Your FYS & Critical Thinking
Your FYS and Critical Inquiry

Colleges and universities across the country agree that one of the most important outcomes of a college education should be the ability to think critically. Here’s how critical thinking is defined by York College’s general education program, Generation Next:

**Critical and Analytical Thinking:** Critical thinking is characterized by the comprehensive exploration of questions, issues, ideas, implications, and alternative perspectives before accepting or formulating an opinion. Analytical thinking is the process of breaking down complex topics or issues into parts to gain a better understanding of the whole. The ability to think critically and analytically is based upon reading and listening abilities adjusted to a variety of texts and sources, and includes information literacy, which is an informed and responsible selection and evaluation of sources, data, and evidence to support an interpretation.

You will encounter critical thinking in your future courses here at YCP, in subjects from the humanities to sciences and social sciences. Critical thinking is also an important part of your First-Year Seminar. In our FYS program learning outcomes, critical thinking is identified with three core skills:

- Evaluate and synthesize evidence in order to draw conclusions consistent with a text.
- Seek and identify confirming and opposing evidence relevant to an author’s thesis or your own hypothesis.
- Develop a well-supported, clearly articulated argument and use it to justify one or more conclusions.

Beyond its role in general education and the First-Year Seminar program, critical thinking is also at the top of lists of skills employers are looking for. The American business magazine *Forbes* conducts an annual survey of the most important job skills employers seek in four-year college graduates. Employers consistently rank the following at the top of their lists:

**Critical thinking** – being able to employ a rational, logical approach to sorting through the pros and cons of various proposals, points of view, or conclusions.

**Complex problem-solving** - knowing how to tease apart a complicated issue and come to a workable and efficient solution.

**Judgement and decision-making** - being able to weigh the costs and benefits of a situation and make a clear decision based upon that assessment.

**Active listening** - fully taking in what others are saying, asking questions for clarity, and demonstrating your understanding.

But what exactly is critical thinking? As you move through your different courses in both Generation Next and your major, you will likely encounter different ways of defining and thinking about critical thinking.
In FYS, two slightly different aspects of critical thinking are important to understand: engaging in the dialectical process of critical inquiry (a broad goal of FYS) and critical thinking: engaging in the process of evaluating arguments (a narrower goal that is central to the goal of critical inquiry). Both processes are challenging to master. We’ll begin working on these skills in FYS, and you will continue to work on them throughout your college years and career path!

Engaging in the dialectical process of critical inquiry

In their book *Reason in the Balance*, Sharon Bailin and Mark Battersby define critical inquiry as the process of carefully examining an issue in order to come to a reasoned judgment based on a critical evaluation of relevant reasons. Critical thinking as argument evaluation occurs in a broader dialectical context in which we are trying to reach a reasoned judgment about a complex issue while attempting to grasp the issue’s context. By “dialectical context,” they mean the context of dialogue in which one individual might pose an argument and then find she has to respond to another individual’s questions, concerns, and objections.

Bailine and Battersby suggest that there are five important questions to address as part of the process of critical inquiry:

1. What is the issue?
2. What kinds of claims or judgments are at issue?
3. What are the relevant reasons and arguments on various sides of the issue?
4. What is the context of the issue?
5. How do we comparatively evaluate the various reasons and arguments to reach a reasoned judgment?

Critical inquiry usually begins with an issue that must be carefully, painstakingly, and precisely identified. The purpose in examining issues, especially issues we care about, is to arrive at a reasoned judgment. As Bailin and Battersby point out:

The judgment aimed at in inquiry is not arbitrary; it is not just a matter of unreflective opinion, nor is it based uncritically on what others say. Rather, coming to a reasoned judgment involves critical evaluation. The practice of critical evaluation is also central to inquiry.

Reaching a reasoned judgment will involve comparing individual arguments and pieces of information. But it’s more than that. As a part of this process we need to be able to make a comparative assessment of the relative strengths and weaknesses of the competing views in a debate. “This involves knowing the various positions, the evidence and arguments mustered in their favour, the criticism and objections which have been leveled against them, the responses to the criticisms and objections, and alternative arguments and views.”
We will sometimes need to give some consideration and attention to the history behind a debate and relevant aspects of the context of the debate. We’ll also have to consider the sources of information and evaluate their credibility. We have to be able to identify fallacious reasoning, consider counter-examples, assess statistical evidence, and learn how to formulate our own arguments. These are all skills that you will be working on throughout your FYS.

Furthermore, Bailin and Battersby also emphasize the importance of coming to the critical inquiry process with the right “spirit of inquiry,” including open-mindedness, fair-mindedness, and the awareness of one’s own biases and irrational tendencies. As Bailin and Battersby summarize their approach to critical inquiry:

...it is not enough to evaluate only the reasons or arguments which support one position or view. Rather, we must look at all or at least many sides of an issue, evaluate the reasons and arguments supporting different positions, and weigh the alternative strengths of each.

They emphasize that critical inquiry has the characteristics of a dialogue, with a number of views or positions in conversation with each other. For Bailin and Battersby, an important element in engaging in critical inquiry is being aware of the dialectical context. As they note:

The dialectical context includes the debate around an issue, both current and historical. A knowledge of the dialectical context is centrally important because reaching a reasoned judgment involves more than simply evaluating a particular argument. Rather, it involves making a comparative assessment of the relative strengths and weaknesses of the competing views.

Your FYS has been designed to introduce you to a series of complex issues and encourage you to grapple with evaluating competing claims, arguments, and judgments addressing these issues. Bailin and Battersby suggest that in reaching a reasoned judgment we pay attention to a number of different contexts:

**The Dialectical context:** Evaluating arguments requires a knowledge of the history of the debate surrounding the issue, especially counter arguments to the current position or argument being evaluated.

**The Current state of belief or practice:** An understanding of the current practice and beliefs in an area is important for evaluation, especially to the extent that this determines burden of proof.

**The Intellectual, political, historical and social contexts:** No issue exists in a social vacuum. Understanding an argument, understanding the significance of a claim, and appropriately conducting an inquiry into an issue, all require knowledge of the historical and social contexts.
The Disciplinary context: An assessor should be sensitive to both the particular discipline and the state of consensus in that discipline.

Sources: All arguments depend for their acceptance in part on trust. Evaluating the trustworthiness of the source of the argument is almost always relevant.

Self: The argument assessor or a person conducting an inquiry must be aware that they too are part of the context of evaluation. Self-awareness and a commitment to seeking counter evidence is crucial to reasonable evaluation.

Over the course of the semester, you will be asked to weigh various alternatives, evaluate reasons and arguments, and ultimately take a position on some difficult matters. As you become familiar with these processes of inquiry, your understanding of the issues, themes, and topics will deepen and your ability to evaluate and compose arguments will improve. This is all part of becoming an engaged and responsible learner.

Bailin and Battersby’s Guidelines for Inquiry

Bailin and Battersby provide a worthwhile list of the important questions we ought to bear in mind when we engage in the process of critical inquiry:

- **What is the issue?** Before we can even begin to inquire, we need to be very clear about what the issue is that we are trying to inquire about.
- **What kinds of claims or judgments are at issue?** It is important to be clear about the type of judgments involved in our inquiries because different kinds of judgments may be evaluated according to different criteria.
- **What are the relevant reasons and arguments on various sides of the issue?** Laying out the various views and positions must include the reasons and evidence which support the positions as well as any objections and responses.
- **What is the context of the issue?** In conducting an inquiry, it is important to lay out the history of argument and debate around the issue as well as other aspects of context.
- **How do we comparatively evaluate the various reasons and arguments to reach a reasoned judgment?** Coming to a reasoned judgment involves evaluating various reasons in comparison to one another.

Identifying the Issue

The first element in Bailen and Battersby’s guidelines for engaging in critical inquiry is properly identifying the issue. An issue is *any matter of controversy or uncertainty*; an issue is a point in dispute, in doubt, in question, or simply up for discussion or consideration. Issues are raised when claims are in question. Issues exist in virtually any area of thought and when engaged in the process of critical inquiry, we have to be careful that we have identified and focused on the
appropriate and relevant issue. It is very easy for people engaged in critical inquiry to be confused or mistaken about the issue they are debating, or to have different ideas regarding what precisely the issue is. In *Reason in the Balance*, Bailin and Battersby identify the following characteristic of an issue:

- **Focus**: An issue should not be too broad.
- **Issue versus Topic**: Issues in critical thinking should not be confused with or identified with topics of conversation or with psychological problems or hang-ups. A topic is a general subject (i.e., the minimum wage, capital punishment, euthanasia). But such general formulations do not indicate what we want to find out about the topic.
- **Precision**: It is important that the statement of the issue not be overly vague. It should be stated clearly and precisely.
- **Controversy**: An inquiry cannot be directed towards some information or state of affairs that is generally known or accepted.
- **Neutrality**: Issues should be stated neutrally to avoid bias.
- **Conclusions = Issues**: Issues can be identified with the conclusions of arguments. Since every argument addresses an issue, one way to pin down at least some of the issues in a conversation or passage is to look for the conclusions of any arguments that have been given.
- **Many issues can be posed beginning with the word “whether,” indicating that there are two or more sides to a dispute or controversy.**

It is often difficult to properly identify the issue at the center of a dispute. Why is it difficult to identify the proper issue? {Keep these points in mind when critically evaluating your own writing.}

- Our writing is often haphazard, unorganized, unfocused.
- We often take on several issues simultaneously.
- We can ourselves be confused about what issue we are discussing.
- We often are sidetracked by tangents, asides, and irrelevancies.
- We sometimes purposely try to draw attention away from the main issue {a fallacy known as red herring}.
- We may need to distinguish between main and subsidiary issues {often parallel to the distinction between main and sub- arguments}.

What are the dangers of incorrectly identifying the issue? We might be accused of committing the straw man fallacy, or of being sidetracked, or not evaluating the correct topic or argument. For a full account of the straw man fallacy, [CLICK HERE](#).

Let’s consider the following example: “In Defense of Viciousness and Violence”

It is easy to criticize "splatter flicks," the bloody and vicious horror movies so popular among teenagers. After all, they portray our worst nightmares in living color and focus
attention on vicious, twisted criminals and psychopaths. All the same, I think it is important to pay attention to the good effects of slasher flicks.

Our society is a scary place. There is terrible violence in public schools, vicious drug-related crime, adult abuse of children, random death on city streets. So, teenagers have to deal with real fears. It helps to watch real fears acted out in the safety of a movie theater, where the audience can—if they choose—simply walk away. Because splatter flicks scare us in a setting where we have ultimate control, they help us learn to cope with our deepest fears, dreads, and anxieties.

Violent behaviors are not popular because of violent movies; violent movies are popular because they reflect the violence that already exists. No one claims that people are loving because they watch Bambi. So why do critics claim that people turn into murderers because they watch Scream or I Know What You Did Last Summer?

How would you characterize the main issue raised by this article?

(a) Whether our society is a scary place.
(b) Whether “splatter flicks” portray our worst nightmares.
(c) Whether we should pay attention to the good effects of slasher flicks.
(d) Whether violent movies are popular because they reflect the violence that already exists in society.

Note that each of these claims, while saying roughly related things, is making a distinct point. Which issue we attribute to this passage will make a big difference in terms of what we think is the overall point of the passage. To help identify the appropriate issue, you might focus on identifying the core argument of the passage. What do you think is the main conclusion of this passage? What premises (or evidence) does the author cite in support of that conclusion? The main conclusion of the passage is your issue.

Identifying Arguments

Of course once we’ve clearly identified an issue, we then want to work on identifying some of the claims and arguments put forth on various sides of that issue. Oftentimes in addressing an issue, especially a more controversial issue, we’ll present arguments in support of our position. What do we mean by “an argument”? The philosopher Trudy Govier defines an argument as a set of claims that a person puts forward in an attempt to show that some further claim is rationally acceptable. The emphasis here is on the intent or purpose behind a passage. Is an author or speaker trying to rationally persuade us of something? When someone tries to put forward rational reasons in support of a claim to persuade others to accept that claim, we’ll say they are presenting an argument on behalf of an issue. Of course there are other kinds of persuasion. In order to persuade you to undertake a course of action or agree with a claim, I could hold a gun to your head or offer you money or play on your emotions. We’ll restrict ourselves to rational persuasion.
Arguments have two parts:

**Premises:** the evidence or reasons put forward in defense of a claim; the claims which offer evidence or reasons intended to back up the conclusion. An argument may have any number of premises, from one to more than a dozen.

**Conclusion:** the claim being defended in the argument; the claim or statement that is in dispute and that we are trying to support with reasons.

We can use this knowledge as an aid in identifying arguments. If you’re reading a passage and wondering if an argument is present, you should be able to identify a conclusion and at least one premise put forth in support of that conclusion. If you cannot, you likely don’t have an argument. Here’s a simplified model of an argument’s structure:

- Premise 1
- Premise 2
- Premise N (note that an argument may have any number of premises)

therefore

Conclusion

**Indicator Words**

For help in identifying the parts of an argument you should familiarize yourself with **premise and conclusion indicators**. People who construct arguments will usually indicate to us what their conclusions and premises are. We call these "logical indicators." Logical indicators help to separate the premises from the conclusion. There are two types of logical indicators: (1) conclusion-indicators and (2) premise-indicators. These provide us with clues to the structure of an argument. However, they are signals only, not infallible guarantees. Below are lists of some of the most common conclusion- and premise-indicators.

**Conclusion-Indicators**

therefore... indicates that...
*thus... suggests that...
*so... permits us to conclude that...
*hence... we may deduce (or infer) that...
*implies that... brings us the conclusion that...
*consequently... it must be the case that...
proves that... bears out the point that...
entails that... it follows that...
as a result... leads me to believe that...
shows that... accordingly...

*These are probably the most commonly used logical indicators.
Premise-Indicators

since...¹  may be deduced from...
because...²  in that...
for...  given that...
for the reason that...  as shown by...
in view of the fact that...  as indicated by...
as indicated by...  owing to...
on the supposition that...  as is substantiated by...
assuming that...  inasmuch as...

¹Except when 'since' denotes time, as in "I've been hungry since lunchtime."

²Except when 'because' denotes a cause, as in: "The window shattered because the molecular structure of glass expands in cold weather."

Note that you can use indicator words in your own writing to help your readers understand the flow of your arguments.

Identifying arguments: where and how do you find arguments?
Be careful of the trap of seeing arguments everywhere. There are many things that we do with discourse that do not involve arguments.

What kinds of things typically are not arguments?

• descriptions
• simple statements or expressions of feeling
• explanations
• questions
• ridiculing
• story telling

For a humorous account of what is and what is not an argument, you might be interested in watching this.

Some things to rely on when trying to identify arguments:

• The intent of the speaker or listener: are they trying to establish that some claim is acceptable by offering evidence in support of that claim?
• The presence of an issue or matter of controversy or debate
• You should be able to identify premises and a conclusion
• Indicator words, though this is not always reliable. Not every argument will use indicator words.
• The context of a passage
• Tone, though note that passages may be opinionated and yet contain no arguments — no rational support is given for the opinions.
• Logical flow
• Background information

Keep in mind that when identifying arguments, we are not focusing on or interested in whether the argument is a good argument or not. Some passages may contain arguments but we may think the arguments are so weak that we fail to recognize them as arguments. But weak arguments are (almost by definition) arguments. So don’t confuse identifying arguments with determining whether an argument is persuasive.

A brief procedure for identifying arguments:
1. Start by asking yourself what the conclusion would be if it were an argument. Considering what is at issue in the context, what is being disputed or supported, may guide you to the conclusion. Is there an issue or matter of dispute present in the passage?
2. If you cannot find a conclusion, you probably don’t have an argument.
3. If you found a conclusion, can you identify premises that offer rational support?
4. If there is good reason to regard to writer or speaker as trying to persuade others that a claim is true, then the speech or passage contains an argument.
5. Keep in mind the difference between arguments and explanations, which often look like arguments but serve a different purpose.

PUTTING ARGUMENTS IN STANDARD FORM

When we encounter arguments in everyday prose, whether it be an op-ed (an opinion piece from a newspaper or magazine) or a journal article or a book, it’s not unusual to have to struggle a bit to identify its premises and conclusion. But before we can evaluate arguments, it’s useful to be able to have a clear sense of their structure and so it may be helpful to put the argument in a standard form.

What does it mean to standardize an argument?
To standardize an argument is to reconstruct it in order to represent its clear argumentative structure in terms of premises and conclusion. When standardizing an argument we set out its premises and conclusion in clear, simple statements with the premises preceding the conclusion, numbering each of the statements and fitting them into a reasonable logical pattern that reflects the argument’s structure.

Why do we want to standardize an argument?
• It helps us understand the exact line of argument.
• It gives us a clear version of where an author or speaker is going.
• It forces us to look carefully at what an arguer has said.
• It helps us to identify arguments that may have two distinct conclusions.
• It forces you to read (or listen) with a view to determining the main point, and it trains you to ask why the author or speaker is saying what he says. What are the reasons offered for his viewpoint?
• It identifies the presence of subarguments

What is involved in the process of clarifying the structure of an argument? Standardizing an argument can be a difficult (if not torturous) process involving moving from colloquial writing to a clearer, more precise standard form.
• Do you have an argument? Make sure that you indeed have an argument: is the speaker offering reasons intended to convince you of one or more claims made in the passage?
• Logical Flow: look at the logical flow of the passage and identify the conclusion.
• Identify Premises: decide which parts of the passage are stated as reasons intended to back up the conclusion and put these into the most natural logical order.
• Eliminate background information: background information, or material inserted just for added interest or for humor, (window dressing) is not part of the argument.
• Editorial commentary should be distinguished from substantive remarks. You do not need to insert such expressions as “in my unprofessional opinion as a mother” and “I say to all professionals.”
• Abbreviate and Simplify: abbreviate and simplify the prose, putting it into clear complete statements that could be used as premises.
• Statements which are repeated should be entered only once in to the argument.
• Shorten, edit, and delete as necessary.
• Eliminate many of the elements of colloquial writing.

Subarguments

Arguments very often proceed in stages. The premise of an argument may be defended in a subargument, so there are really two arguments in one. A subargument is a subordinate argument inside a main one. A premise in a main argument can be the conclusion of a subargument. We'll reserve the term conclusion for the main conclusion of an argument and consider statements which are conclusions to subarguments to be premises in the main argument.

Consider the following example:

Fetuses ought not to aborted. Any one possessing a right to life ought not to be killed and fetuses have a right to life, for all human beings have a right to life and fetuses are human beings.
Standardizing the argument, we get something like this:

1. All human beings have a right to life.
2. Fetuses are human beings. Thus,
3. Fetuses have a right to life.
4. Anyone possessing a right to life ought not to be killed. Therefore,
5. Fetuses ought not to be aborted.

About Conclusions

Some important points about conclusions to keep in mind when standardizing arguments:

- Placement of conclusions: It’s important to recognize that there aren’t any rules about where conclusions are to be placed in arguments. Often we can count on them being at the beginning of a passage or the end of a passage. But these are only general rules of thumb. Oftentimes conclusions are repeated throughout an argument, sometimes with different wording.
- For help in identifying the conclusion of a passage focus on the primary drift or logical flow of a passage.
- Pay attention to the scope of the conclusion. Is the conclusion about one particular individual or situation or about categories or groups of things? Is the arguer making a universal claim (“All…”), a generalization about most or many members of a group, or a claim about some of them (“Many…”).
- Degree of certainty: Is the conclusion stated with a high degree of certainty or is it qualified as being “probably” or “likely” acceptable?
- Implied conclusions: Sometimes conclusions are simply not stated; they are left implicit. When left implicit, a conclusion is often suggested by the stated words as they appear in the context. You must exercise caution when adding an implicit statement to a conclusion. You don’t want to misconstrue an author’s point or attribute to them claims they would not be willing to accept.

When thinking about the conclusions in your own academic writing, there are a number of things you can do to help your reader understand what it is you are arguing for.

When Constructing Your Own Arguments:
1. State your conclusion clearly.
2. Use indicator words to help your reader or listener identify your conclusion.
3. It is typically clearer to place your conclusions either at the beginning or the end of an argument. Placing them in the middle can be confusing.
4. With complex arguments containing subarguments, it is often a good policy to repeat your conclusion at the beginning and the end of the argument.
5. Clearly indicate the scope and commitment of your conclusion. “The strength of evidence you require to put forward a convincing argument will vary depending on the degree of commitment you wish to indicate, as well as on the topic of the conclusion.”
Missing Premises and Conclusions

Keep in mind that arguments will often have implied or missing premises and conclusions and that in the process of standardizing an argument we need to make those missing claims explicit. It is often difficult to decide when an argument has an implicit premise. Oftentimes there appears to be a gap or hole in the argument. But we have to be careful that we don’t take an argument with holes and simply plug them up with premises the author wouldn’t accept or wasn’t intent on supplying. We need to balance our own sense of logical direction with due respect for what other arguers actually said and meant. Don’t read your own beliefs into an argument.

Let’s consider a few simple examples. The type of examples you are likely to encounter in your FYS readings will likely be more complex.

**Example 1:** A few fraternities have dangerous initiation rites, and those that do have no legitimate role in campus life.

**Conclusion missing:** A few fraternities have no legitimate role in campus life.

Standardizing the argument:

1. A few fraternities have dangerous initiation rites.
2. Fraternities that have dangerous initiation rites have no legitimate role in campus life.
Therefore
3. A few fraternities have no legitimate role in campus life.

**Example 2:** Mechanistic materialists do not believe in free will because they think that everything is governed by deterministic laws.

**Missing premise:** No one who thinks that everything is governed by deterministic laws believes in free will.

Standardizing the argument:

1. Mechanistic materialists think that everything is governed by deterministic laws.
2. No one who thinks that everything is governed by deterministic laws believes in free will.
Therefore
3. Mechanistic materialists do not believe in free will.
Standardizing Arguments: An Example

Consider the following passage:

DON’T TAKE THE ADVICE OF THE NUCLEAR ESTABLISHMENT ON THE ISSUE OF NUCLEAR SAFETY

The people that make and run nuclear power plants have assured us that there will never be a major catastrophe. But manufacturers of nuclear reactors also make toasters, dryers, washers, and television sets, and other household appliances. These simple appliances are not completely reliable and there is much less reason to believe that complete nuclear reactors are completely dependable. Remember: We’re talking about millions of lives and billions of dollars in property damage.

We need to put this passage into a standard form, with a series of numbered premises and a conclusion:

1. Manufacturers of nuclear reactors make toasters, dryers, washers and other simply household appliances.
2. Toasters, dryers, washers and other simple household appliances made by the manufacturers who also make nuclear reactors are not completely reliable.
   So,
3. Complex nuclear reactors are very unlikely to be completely reliable.
4. Unreliable nuclear reactors could cause millions of lives to be lost and billions of dollars to be lost in property damage.
   Therefore,
5. We should not take the advice of the nuclear establishment when it assures us that nuclear energy is safe.

The issue of missing premises:

Companies are less likely to make complex items that are reliable than they are to make simple items that are reliable.

The subargument may be regarded as having (6) as a missing premise. It moves from (1), (2), and (6) to (3). By adding (6) as a missing premise, we make the structure of the original argument clearer, for we can see how the fallibility of toasters is supposed to be related to the fallibility of nuclear reactors.
Evaluating Arguments

Cogent Arguments

After we have identified the relevant arguments on various sides of an issue, we then face the task of evaluating those arguments. For our purposes, we will refer to good arguments as cogent arguments and poor arguments as not cogent. So what makes for a cogent argument? Trudy Govier has nicely defined the three conditions for cogency as the ARG conditions (ARG, get it?): adequate premises that are relevant to the conclusion and provide sufficient grounds of support.

1. The argument’s premises are acceptable. The evidence being offered for a particular conclusion must be acceptable evidence. That is, it is reasonable for us to accept the premises. Ask yourself: do you have good reason for accepting the premises on which the argument is based? If not, then there is no good reason for accepting the conclusion.

Notice that the standard here is not the standard of truth. Arguments will often employ premises that we simply don’t know at the time to be true. The standard of acceptability is weaker than the standard of truth.

When appraising an argument, we have to ask ourselves whether there is a reasonable basis for accepting the premises on which the argument is based. Premises are rationally acceptable when it would be reasonable for the person to whom the argument is addressed to accept them.

Can the issue of acceptability depend on the reader or the audience? This general account of acceptability points out that the issue is dependent upon contextual issues: background knowledge, perspective, etc. It is most reasonable to take the perspective of you the reader. If you can accept—that is, believe—the premises of an argument without violating any standard of evidence or certainty, then you find its premises rationally acceptable.

What are the standards of evidence or certainty? Can we come up with a single standard of evidence for evaluating the premises of an argument? Premises can be about absolutely anything. So, to say, in an absolutely general way and in complete detail, what makes premises acceptable is not possible. In your FYS and in critical thinking texts you will likely find some general guidelines or heuristics for determining if a premise or claim is acceptable. It is often through dialogue and discussion that we determine whether a particular claim is acceptable. Another important element of assessing the acceptability of premises is thinking about issues related to credibility and authority. We need to acquire some basic measures for determining when information is acceptable based on the credibility or authority of the source. This too will likely be a subject matter of discussion in your FYS.
2. The premises are relevant to the conclusion. Do the premises give some reason or provide at least some evidence in favor of the conclusion? Do they have some bearing on the acceptability of the conclusion?

Premises are relevant to the conclusion when, if acceptable, they constitute some reason to believe the conclusion is true.

It is important to keep in mind that relevance must be distinguished from sufficiency of grounds. When we talk about relevance, in general, what we have in mind is simply premises which provide at least some evidence either for or against a conclusion. So the emphasis will be on premises providing some reason to believe the conclusion. This is independent of whether or not they provide enough evidence to believe the conclusion.

3. The premises provide sufficient grounds for the conclusion. Do the premises provide enough evidence to make it reasonable to accept the conclusion?

The distinction between relevancy and sufficiency

Relevancy and sufficiency are difficult to distinguish in a precise way but are clear enough if we look at an example.

1. I’ve had dinner at the student cafeteria twice and both times the food has been terrible.
   therefore
2. The cafeteria staff is incapable of preparing a decent meal.

Is the premise relevant to the conclusion? Certainly it seems so. What could me more relevant to the issue of whether the cafeteria staff can prepare a decent meal than that it doesn’t make you sick. Does it provide sufficient grounds for the conclusion? Think about how strongly worded the conclusion is. Are two incidents at the cafeteria sufficient to support this strongly worded conclusion? Here we might say that the premise is relevant to the conclusion but not sufficient. An argument can provide premises that are relevant to the conclusion without providing sufficient grounds for accepting the conclusion. What would it take to provide sufficient grounds for the given conclusion? You’d probably have to sample a lot more students and identify many more cases in which students deemed the food awful.

Meeting the R and G Conditions

Relevancy and sufficiency of grounds are complicated matters. Logicians, philosophers, and rhetoricians have written extensively on these matters. Much depends on the type of connection we have between our premises and conclusion. We’ve been talking about arguments generally and yet, as you may already know, there are different types of arguments. Each type of argument provides for a different kind of connection between premises and
conclusion. While you may be familiar with the broad distinction between deductive support and inductive support, it’s more useful to distinguish four different ways in which premises may meet the R and G conditions:

1. **Deductive entailment**: the strongest connection that you can have between premises and conclusion. In a deductive argument, if the premises are true or acceptable, the conclusion must be true or acceptable. If all of the premises of the argument are true, it is impossible for the conclusion to be false. This is what logicians mean by the concept of validity. In any argument where the truth of the premises entails the truth of the conclusion, both the R and G conditions will be satisfied.

For Example:

1. If you work hard, then you will be a success in life.
2. John has worked hard.
   Therefore,
3. John will be a success in life.

While these arguments can be very powerful precisely because of the tight connection between premises and conclusion, and they are often thought to be the gold-standard of argument in some disciplines, they are not especially common in everyday discourse. Valid deductive arguments must follow very specific patterns of reasoning and it can be challenging to correctly use these rigid patterns of reasoning.

2. **Inductive Generalization**: In such arguments, we use premises about past experiences to infer a conclusion about all experience or some future experience. Behind all such inferences is the assumption that our experience is fairly uniform. For example:

   1. Every time that I have eaten in the school cafeteria, the food has been cold and unappetizing.
   Therefore,
   2. It is likely that tonight the food will be cold and unappetizing.

With inductive generalizations, as well as with the other types of argument structure we will consider, the connection between premises and conclusion is not as strong as in deductive entailment. In such cases, the premises can be acceptable and the conclusion still be unacceptable. There is always the possibility that the conclusion may later have to be rejected. But inductive generalizations are very common in everyday reasoning and we likely employ such patterns of reasoning every day.

3. **Arguments from Analogy**: These arguments rest on a comparison between two things. Typically, an argument from analogy claims that two kinds of things are alike in some respects and that the first has some further characteristic. It then moves to the conclusion that the second thing shares this characteristic. For example, to revisit an argument we’ve seen before:
Simple appliances like toasters and washing machines break down. They are not completely reliable. The same companies that make these appliances make nuclear reactors, which are much more complicated. It is very likely, then, that nuclear reactors will also be susceptible to break-downs.

Let’s standardize the argument:

1. Simple appliances like toasters and washing machines break down and are not completely reliable.
2. The same companies that make these appliances make nuclear reactors.
3. Nuclear reactors are more complicated than these simple appliances.
   Therefore,
4. It is likely that nuclear reactors will be susceptible to break-downs.

Notice that this argument compares simple appliances with nuclear reactors. We’re told that they are similar in that both are manufactured by the same companies. They are analogous in this way. Furthermore, we’re told that these simple appliances break down and that reactors are more complex. Does it seem reasonable then to infer that nuclear reactors will be susceptible to break-downs? What do you think? Does this argument pass the G condition?

4. Conductive Arguments: In this type of argument we generally have several independent factors which, considered together or additively, are taken to add up to enough support for the conclusion. Each of the premises count separately in favor of a conclusion because each is relevant to it. Here, though, the evidence provided by the premises is not linked. So if one premise turns out to be unacceptable, the others are not affected. For example:

   You really ought to accept the new job offer. You will be making much more money. The location is a lot better and you will be working with better trained individuals.

Standardizing the argument, you get something like this:

1. You will be making much more money in the new job,
2. The location of the new job is a lot better.
3. You will be working better trained individual in the new job.
   Therefore,
4. You really ought to accept the new job offer.

Our three premises are each independent of one another and collectively they are taken to support the conclusion. This argument pattern is very common in everyday discourse and you yourself may have used it in high school English courses where you wrote a five-paragraph essay in which each paragraph of the body of your essay developed a separate and independent reason in support of your thesis statement (your argument’s conclusion).
The steps to evaluating an argument

To evaluate an argument as cogent or not, you should go through the following steps:

1. Standardize the argument.
2. Determine if the premises are acceptable.
3. Determine if the premises are relevant to the conclusion.
4. Determine if the premises provide adequate grounds for the conclusion.

If the argument passes all three conditions, it is cogent. Notice that if you determine that the argument is not cogent, this is not the same thing as determining that the conclusion is unacceptable. You simply have determined that the argument does not offer adequate justification to accept the conclusion. The conclusion may yet be proven acceptable by providing a better argument.

Evaluating an Argument: An Example

Consider Geena Maharaj’s op-ed “An argument to legalize marijuana,” which you can read HERE. Focusing on the core argument (and ignoring for the sake of space all the subarguments), how would I standardize and assess this op-ed?

Here’s a possible standardization of the core argument:

1. Tobacco and alcohol are legal.
2. Tobacco and alcohol are more harmful than marijuana.
3. Legalizing marijuana would generate income and lower prosecutorial costs.
4. Tobacco, via nicotine, is more a serious gateway drug than marijuana.
5. Marijuana serves an important medial purpose. Therefore,
6. Marijuana should be legalized.

I had to make some decisions regarding what should be included and what should be excluded. I decided to treat most of the first two paragraphs as window dressing and background information. When the author indicates that she has “four solid reasons” I took that to indicate that her core argument was these four solid reasons, and not the material about lots of people smoking marijuana or the students of St. Thomas approving of its legalization. After all, those two reasons are very weak and so I surmise that the author didn’t intend to include them as part of her argument. That lots of people do something is not a strong reason for approving of something. And the survey about St. Thomas students is not representative. So I think those claims should be excluded as part of the core argument.

The overall argument pattern is conductive and the premises are independent (not linked)—though there is a link between premises 1 and 2.
In turning to the ARG conditions, premise 1 is clearly acceptable on the basis of common knowledge. Are premises 2 – 5 acceptable? As we will see, one way to show that a premise is acceptable is to support it in a subargument, which is what our author does. Each of these premises is supported with strong evidence in the op-ed and if we were to work through the ARG conditions for each subargument, I think we could conclude that the premises are all supported by cogent arguments. So they pass the A condition.

The R condition is applied to each premise in a conductive argument and so we have to ask whether the premises each independently give us some reason to think that marijuana ought to be legalized. I think they clearly do. Each gives us some positive reason to think it would be reasonable to legalize marijuana. They are all positively relevant.

What about the G condition? Our core question is whether the author has provided sufficient grounds for her conclusion. Here we have to consider whether there may be other reasons why we ought not to legalize marijuana and so we have to do some brainstorming. Are there good reasons to think legalizing marijuana would produce problems? Give this question some thought. This is part of the hard work entailed in fully engaging in the process of critical inquiry. There are no easy shortcuts here. Next weigh your answer against the evidence provided by the author. If you judge that the author’s positively relevant premises outweigh any negatively relevant reasons you can come up (after giving it some good thought) then the argument passes the G condition.

**Evaluating or creating an argument: common mistakes**

When creating or evaluating an argument, we often make some common mistakes:

(i) **Begging the question:** often times when people argue, the premises they use in their argument merely repeat, with slightly different words, the conclusion they want you to accept. In such a case, the premises do not offer any genuine evidence for the conclusion but, instead, offer pseudoevidence. When you argue, you must find evidence for your conclusion that doesn’t already assume what you are supposed to be arguing for.

Consider the following simple examples of begging the question:

1. Everybody has a right to choose what to do with their own lives.
   therefore,
2. People should be able to decide for themselves when they want to die.

1. People have a right to smoke in public places.
   therefore,
2. I am perfectly entitled to smoke in public places if I wish to do so.
If you think about what the premise and the conclusion say in each of these cases, one simply repeats the other in slight different words. No independent evidence is offered in support of the conclusion.

Here’s a slightly more complicated example. Can you discern why it begs the question?

Overheard at a faculty meeting: “The quality of teaching performance cannot be measured. No matter what administrators at campuses around the country might say, teaching performance is simply not the kind of thing to which you can assign measurable variables and then compare a bunch of numbers at the beginning of a course and again at its end. That isn't the way it works.”

(ii) **Ignoring the premises:** Oftentimes when evaluating an argument, people will focus solely on the conclusion and evaluate it rather than the argument. Remember that the conclusion is supposed to be acceptable because it has acceptable premises supporting it. It is a mistake to focus on the conclusion while ignoring the premises that are supposed to support it. You have to separate your evaluation of the argument from your prior belief about its conclusion. This is especially true with conclusions that we are already inclined to accept. Just because you think a conclusion is acceptable, it doesn’t mean that the argument is a good one.

(iii) **What you have shown:** When you have shown that an argument is not cogent, you have shown that the author of the argument failed to support his or her conclusion with adequate reasons. The conclusion is not justified by the reasons the arguer put forward. You have not shown that the conclusion is unacceptable. You have not refuted a claim or a theory simply because you have shown that one or more of the supporting arguments for it are faulty. To refute a conclusion, you would have to come up with an independent argument supporting the denial of that claim.

**ADDITIONAL RESOURCES**

*becoming a critical thinker: a guide for the new millennium*

Robert Todd Carroll

Available to copy and distribute
http://skepdic.com/ctinfo.html

1. **Critical Thinking** (click to download)
2. **Language and Critical Thinking** (click to download)
3. **Sources** (click to download)
4. **Identifying Arguments**
5. **Evaluating Arguments**
6. **Evaluating Extended Arguments**
7. Sampling and Analogical Reasoning
8. Causal Reasoning
9. Science and Pseudoscience

Answers to Selected Exercises (note ch. 4 graphs are incomplete)

Glossary

Critical Thinker Academy
http://criticalthinkeracademy.com/

Critical Thinking Definition, Instruction, and Assessment: A Rigorous Approach
Robert Ennis
http://www.criticalthinking.net/index.html

The Critical Thinking Community
http://www.criticalthinking.org//

Critical Thinking Web
http://philosophy.hku.hk/think/

Think Again: How to Understand Arguments (A Coursera Course)
https://www.coursera.org/learn/understanding-arguments#