one’s body be destroyed, e.g. by eventual decay or by fire. So, if she were to survive, that would mean there would be someone, in Heaven, or Hades, or wherever, that is identical to her. But this “someone” would only be a copy of her, and so could not be identical to her.

18. Scientists agree that there are laws of nature, such as the law of gravitation. Now, there cannot be a law unless there is some authority, some lawgiver, who promulgates the law. Therefore there must be someone who promulgated the law of gravitation and other natural laws. This “someone” can only be God.

19. Morality, by definition, promotes the good, and so the morally right thing to do is the thing which maximizes the good. But, whatever else individuals prefer, we can see that it is universally the case that we seek pleasure and avoid pain. So, pleasure is “The Good,” and hence the morally right thing to do is the thing which maximizes pleasure.

**Exercises (39-40)**

Answer the two questions with reference to the arguments above: (39) If we include all of the unstated assumptions in the nuclear weapon argument, what would the argument diagram look like? (40) If we include all of the unstated assumptions in Descartes’ argument, what would the argument diagram look like?
Section 7: Argument Diagramming in a Nutshell

Now that we have created several examples of argument diagrams using the rules we have identified, we can state the steps for constructing an argument diagram:

1. Identify all the claims being made by the author, and rewrite them as independent statements.
2. Identify which statements are premises, sub-conclusions, and the main conclusion.
3. Draw boxes around the statements, draw a line between any boxes that are meant to be linked, and indicate support from premise(s) to (sub)conclusion with an arrow.
4. Multiple statements (or groups of statements) that each provide independent support for a (sub)conclusion should have their own arrows.
5. Multiple statements that must be combined to support a (sub)conclusion should be linked and have only one arrow.

Notes

4 Supreme Court case no. 99-5525, 19 April 2000.
5 Patricia Owen, Letter to the Editor
8 Paraphrase of Jeremy Bentham’s argument in An Introduction to the Principles of Morals and Legislation.