CRITICAL THINKING (CT) MODEL
PART 3 CHECKING DEVELOPMENT

DEVELOPMENT

Our PW model states that paper development focuses on two major areas: background and the presentation of evidence to prove the individual supporting arguments of a paper. Since the presentation of evidence is the more important of the two, I’ll start with that topic first.

What I want to do here in our second handout on the CT model is give you a simple set of rules for checking the development of a paper similar to Rules 1-6 for checking organization. Again, these are very elementary explanations of complex logical points. But they should allow you to make fair accurate analyses of the kinds of arguments you encounter in everyday life as well as in E20.

LOGIC AND RHETORIC

In our last section we show how the classical syllogism places the premises before the conclusion, which follows at the end.

All men are mortal.
Socrates is a man.
So Socrates is mortal.

However, even in ancient Greece, philosophers observed that an argument is more effective or persuasive if it is flipped over. (The study of the art of persuasion is called rhetoric.)

Socrates is a mortal,
Because all men are mortal
And Socrates is a man.

You will notice that our PW model follows this organizational format at both the paper level and at the level of the paragraph. The thesis statement is followed by an outline of the supporting arguments. Then, each of the supporting arguments become the topic sentences of the individual argument paragraphs, and these topic sentences are in turn supported by specific examples and other forms of evidence.
Here are more examples of the same rhetorical presentation of arguments. But in addition to being flipped, they also leave the general or universal premise understood or implied. These are very typical of the ordinary arguments you hear, read and make yourselves every day.

I’ll be a great basketball player
Because I’m wearing Nikes,
And Michael Jordan wears Nikes.

I’ll be probably be late if the meeting is at five,
Because it’ll be rush hour.

Pat is a jerk,
Because he’s a guy.

In these cases, the general premises of each argument are assumed. The speaker expects the hearer to supply the missing assumptions. This means that if someone agrees with the arguments as presented he/she is also agreeing with the general assumptions the speaker is making.

•If anyone wears the same shoes as Michael Jordan, then that person will be a great basket ball player.

•Rush hour traffic usually slows a driver down.

•All guys are jerks.

These types of arguments aren’t necessarily bad simply because the premises are implied. But when you are evaluating an argument, it is always necessary to do more than look at what is actually stated. You usually have to make additional inferences in order to understand and explain what is really being said or argued. This is critical part of reading, especially in professional contexts.

Another type of implied belief is a presupposition. Presuppositions are similar to assumptions but they are not a part of the actual argument. However, like assumptions, if the reader accepts the argument, then the reader accepts the truth of the presupposition(s) as well. Take the following statement made by speaker A.

I believe that the only way to prevent further police misconduct in Sacramento is have a civilian police review board similar to that used by the city of San Francisco.

If you agree to debate with A whether or not a San Francisco style police review board would work in Sacramento (as opposed to other possible ways of reviewing police misconduct), then you are agreeing to A’s assumption that past and present
police misconduct on the part of the Sacramento law enforcement is a fact. Hence, what is being debated is what to do about preventing future occurrences of it.

If you do not agree with A's presupposition, then you cannot participate in A's discussion. In other words, you are not willing to share a specific belief that A needs for his or her argument to take place. Here's another example:

Salesperson to a new customer: Your wife will really love this ring because it has the biggest diamond we have in the store. It weighs almost two pounds!

Implied premise: All wives love big diamonds.

Presupposition: The customer is married to woman.

Again, the point is that when discussing an argument, you have to take into consideration a lot more than what is stated on the surface. (In theory, you should analyze the entire communication context, which includes a lot more than we can cover in our simplified models. But practically speaking, complete analyses would be next to impossible because of the vast number of variables involved. In addition, they would be so complex that they would be difficult to use.)

EVIDENCE

The rules of inference and the rules evidence are very complex logical topics that we can't hope to cover adequately here. So all I want to give you are some general and admittedly crude guidelines. Again, as in the case of arguments, what counts as "good evidence" is a direct function of the audience to which an argument is addressed. So even our simplified model can't pretend to offer hard and fast rules for analyzing all kinds of arguments in all contexts.

Let's start by repeating that the audience an argument is addressed to determines what kinds of evidence would or would not be effective or appropriate. To limit our discussion, I want to narrow our focus to published material. Fortunately, the nature of the publication can give us a fair indication of the audience its material is directed to and, hence, the types of evidence that will be used to support the arguments it presents.

For example, an article on brain cell functions in People magazine would be directed at a popular, non-technical audience with a general high school education with no science background. An article in Psychology Today, on the other hand, might be directed at an audience with a college education and a general knowledge of science. Moving along to specialized publications, an article in the New England Journal of Medicine would be directed towards physicians and other health care professionals with extensive medical and scientific training. And finally, a seminar paper given at an international conference of neurophysiologists would
require an even more specialized medical and scientific background than an article in NEJM.

It goes without saying that each type of audience requires and will accept as “good evidence” different kinds of material though the differences may only be a matter of degree. For example, the difference between the two medical arguments would only be the different in specialized factual background. Still, the point remains that there is no one single standard for what counts as good evidence in all kinds of writing.

The evidence we are looking at here in E20 is the kind of general, non-technical evidence that is required of arguments presented in major newspapers and newsmagazines. What sets their arguments apart from those you and I make every day is not so much the nature of their evidence but the fact that they pay special attention to the logic of argumentation and the way that the evidence in their arguments is presented. Of course, this does not assure that everything the news media publishes is true, correct or accurate. But it does mean they have clear standards that they are trying to uphold in their reporting and discussion of the issues they cover, and they are willing to be held accountable to those standards.

So the editorial staffs of, say, Newsweek or the Sacramento Bee, are not only concerned with what their writers say but also how they say it. In addition, both editors and writers must be aware of the presuppositions, assumptions and possible implications of what they publish as well as how their own motives and intentions might be misunderstood or misinterpreted by hostile readers.

Needless to say, it is this kind of “special attention” that we are trying to emulate in E20, because it is the kind of attention demanded of professionals in all fields and disciplines.

ANOTHER TOOL BOX

OK, with these general parameters in mind, I want to present you with another set of logical tools. These are specifically designed to help you the check the development of a paper. In particular, you can use them to evaluate the relationship between an individual supporting argument and the examples or other evidence used to support that argument. From now on I will refer to the “supporting argument” as the topic sentence of a paragraph. (Of course, the topic sentence like a supporting argument can be stated in more than one sentence. However, it should always come before the evidence used to support it.)

These tools, unlike those in our PW model, are unordered, which means you do not need to apply them in sequence, though some may presuppose others. As in the case of any tool, all of these may not be relevant to every case or problem. Hence, you should not
RELEVANCE/MATCHING. The most obvious thing one looks for in an example is relevance or what we have named “matching.” Looking back at our PW model, we have said that the most important aspect of organization is that the supporting arguments be such that if they are true the thesis is true. The supporting arguments must match the thesis statement.

In the case of examples, each example or piece of evidence must relate to the topic sentence/supporting argument so that if the reader accepts the examples as true or valid, then the topic sentence/supporting argument will be regarded as true. In other words, the examples/evidence must match the topic sentence/supporting argument.

Once again, in a good supporting argument, each piece of evidence, each example, directly relates to and supports the topic sentence. Let’s look at the Sacramento Bee editorial on the Floyd Bill for a good example of matching.

Under the current Floyd Bill, bar workers are exposed to deadly hazards of second hand smoke.

EXAMPLE: It has been shown that second hand smoke is deadly. This is supported by data from the California Department of Health Services.

EXAMPLE: Bar workers are exposed to more second-hand smoke than other workers. This is verified by a study released by the Centers for Disease Control.

In this case, the examples support the topic sentence: that second smoke is deadly and that bar workers are exposed to higher concentrations of it than most other workers. There is no doubt that the evidence and the topic sentence match up here.

If we assume that the sources are valid, the conclusion that the passage of the Floyd Bill will continue to force non-smoking bar and tavern workers to work in a deadly environment is difficult to avoid.

CONSISTENCY. We have already discussed consistency when discussing the relationship between the thesis statement and the supporting arguments. Needless to say, there must also be a consistency relationship between the topic sentences/supporting arguments and the examples/evidence used to support them. In addition, the examples/evidence used to support one argument should not contradict the examples/evidence used to support another argument.

And again, just because an example is consistent with an argument does make it relevant. An example that contradicts a topic sentence/supporting argument destroys the argument. However, an example that is consistent still needs to match or be relevant.
BREAK OUT. When we say that the examples match the topic sentence/supporting argument, we are really making a number of different smaller judgements. Hence, this evaluation refers to a “bundle” or set of secondary features. I would like to discuss the primary features of this set. (These are not ordered.) Each is of equal importance, though what will be accepted as a good example or good evidence depends on the audience and nature of what is being proven.

DETAIL. The evidence must be presented in “sufficient” detail so that the reader feels he or she can, if necessary, locate and verify it. This usually means the writer has to refer to an objective source, e.g., a published source or a statement by an expert or authority. In ordinary discourse, we don’t usually require footnotes and other formal documentation. But again, this is a matter of degree. There is an underlying principle that an “objective” example should be verifiable by the reader. Hence, when evidence is presented in vague or very general terms, the reader has the right to become suspicious and even disallow it.

Let’s look at the first argument from the Bee editorial again.

Under the current Floyd Bill, bar workers are exposed to deadly hazards of second hand smoke.

Second hand smoke kills.
The California Department of Health Services reports that 53,000 non-smokers die every year.

Bar workers are at more risk than other workers are.

1) Their exposure to second-hand smoke is estimated to be four to six times higher than that of other food or beverage service workers.
2) According to the Centers for Disease Control and Prevention, smoke-filled rooms can have up to six times the air pollution as a busy highway

The Bee editor is not claiming to be an expert when it comes to the dangers of smoking. So the editor refers to two public agencies from two different sectors of government. This implies that the data has not been taken from the same source. In addition, the editor not only gives the names of the agencies but specific percentage points. This kind of detail can be used to verify the examples.

This is an editorial, an expression of an opinion by the writer, and not a fact-based research paper. But even though there are no specific quoted here, we as readers would generally accept them because they are specific enough so that we can confirm them by calling up the CDC or the CDHS and asking about the figures that
were quoted. And they are detailed enough so that the Bee might be held liable if they were purposely falsified.

Now look at these examples, both of which are weak in comparison to those given in the editorial. These examples would not match the topic sentences, partly because they are not detailed enough.

Second hand smoke kills.
That’s what it says on the warning labels on cigarette packages.

This example has a number of problems, one of which is that it does not specifically relate to second-hand smoke. There is not enough detail to relate warning labels on cigarettes to the dangers of second-hand smoke. In fact, it took many years before people realized that second-hand smoke was as dangerous as smoke that was directly inhaled.

Bar workers are at more risk than other workers are.
We all have seen how bar workers have to work in smoke-filled rooms.
This has to be bad for their health.

This “example” is not specific enough. It is a personal opinion that is being used to support a general fact statement. So even if you have seen some bar workers who have worked in smoke filled rooms and even if you may feel this may not be good for their health, you don’t have to agree with the writer and conclude that all bar workers are at more risk than other workers.

OBJECTIVITY: The presentation of examples with adequate detail is directly related to the concept of objectivity. An argument is intended to persuade others to accept the truth or validity of something they do not already believe. In other words, you want to give your reasons for believing something that your audience can accept as their own reasons. This is the essence of objectivity. Objective evidence is that which your audience can in principle accept as its own.

Hence, in a good argument, the evidence should be presented in unbiased and as objective a manner as possible. Biased or subjective arguments demand that the reader agree with the writer because writer asks the reader to. In fact, biased language often assumes that the audience already agrees with the thesis, which makes the argument logically irrelevant.

In a good argument, the reader is given credit for having a brain and being able to weigh the evidence on his or her own.

So there are two major aspects of objectivity to consider. We’ve just discussed the first and easiest to see, the use of slanted or biased language in the presentation of evidence. In CT 1, we also pointed out the use of overtly biased or slanted language in the presentation of arguments. In the case of examples and evidence, bias and prejudice can take many forms. For example, not giving enough detail so
that the reader can actually understand the examples and verify them is often a form of bias.

On the positive side, the most important indication of objectivity is the demonstration that a writer has considered all major sides of an issue. One way to demonstrate this is to select examples from a wide range of examples. Generally speaking, any argument that takes its examples from one and only one source is suspect. The reader may feel that the evidence base for the argument may not be very broad or that the writer has selectively chosen sources that agree with the writer’s point of view and ignored everything else.

This is reason that it is important for a reader not only to check the sources but to check the quality of the sources as well. For example, in gathering background for a news story, good reporters usually try to interview people representing all the major positions related to an issue. For this reason, they will often state that a particular individual or organization did not consent to be interviewed. They want their readers/viewers to know they were trying to present as unbiased a report as possible but that some potential sources chose not to cooperate.

Of course, the best way to avoid the accusation of bias is to present facts and evidence that are “objective,” that all sides will agree are true. To return to the Bee editorial again, I noted that the writer used biased or slanted language in places. But the way in he presents his examples and evidence is detailed and objective. I have already pointed out that these facts and examples are taken from different sources. They do not all come the same place. This broadens the base of the evidence and, hence, protects it from the accusation of bias.

Now look at the second argument. It is a little harder to reconstruct the topic sentence for this paragraph, but the editor’s intent is clear. He is seriously examining possible objections to his position and is refuting them.

Although supporters of the bill that defeating the Floyd Bill will result in economic disaster to the bar industry, the restaurant industry made the same argument several years ago when the smoking ban as first passed. However, the facts show that the restaurant industry has not suffered but prospered under the ban. Therefore, I believe these fears are unfounded.

To support this topic sentence/supporting argument, the editor gives statistics from the Country of Marin and the City of San Luis Obispo, again with enough detail so we as readers can verify them for ourselves.

In his third argument, the Bee editor shows another example of a good selection of evidence to avoid the charge of bias. The most important organization listed here is the California Restaurant Association, because the restaurant industry was the leading opponent to the original ban on smoking.

PERSONAL EXPERIENCES. The points I have just discussed covers personal experiences as well. Reports of personal experiences are by their very nature
limited in kinds of thesis statements they can support, but they still must be presented as “objectively” and in as much detail as possible. The writer should state what happened to whom at what time and in what place.

Again, the audience has a lot to do with what counts as “sufficient” detail and “sufficient” documentation, but personal experiences can be good evidence as long as there is a match between the evidence and the thesis. Too often, writers overgeneralize their personal experiences: they argue from what happened to them to what should or ought to have happened to everyone. This violates the basic rule of argumentation: only argue for what your evidence can support.

DEGREE OF DIFFICULTY This last consideration when evaluating examples and evidence is difficult to state. Since evidence is what ultimately supports a topic sentences/supporting arguments and thesis statements, the degree of difficulty of an argument can be partly determined by how difficult the evidence is to obtain or to analyze. The reason this is important is that in assessing the strength of an argument, we have to take into consideration its complexity, its information value and how difficult it is to prove, all of which are related to its information value for the audience.

In general, the more complex an argument is the more difficult it is to come up with the examples and evidence that make good arguments. There may be any number of reasons for these problems, but evaluating the degree of difficulty often comes into play when evaluating a single argument or choosing among several options.

For example, finding evidence to show that second-hand smoke is unhealthy is much easier than finding evidence to show that arterial heart disease is the result of a chronic infection. In the same light, demonstrating why Prohibition failed would be less difficult than demonstrating that legalizing marijuana would raise the crime rate.

Of course, these concepts like the rules used for checking organization in CT 1 overlap. However, I have to formulate each so that it highlights a specific aspect of the presentation and evaluation of evidence. In the end, they are all just “tools” to help you to see the strengths and weaknesses of the arguments you are analyzing and evaluating.

BACKGROUND

Now let’s look at that other important component of development and that is the presentation of background material. As I have said, background is any information or discussion to enable the reader to understand the argument. It is not a part of the argument itself, and yet it is often a critical factor in whether or not the reader accepts the argument.
Most of the rules that apply to checking organization and development also apply to checking background information as well. For example, background statements are not arguments, but they should be relevant to the arguments, they should be consistent, etc. In general, it is absolutely critical that the background information be presented in as objective and as neutral a manner as possible. This means that the writer should not mix facts and background information with his or her arguments.

Again, the background is the material that the writer is asking the reader to accept as fact before the argument is even presented. It is the ground upon which the argument rests. So it shows a certain lack of control (or, even worse, dishonesty) for the writer to ask that the reader accept something as background that essentially entails accepting the writer’s thesis and arguments.

The following is an unordered list of the kinds of material that is often presented in background sections:

1) evidence supporting the authority of the author

2) key concepts and definitions

3) a historical description of the problem

4) a discussion other solutions that have been proposed

5) a precise description and/or analysis of the problem

6) assumptions that will be used to solve the problem

7) reasons as to the problem’s importance or significance

8) a combination of the above.

END NOTE

Once again, I know this is a lot of material to digest, but we’ll go over each of these handouts in class. In addition, the more you use the concepts and operations in both PW and CT, the clearer they will become for you. So it’s not that you have to understand the models perfectly before you will be able to apply them. Rather, you will come to understand them better and better as you go through the process of using them to solve actual problems. In other words, understanding and practice go hand in hand. So do not be intimidated by what you have just read here.