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A REFORMULATION OF THE MODES OF REASONING  
IN ARGUMENTATION

A DISSERTATION  
SUBMITTED TO THE GRADUATE SCHOOL  
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By

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## CHAPTER I

### ARGUMENTATION AND THE PROBLEM OF REASONING

#### Introduction

This is a study of the ways in which people reason in argumentative discourse, the way advocates prove their conclusions. It is an attempt to identify and analyze the processes used in proof and to suggest ways of testing these processes. Although the importance of this aspect of the theory of argumentation is obvious, there is little agreement on these processes among the theorists. Their formulations disagree with one another in the number, types, and descriptions of the processes which are used. Because of this confusion and disagreement in the theory, a study such as this seemed necessary.

The approach used was to study many samples of arguments taken from speeches, addresses, and debates, and to analyze these arguments to discover what processes are actually used in moving from the premises to the conclusions. The various types of processes were grouped together, classified, and described to arrive at a consistent and reasonably comprehensive formulation of the modes of reasoning used in argument.

This is the general overview of this dissertation. However, there are several foundation ideas which should be understood before discussing the results of this investigation. One is the concept of argumentation itself.

### The Function of Argumentation

Argumentation has been traditionally listed as one of the four forms of discourse: narration, description, explanation, and argumentation. In this context it is usually defined as the form of discourse which is concerned with logical proof or reasoning.<sup>1</sup> In this century, argumentation has developed as a distinct aspect of rhetoric with its own specialized function, and it has textbooks and treatises devoted solely to it. In these writings, the definition of argumentation has generally followed the same lines.

Several authors define argumentation as the "art or activity by which one person, through the use of reasoned discourse, seeks to get other persons to believe or to do what he wants them to believe or to do."<sup>2</sup> Other authors define argumentation as "logic applied in attempts to induce other persons to accept or reject the alleged 'truth claims' of disputed or doubtful propositions."<sup>3</sup> These and similar definitions attribute to argumentation two general elements: (1) the use of logic or reasoning to support conclusions, and (2) the attempt to influence the

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<sup>1</sup>For a modern treatment of argumentation in this context see Wayne N. Thompson, Fundamentals of Communication, (New York: McGraw-Hill, 1957).

<sup>2</sup>James McBurney, James O'Neill, and Glen Mills, Argumentation and Debate, (New York: Macmillan, 1951), p. 1. See also Austin Freeley, Argumentation and Debate, (San Francisco: Wadsworth, 1961), p. 2; A. Craig Baird, Argumentation, Discussion, and Debate, (New York: McGraw-Hill, 1950), p. 7; and Arthur Kruger, Modern Debate, (New York: McGraw-Hill, 1960).

<sup>3</sup>Douglas Ehninger, "The Logic of Argument," in Argumentation and Debate, ed. by David Potter, (New York: Dryden Press, 1954), p. 102. See also, Russel R. Windes and Arthur Kruger, Championship Debating, (Portland, Maine: J. Weston Walch, 1961), p. 7.

behavior of an audience.<sup>1</sup>

Despite the popularity of this type of definition, its use may lead to problems in the function of argumentation. It is clear that this definition makes argumentation a part of persuasion, with the function of argument being ultimately persuasion. Argumentation then becomes a particular method of persuasion, persuasion by means of logical reasoning. This implies that the study of argumentation becomes the study of the logical arguments which would be persuasive to an audience. However, this implication is inconsistent with several concepts now held in the theory of argumentation. Consider the concept of a prima facie case. Freeley defines it as "a case which in and of itself establishes good and sufficient reason for adopting the proposition unless it is successfully refuted or weakened."<sup>2</sup> If the function of argumentation is to be persuasion, then the prima facie case need not meet the requirements of Freeley's definition. It need only satisfy the particular audience at which it is directed, whether it is logically adequate by other standards or not. In the same way the concept of presumption changes from its usually accepted meaning. The benefit of presumption is usually defined to be with the status quo, and the burden of proof is on the person arguing against the presumption. However, if the speaker is attempting to persuade an audience, then presumption in terms of that audience may be against the status quo, and the real burden of proof may be on the side which favors

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<sup>1</sup>A definition which incorporates both of these elements is Waldo W. Braden and Ernest Brandenburg, Oral Decision-Making, (New York: Harper & Brothers, 1954), p. 109: "Argumentation is the process by which a communicator presents a probable truth or establishes the acceptability of a conclusion with the aim of securing belief or action."

<sup>2</sup>Op. cit., p. 18.

the status quo. In short, if we use the standard definition of argumentation, its function must be to prove logically true those conclusions which are necessary to influence the behavior of the audience. And although the definition of argumentation has that necessary implication, it is not really used in that way.

There is a further problem that the standard definition presents: it limits the use of rational discourse to persuasive purposes. However, argumentation might have a broader base than just that. For example, the principles of argumentation might be used in testing decisions, as in asking the question, "Is this a rational decision?" In fact, this has been suggested by some authors, not realizing that it is inconsistent with the standard definition of argumentation. Freeley says of debate, "When debate consists of reasoned arguments for and against a given proposition, it is a rational means of decision making."<sup>1</sup> Braden and Brandenburg also suggest this function.<sup>2</sup>

The principles of argumentation could also be used in the analysis of propositions or situations to discover the requirements of proof. This would answer the question, "What is needed to support or prove this proposal?" In performing research, for example, on a policy, a plan, or the rationale of a movement, such principles would be applied.

These two uses of the principles of argumentation, rational decision making and analysis, cannot be encompassed under the standard definition of argumentation as persuasion, and yet these functions exist and are significant. In view of this circumstances I would suggest that a new

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<sup>1</sup>Op. cit., p. 3.

<sup>2</sup>Op. cit., ch. 1.

definition of argumentation is required, one which will draw the boundaries of the field somewhat more carefully than does the present accepted definition. This new definition should be one which describes more accurately what the theory in the field covers, it should allow for the broad application of the principles of the theory, and it should, it seems to me, free argumentation from subsumption under persuasion. In this way the principles can be studied in relation to the substantive problem, rather than with regard to a particular audience. Such a definition might be one like this: The function of argumentation is to discover and formulate the requirements of proof for a proposition.<sup>1</sup>

Let us see the implications of this definition. It does remove the field of argumentation from its classification as a sub-category of persuasion. It makes argumentation focus on the proof for a position or a proposition strictly in terms of the proposition. This means that the principles of argumentation will be applied to discover what is required to prove a specific assertion and to formulate a case for or against that assertion. This will be consistent with the present use of such concepts as presumption, burden of proof, and prima facie proof. Further, this type of definition will allow the principles of argumentation to be applied in areas other than advocacy, such as the testing of decisions. If we analyze our understanding of "the rational man" we would conceive of a person who uses certain principles in making decisions, and I think those principles would closely correspond with many of the principles of argumentation as defined above. Thus the study of argumentation would

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<sup>1</sup>"Proposition" here means any assertion, from "Today is the sixteenth of the month," to "The United Nations should be strengthened."

apply to decision making processes for both the individual and the group, to ask the question, "How strongly supported is this conclusion?" or "What are the arguments for and against this conclusion?" Clearly the same principles would apply in the analysis of a problem, proposed solutions to a problem, and in the analysis of ideas.

The definition will also apply to academic debate as well as to real-life argument. Most writers agree that academic debate is a particular application of argumentation, and the definition of argumentation given here will apply to both building and attacking cases in support of a debate proposition. It should be noted that both affirmative and negative debaters utilize the analysis of the requirements of proof: the affirmative attempts to construct a case on these requirements, and the negative attempts to destroy the affirmative points on the basis of the requirements of proof.

But what about persuasion? How would argumentation fit into the function of persuasion? We have already noted that the logical support for a point is distinct from the persuasiveness of that support in terms of an audience. Persuasive discourse which claims to be highly logical does not become argumentation; it is still persuasion. The function of argumentation is to analyze and formulate, not to convince. Once argumentation has operated, persuasion can draw upon the results of its formulation for the logos, the logical proof of persuasion, selecting arguments for the purposes of persuasion. In this way persuasion utilizes the principles of argumentation in the formulation of the reasoning of the discourse, the logical bases of belief.

This separates argumentation from persuasion, yet it allows both to

operate together. No matter how much proof is used in a persuasive speech, the purpose is still to persuade.<sup>1</sup> But the function of argumentation is separate from this purpose, and yet it can be used for this purpose by the persuader. A further advantage of this separation is that it opens the possibility for testing the reasoning in a persuasive speech. If argumentation is defined as persuasion, the logic must be tested on the basis of its persuasive effect. Obviously this will not be satisfactory because there is no outside standard to guarantee the reasonableness of the argument. However, if argumentation is the "science of proof," it can test the reasoning in a persuasive speech for adequate probity; it provides objective standards for analysis of persuasion.

Surely this is greatly to be desired.

#### The Modes of Reasoning

If argumentation is defined as the discovery and formulation of proof, it is clear that the principles/argumentation will apply to any level of inference, from proving a bare fact to proving a proposition such as "wood is more useful than money," or "the United States should recognize the Communist government of China." Proof operates on several levels: a proposition is supported by several contentions, each contention may be proved by sub-contentions, and sub-contentions are supported by evidence such as facts and opinions. This dissertation is concerned with proof between the level of facts and opinions and that of the

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<sup>1</sup>The ethics of a speaker may require varying amounts of logical proof, even to the extent that his persuasion might consist entirely of logical proof, in which case the persuasive speech would be the reporting of argumentative analysis and formulation. See Irving J. Lee, "General Semantics and Public Speaking," Quarterly Journal of Speech, v. XXV, no. 4, (December, 1940).

conclusions drawn from them. This is what I will mean by the "modes of reasoning"--the reasoning processes used to move from facts and opinions to conclusions.

Most argumentation textbooks recognize that these basic processes of inference can be described and tested, and so a chapter is usually devoted to their analysis. A review of the literature of argumentation and an attempt to apply some of the formulations will reveal that there is a lack of agreement and utility in the theories.

The first problem is that authors are not in accord on the different types of reasoning used in argument. Crocker, for example, lists inductive, deductive, and causal reasoning.<sup>1</sup> On the other hand, Braden and Brandenburg identify five: argument from specific instances, circumstantial detail, causality, analogy, and authority.<sup>2</sup> Kruger also describes five types of reasoning, but they are only slightly similar: descriptive hypothesis, descriptive generalization, causal hypothesis, causal generalization, and analogical hypothesis.<sup>3</sup> McBurney, O'Neill and Mills list four modes of reasoning: example, sign, cause, and analogy.<sup>4</sup> Clearly there is overlapping in some of these formulations, but many of the categories are entirely different.

The textbooks are in general agreement on the existence of such modes of reasoning as generalization, causal reasoning, and analogy, but

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<sup>1</sup>Lionel Crocker, Argumentation and Debate, (New York: American Book Company, 1944), ch. VII, VIII, IX.

<sup>2</sup>Op. cit., ch. VI.

<sup>3</sup>Op. cit., ch. 11, 12, 13.

<sup>4</sup>Op. cit., ch. VIII.

on others there is less agreement. Two recent works list argument from authority as a form of reasoning, while others do not. Some consider sign reasoning to be a separate form of proof; others ignore it or classify it under another form of reasoning. Some authors present induction as a basic process of reasoning, and other authors separate it into sub-processes within itself.

Not only is there disagreement on the number and classification of the modes of reasoning, there is also disagreement on their description. Alan Nichols, for example, describes causal arguments as deductive in nature, while other authors describe them as inductive.<sup>1</sup> Sign reasoning is classified deductively by some authors, while others classify it as inductive. One author describes causal reasoning as "accounting for" the existence of an event; other authors describe it as "asserting" the existence of an event.

An incidental problem in contemporary textbooks lies in the use of oversimplified examples, poor examples, or no examples to illustrate the theories of reasoning. Too often such enlightening examples as these occur:

"Either John will study or he will go to a movie."

"If John passes the exam, then he will celebrate."

These examples surely do not enlighten the student who must identify the vines of reason in the tangled jungle of discourse.

In short, the textbooks and theorists in argumentation are not in agreement on argumentative reasoning. They do not recognize the same

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<sup>1</sup>Alan Nichols, Discussion and Debate, (New York: Harcourt, Brace and Co., 1941), p. 344.

types of reasoning as fundamental, and there is disagreement on the basic nature of many of the processes.

Neither does the field of logic offer a useful analysis of the modes of reasoning. Logicians have been generally concerned with developing consistent deductive systems, or with the logic of scientific discovery, rather than with logical proof in verbal behavior. Few logicians have been concerned with the reasoning processes of ordinary discourse, and as a result, there is little treatment of this in logic. Deductive systems have no content, and being categorical, cannot be applied to the probabilities of the world of discourse. Inductive, while the basis of discovering and proving propositions scientifically, involves procedures which are too complex to be used within the bounds of discourse, except on rare occasions. However, in recent years several philosophers have become interested in the relation of logic to ordinary discourse, and the logical positivist school is also concerned with argument.<sup>1</sup> None of these approaches presents methods of analysis or theories which are extensive enough to cover the range of arguments found in discourse, although many of their methods and concepts were helpful in this present study.

A few popularized logic books have touched on the problem of rhetorical reasoning, but without an analysis of the actual modes of

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<sup>1</sup>Examples of the first group are P. F. Strawson, (An Introduction to Logical Theory, London: Methuen and Co., 1952) and Stephen Toulmin (The Uses of Argument, Cambridge: Cambridge University Press, 1958). The logical positivists are represented by Rudolf Carnap (The Logical Syntax of Language, London: Kegan Paul, Trench, Trubner & Co., 1937).

reasoning with which we are concerned.<sup>1</sup> Unfortunately, these books either present simplified versions of deductive and inductive logic or devote most of their space to a listing of fallacies in argument.

Thus, the person who wishes to analyze carefully the processes of reasoning in a speech, essay, or other unit of discourse receives little practical help from either rhetoricians or logicians, or at best, he finds his sources limited in their help. And the person who would use argumentation to analyze a proposition or to test a proposal will receive almost no assistance in constructing his reasoning.

#### Goals of the Study

Considering this situation which presently exists in argumentation theory, we might phrase the major goal of this study as this:

What are the major processes or lines of reasoning by which arguments move from premises to conclusions?

This question implies three important aspects of the subject. The first step will obviously be the identification of the various modes of reasoning, that is, the isolation of the specific processes which can be differentiated in argumentative discourse. The second aspect of answering the question is the description and analysis of each of the processes. This means the description of the types of reasoning involved, how it operates, and what the requirements of proof are for it. The third phase of the problem is the method of testing each type of reasoning: what tests do we apply to the argument to determine its strength or probability?

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<sup>1</sup>Lionel Ruby, The Art of Making Sense, (Philadelphia: J. B. Lippincott, 1954); Stuart Chase, Guides to Straight Thinking, (New York: Harper & Brothers, 1956); and Robert Thouless, The Art of Straight Thinking, (New York: Simon and Schuster, 1947).

The discussion of these three aspects of reasoning processes should make the reformulation a useful and functional one for application to proof and the analysis of argument.

#### Materials and Procedure

This reformulation is the result of an empirical analysis of samples of argument taken from actual argumentative discourse. Over 250 samples of argument were taken from speeches, debates, and other discourse. To do this an argument was defined as the assertion of a statement (the conclusion) on the basis of other statements (the premises), that is, a statement that is asserted to be true on the basis of some justificatory material. Some of the identified arguments were short in length, others extended over several hundred words, but all had the common gross structure of premises and conclusion. Either the conclusion or the premises might be suppressed in the presentation of the argument, but if both seemed clearly implied, the sample was considered to be an argument.

The samples of argument were chosen from a variety of sources, including persuasive speeches, informative speeches, real-life debates, discussions, legal discourse, and academic debates. This was to insure that the selection of arguments would not be biased by a context which by its very nature utilized a few types of reasoning to the relative exclusion of others.<sup>1</sup>

Once the samples were isolated, the next step was to analyze the

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<sup>1</sup>That this occurs is established by noting that in the argument samples taken from academic debates, only four of the nine major types of argument were used with any significant frequency.

process involved in moving from the premises to the conclusion. Several sources of information were brought to bear on this analysis. Formulations of reasoning processes from the fields of logic, argumentation, and rhetoric were applied where this was possible, and the various arguments were fitted against these theories to test them. Where these proved inadequate or inapplicable, an original analysis was developed, and this was tested against other arguments. As the study progressed, similar processes recurred, and nine major lines of reasoning emerged. As these processes became differentiated, they were checked against additional samples of argument to test their usefulness. Some of these lines of reasoning had been identified in previous formulations, others seemed to be previously unrecognized.

Next, each reasoning process was carefully described in an attempt to discover all of the process involved and what its proof requirements were. Here again, information from logic, rhetoric, and argumentation was supplemented by ideas derived from the observation of the actual arguments in order to develop the most accurate analysis.

The proof requirements of the reasoning process logically implied the tests which could be applied to each type of argument. Because of the nature of the arguments, some of the tests were found to be more important than others for each argument, and these were described carefully.

The procedure which I have outlined has resulted in the reformulation which is the subject of this dissertation. Because of its empirical procedure, the theory is one which is based closely on practice, and hence it should be accurate and useful for the analysis and construction of arguments.

## CHAPTER II

### METHODS FOR ANALYSIS OF ARGUMENTS

This chapter will deal with the procedure of identifying an argument and separating its components for analysis. The actual description of the reasoning processes which relate the elements will be discussed in chapter III.

#### Identifying an Argument

An argument is normally defined as a sequence of statements, one of which is asserted to follow from one or more others.<sup>1</sup> We too shall consider such a structure to be an argument, and in identifying it in discourse we shall separate statements into premises and conclusions. There may be some difficulty in discriminating between non-argumentative discourse and argumentative discourse, but there are several questions which, when answered, will clarify the nature of the discourse:

1. Is something asserted or implied to be true? This is the conclusion of the argument.

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<sup>1</sup>James McBurney, James O'Neill, and Glen Mills, Argumentation and Debate, (New York: Macmillan, 1951), p. 96: "...argument may be defined as the process of reasoning by which conclusions are inferred from premises." Irving Copi, Introduction to Logic, (New York: Macmillan, 1961), p. 7: "An argument, in this sense, is any group of propositions of which one is claimed to follow from the others, which are regarded as providing evidence for the truth of that one." Lionel Ruby, The Art of Making Sense, (New York: Lippincott, 1954), p. 120: "...a unit of discourse in which beliefs are supported by reasons."

2. Is it asserted on the basis of other statements? These are the premises, and if they exist or are implied, the discourse is an argument, if not, it is an unsupported assertion.

3. Are any premises omitted or only implied? If so, supply the missing premises or make them explicit.

4. Is the conclusion omitted or only implied? If so, supply it. If these questions are followed and the statements can be separated into premises and conclusion, then the discourse is an argument.

To illustrate the difficulty in distinguishing between arguments and non-arguments, let me present an example which appears to be an argument, but is not.

Because young people are dependent on outside agents for their recreation and for the actual mechanics of living, many of them never learn to read nor to create for themselves a leisure which inspires creative activity or independent thought.<sup>1</sup>

It may seem possible initially to divide this into the following form:

Premise: Young people are dependent on outside agents for their recreation and for the actual mechanics of living.

Conclusion: Many of them never learn to read nor to create for themselves a leisure which inspires creative activity or independent thought.

However, what is asserted is the causal relation between the two statements: that the second is the result of the first. The entire statement is a conclusion, an assertion; it is not an argument. To change this

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<sup>1</sup>Millicent C. McIntosh, in Harold F. Harding (ed.), The Age of Danger, (New York: Random House, 1952), p. 383. Many of the samples of argument quoted in this present thesis have been selected from the Harding anthology of speeches. The primary sources are not cited by Harding for most of these speeches. However, the problem of textual accuracy is not significant for this study in reasoning, as it would be for an analysis of the speaker himself. Rather we are concerned with the process of reasoning involved, given that such discourse has occurred either in spoken or written form.

discourse into an argument might result in this:

Premise 1: When persons depend on outside agents for stimulation they fail to develop their own creative ability.

Premise 2: Young people are dependent on outside agents for their recreation and mechanics of living.

Conclusion: Young people will never learn to read nor think creatively, etc.

The difficulty of discrimination between argument and non-argument illustrated by this example has caused confusion in the nature of causal reasoning, which will be discussed in chapter III.

#### Determining The Structure of The Argument

The next step, after identifying discourse as an argument, is to separate the elements of the argument. Traditionally this has been done by placing the argument in syllogistic form. To do this, the terms are stated as class-inclusion terms and the premises are stated in the major and minor premises of the syllogism. For example, let us consider this argument:

Government-operated industries will be inefficient because they are bureaucratic, and all bureaucratic industries are inefficient.

Placed in syllogistic form, the argument becomes:

All government-operated industries will be bureaucratic industries.  
All bureaucratic industries are inefficient industries.

Therefore, all government-operated industries will be inefficient industries.

But not all arguments can be placed easily in this classic syllogistic form. When an argument involves an individual rather than a class, the traditional syllogism will not be applicable without major modification, and the logical complications which ensue are manifold. Further, the syllogism must use statements which are absolute, which say "all" or

"some." The premises must be certain, not probable, yet most rhetorical reasoning is probable, not certain. Then, too, some types of argument can not be placed in syllogistic form, e.g., the hypothetical argument, such as "If prices continue to rise, then unions will ask for wage increases." This latter is sometimes called a hypothetical syllogism, but it is actually different from what is technically and commonly known as a syllogism, and it must involve an entirely different reasoning process. With all these disadvantages of syllogism, it seems strange that it has survived as a method for analysis of reasoning in discourse. Perhaps the explanation is that it is easily taught and understood, but rarely applied.

Fortunately, for the purposes of the rhetorician, an alternative form of structuring the elements of argument is available. This is the "layout" pattern devised by Stephen Toulmin and described in his book, The Uses of Argument.<sup>1</sup>

The Toulmin analysis identifies six elements in each argument:

1. Conclusion or Claim (C). This is the final assertion.
2. Data (D). The evidence or premises of the argument.
3. Warrant (W). This is a statement that asserts the conclusion follows from the premises. It authorizes moving from the evidence to the conclusion, answering the question: "How do you get from the data to the conclusion?" This is the reasoning process.
4. Backing (B). This is information which explains why the warrant

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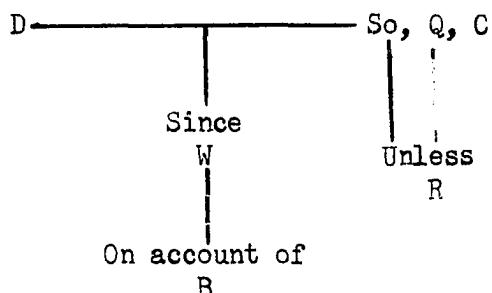
<sup>1</sup>(Cambridge: Cambridge University Press, 1958). The layout pattern is described in chapter III of Toulmin's book. For an application of this structure to the analysis of rhetorical arguments, see, "Toulmin on Argument: An Interpretation and Application," Wayne Brockriede and Douglas Ehninger, Quarterly Journal of Speech, v. XLIV, no. 1, (February, 1960). There are mistakes in the application, but the article shows the general usefulness of the system.

is true--which justifies the validity of the argument.

5. Qualifier (Q). Since the conclusion may be true with different degrees of probability, its probability value must be stated. The qualifier says the conclusion is certain, highly probable, rare, etc.

6. Rebuttal and Refutation (R). There are exceptions to the conclusion, and the rebuttal is the statement of the exceptions or qualifying conditions which are placed on the reliability of the conclusion.

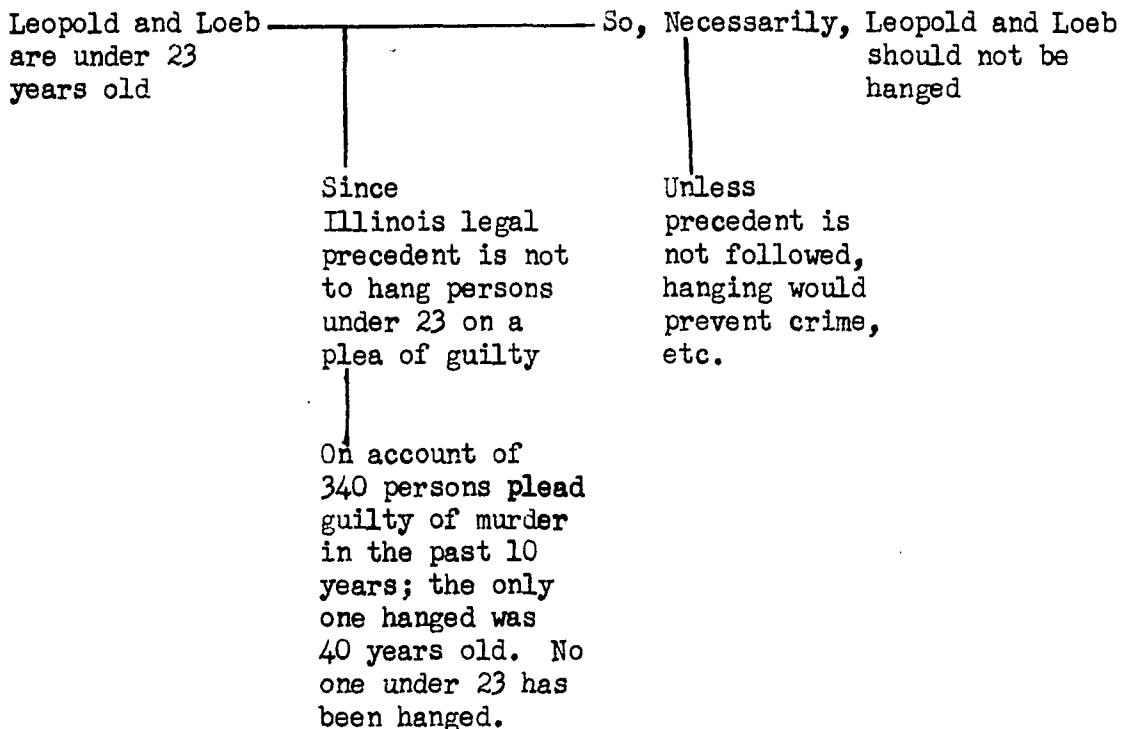
Stated in its simplest, abstract form, the Toulmin structure of argument looks like this:



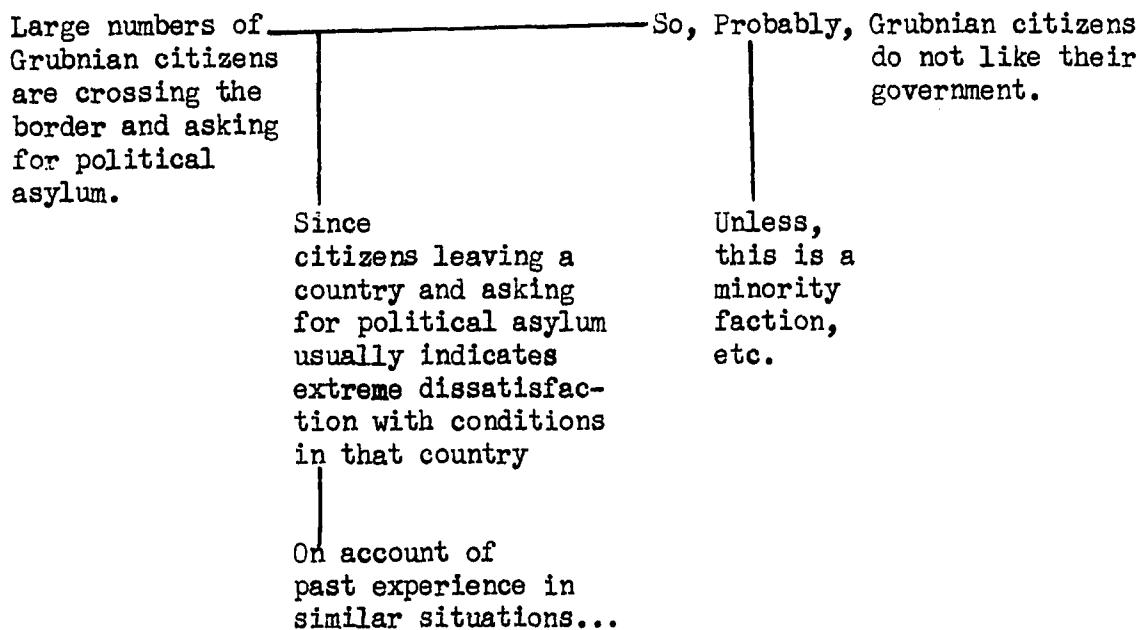
Applying this structural concept to Clarence Darrow's argument against capital punishment in the Leopold and Loeb trial in 1925, we get the following layout:<sup>1</sup>

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<sup>1</sup>Taken from Darrow's plea in Clarence Darrow, Attorney for the Damned, Arthur Weinberg, ed., (New York: Simon and Schuster, 1957).



For another example, let us invent a hypothetical argument to prove that the inhabitants of Grubnia do not like their government:



In analyzing arguments for this thesis, I found that the Toulmin

layout pattern was most helpful. Although there are some difficulties in applying it to certain arguments of a semantic nature, and the exact nature of the rebuttal elements is not clearly defined, yet the layout serves the purpose of separating the elements and placing them into clear relationships with each other.

Often in placing arguments into this pattern it will be found that unstated elements must be supplied, and some terms must be rephrased for logical clarity or specificity. The rebuttal is rarely made explicit in rhetorical discourse; indeed it is often suppressed to give the argument a greater show of strength. The listing of reservations will usually depend upon the inventiveness of the person who analyzes the argument. In the sample arguments which follow I have supplied what I believe would be reasonable reservations on the strength of the conclusion.

The qualifier, asserting the probability value of the conclusion, is another term which must be supplied by the observer. In most of the samples of argument which I analyzed the conclusions were stated as though they were certainties. This is rarely the case in rhetoric, which deals with probabilities (see Chapter III), and the qualifier is usually "probably."

The warrant, like the major premise of a syllogism, is often not made explicit in discourse. Again, the analyst must supply the generalization, relationship, or linguistic rule which is required to justify the claim.

In the analysis of the samples of argument, the layout pattern has been used as a convenient instrument for identifying the elements and their relationships, and each of the samples has been diagrammed according

to the layout pattern, with suppressed elements made explicit. In some ways a syllogistic analysis would have been equally useful, but the Toulmin pattern seems to be a clearer and more accurate representation of the relations of rhetorical arguments.

Summarizing, there are four steps in the analysis of arguments:

1. Identify the argument as an assertion with a reason, or as premises supporting a conclusion.
2. Make the argument explicit by supplying missing elements.
3. Place it in the layout pattern.
4. Analyze the argument in terms of the reasoning process, moving from the data to the conclusion on the authority of the warrant (which is the subject of chapter III).

## CHAPTER III

### THE MODES OF REASONING, A REFORMULATION

#### Rhetorical Reasoning

Before discussing the specific modes of rhetorical reasoning, several of its characteristics should be noted. Many rhetoricians have observed that rhetoric is concerned with probabilities, in contrast to all deductive systems, which deal with certainties.<sup>1</sup> This is not entirely an accurate description, as this chapter will demonstrate. Rhetorical reasoning processes which are based on causal relations result in probable conclusions because they deal with matters of experience, which are contingent. However, those processes of reasoning which have linguistic or semantic bases (e.g., argument from definition) arrive at conclusions deductively, and assuming the premises and the semantic rules, produce certain conclusions. On the other hand, since the latter depend upon meanings of words, not only the material truth of the premises, but also

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<sup>1</sup>Aristotle, Rhetoric, I, 2; James McBurney, James O'Neill, and Glen Mills, Argumentation and Debate (New York: Macmillan, 1951), p. 11 ff.

the semantics may be attacked, and the conclusion is still a probable one.<sup>1</sup>

Another characteristic of rhetorical reasoning is that there may be only the implication of the proof processes to be followed. The listener completes the argument by drawing on his own experience in the way suggested by the advocate. If this experience confirms the line of reasoning, the conclusion is accepted. This can be most clearly observed in argument from example, argument from criteria, and argument from cause, where the listener's experience combines with the statements of the advocate to complete the argument.

Rhetorical reasoning is less demanding than scientific proof. In scientific demonstration, each variable must be specified, accounted for, and the conclusion evaluated according to specific criteria, statistical or otherwise. As the arguments included in this thesis will show, these proof requirements are not met by most rhetorical arguments. Some variables are ignored, minimal evidence is presented, and much of the support relies on the experience of the listener.

In testing rhetorical arguments, two areas of proof need to be considered. First is the material truth of the premise; are the facts

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<sup>1</sup> There has been some attempt to combine both analytic conclusions (deductive) with probability, so that deductive logic can be applied in rhetoric without resulting in philosophical difficulties. The best analysis of this problem is in Charles S. Mudd's article, "The Enthymeme and Logical Validity," (Quarterly Journal of Speech, v. XLV, no. 4, Dec., 1959). He points out the problem: "If, in your efforts to find material truth, we reject universals, we invalidate our logic; if we use universals, we cannot know they are really true, and thus we sacrifice the necessary truth of our conclusions." His solution is to use as premises "probable universals" which are believed by the audience. This is a contradiction, as one can not say that it is probable that All college professors are intelligent," though it may be probable that the audience will accept it as true. Mudd does not develop his solution enough to indicate its feasibility, but it seems unlikely that deductive logic and probable reality can be combined to make a deductively certain argument.

materially true? Second is the validity of the reasoning process; are the logical processes of proof met? In any real-life analysis of an argument, both aspects should be considered, but in this thesis, only the latter will be of concern. This is the subject of the next section of this chapter.

#### The Modes Of Reasoning

In this section nine major processes of reasoning will be discussed in the following way: first, the process will be defined in terms of the logical movement from premise to conclusion; then several examples of the mode will be presented and analyzed; third, the process will be described and analyzed in detail; finally, suggestions on the evaluation of the process will be given.

### 1. Argument from Example to a Descriptive Generalization

#### Definition of the Process

The most commonly cited mode of reasoning in argumentation, debate, and public speaking textbooks is reasoning from examples to a descriptive generalization. Every textbook surveyed in the preliminary phase of this study included this form of argument, and most of them considered it highly important.

In this process of reasoning, the essential characteristic is the verbal formulation of a description of an aspect of reality from the presentation of typical instances, examples, or samples of reality. For example, a speaker may cite United States' foreign policy decisions toward Mexico and then make a generalization describing the policy as one of respecting the political integrity of Mexico. Or a speaker may describe a typical health insurance policy and then conclude that many health insurance policies are inadequate. The generalization is usually about a pattern of events or is a description of characteristics, and this may be supported by one example or several examples. The important characteristic seems not to be the number of items used, but their typicality.

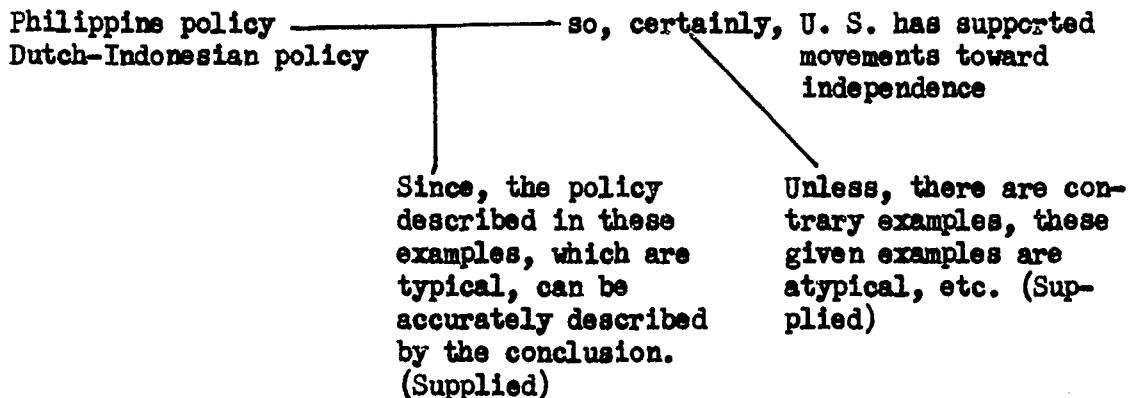
#### Sample Arguments

##### Sample A:

The United States consistently has supported and will continue to support the movement of these peoples toward self-government and national independence. Since the late nineteenth century, when we ourselves first became responsible for territories in the Pacific, we have fostered national independence and the growth of free democratic institutions. In our dealings with nations who had similar responsibilities in the Far East, we have urged them to do likewise and have given substantial and tangible assistance in order that such objectives might be realized. We cite our record in regard to Philippine

independence. Our recent participation through the United Nations in the Dutch-Indonesian settlement is a more recent example of this policy.<sup>1</sup>

#### Layout of the argument



In this sample, two instances of U. S. policy toward national movements are cited. These are implicitly asserted to be typical and representative examples. With this assumption, a generalization can be drawn on the basis of these two examples. The conclusion is a verbal description of the United States' attitude in such situations, and the validity of the generalization depends upon our acceptance of it as a good description of the situation. How do we know that the examples are typical? It would seem that we recognize them as typical because they seem so on the basis of our previous knowledge and experience relating to them. We may be familiar enough with the field of argument to recognize them as typical, or we may be unable to think of any contradictory evidence and so accept them, but some sort of outside knowledge must be brought to bear on the argument, else it becomes circular. Obviously if we can think of

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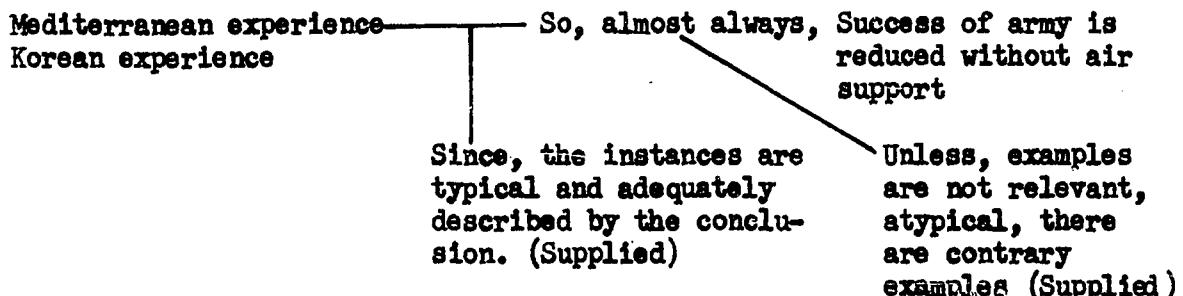
<sup>1</sup>Dean Acheson, in Harold Harding (ed.), The Age of Danger (New York: Random House, 1952), p. 161.

recent examples in which the policy of the U. S. could not be formulated as "supporting movements toward independence" (e.g. Cuba?), then the generalization becomes questionable, and may be qualified by such terms as "usually," "sometimes," or "rarely." But as it stands, assuming the examples to be typical, the generalization is "true," meaning it is an accurate description.

#### Sample B:

We are placing great emphasis on the training of our troops for air-ground operations. I know from my own personal combat experience in the Mediterranean that unless an army fighting on the ground is adequately supported by combat aviation its chances for success are greatly reduced. This fact has also been strikingly emphasized in Korea.<sup>1</sup>

#### Layout of the argument



As in sample A, the instances cited here are not expanded or developed, but only referred to. The listener is left to fill in the details. Here, the typicality of the examples is also implicitly involved and the listener is expected to realize that the relationships of the factors in a battle will generally be the same from one battle to another, and hence a description of the general pattern can be made on the basis of a limited number of examples.

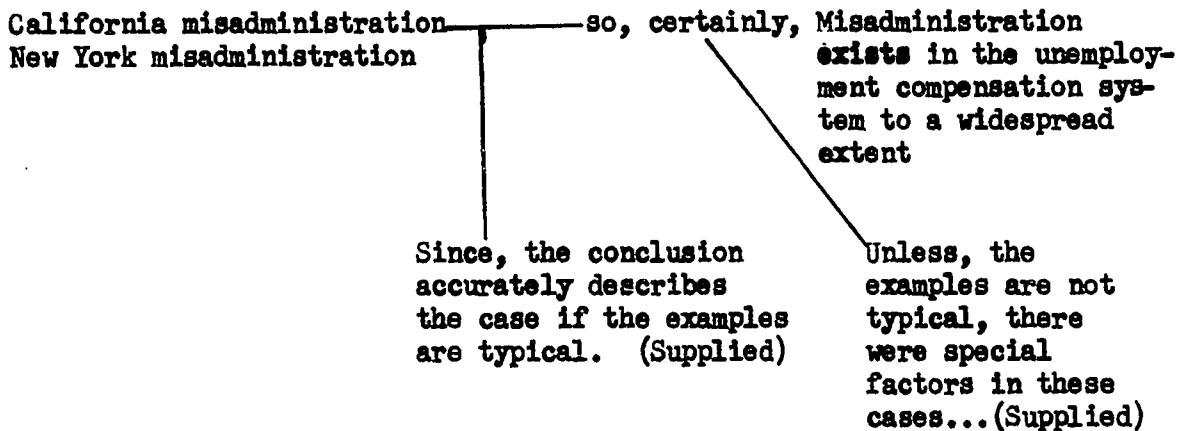
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<sup>1</sup>Mark Clark, in Harding, op. cit., p. 268.

Sample C:

Why not improve unemployment compensation? Because the present system is not only demonstrably inadequate but essentially so. For example, there exists chronic misadministration. In California alone, state officials estimate, one out of every five dollars paid this year in unemployment compensation has gone to workers who had no legal claim to the money. The Commerce and Industry Association in New York State says that the fraudulent claims represent nearly forty-two percent of the claims made in a year's time in that state. And this has gone on and on despite the present system, and we would ask the members<sup>1</sup> if they plan to perpetuate such misadministration.

Layout of the argument



Clearly, if the examples cited are typical of the total number of possible examples, then the conclusion is an accurate semantic formulation of the situation.

Sample D:

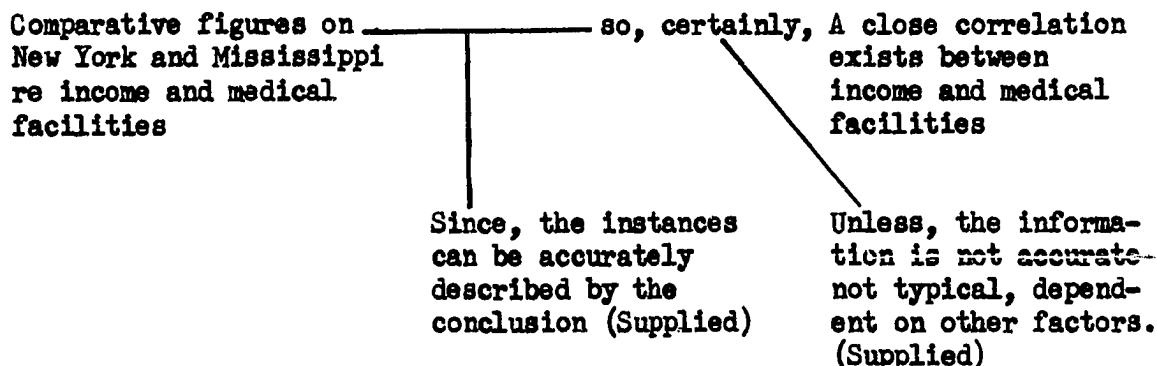
...There is a close correlation between the availability of medical services and the income of the people in a particular region. But you want an example. All right, in the state of New York, which has a high per capita income, we find one doctor for every five hundred individuals; while in the State of Mississippi, where the average income is quite low, we find one doctor for every fifteen hundred

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<sup>1</sup>John Wilson, in Russel R. Windes and Arthur Kruger, Championship Debating, (Portland, Maine: J. Weston Walch, 1961), p. 160.

individuals. We find one nurse for every four hundred people, four hundred twenty people in New York; one for every twenty-four hundred people in the State of Mississippi. Additional pertinent information: in New York, ninety-six percent of all births occur in hospitals; in Mississippi thirty-eight percent of all births occur in hospitals. As we might expect, the infant mortality and the maternal death rate are three times as high in the State of Mississippi as in New York.<sup>1</sup>

#### Layout of the argument



The conclusion presented is a description of a correlation, and the evidence is asserted to be a typical comparison of income and medical facilities in two states, with the implicit assertion that such differences are typical of all other comparisons. If such differences are typical, then the pattern can be symbolized by saying that there is a correlation between income and medical facilities in the various states or regions of the United States; this, after all, is what we mean by a correlation. The rebuttal of this argument would obviously depend upon the presentation of instances which would contradict the conclusion: examples which showed no correlation between income or medical facilities, such as two states with greatly divergent income levels, but with comparable medical facilities. This would then make the descriptive generalization an

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<sup>1</sup>Thomas Webb, in Windes and Kruger, op. cit., p. 255.

inaccurate summary of the pattern found in reality, and hence not a valid one.

#### Commentary on the Process

This form of reasoning can be described as a process of semantic formulation of reality. Facts about reality are presented. These may be about a total situation or they may be an example or examples, instances or statistics. The conclusion from the premises consists of a descriptive generalization which accurately verbalizes, in a general statement, the facts presented. The generalization may be one of several kinds. It may, for example, be a causal or correlative relationship, asserting that one event A is associated in occurrence with another event B. It may be a statement that certain events have certain characteristics, such that Russian satellites follow the party line. It may be a statement of a law of nature or of human behavior, or of a behavior pattern. In all of these, the conclusion is an attempt to symbolize some aspect of reality.

The most common, though not the only, way of arriving at a descriptive generalization is through the description of or reference to instances, which are discrete situations or events. The generalization may be derived from one instance or from several. In either case the important factor is the tacit assertion that the instances given are typical of all the possible instances with regard to the factor being generalized. By definition, if the instances are typical, the characteristics will be true of all the possible instances. If the instance or instances are really typical, then a generalization can be formulated on them as evidence, and it can be a valid generalization for the entire class or the entire aspect of reality that comes into consideration. In

effect, the speaker is saying, "I will not present every single instance which is relevant, but I will present instances which you will recognize as true and typical, so that you will know the relationship (characteristics, correlation, pattern, etc.) holds true for all the field." But, the point may be made that this reasoning process is circular, that if we accept the instances as typical then we tacitly accept the conclusion. That is, we cannot know if the facts are typical unless we know that the conclusion is true, yet we do not know that the conclusion is true unless we know that the facts are typical, and we do not know if the facts are typical unless... And there is an infinite regression, which if broken makes the argument circular. Or so it is said. This is the same argument which is used against the classical categorical syllogism.<sup>1</sup>

In rhetorical use, however, the argument is not circular. First, it would appear that we can recognize the instances cited as typical of their class because of our other experience, knowledge, and reasoning about the subject. If we know something about the situation, we may recognize the examples as typical and representative. A second way we may recognize the instances as typical is that we may recognize that the principles and relationships in the example would be true of any other examples of the type. For example, in science one or two experiments will generally suffice to establish a principle because scientists recognize that a carefully controlled experiment will provide the same results each time, and so any one would be adequate and typical. There are some exceptions, however, such as the experiments in extra-sensory perception

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<sup>1</sup>For a discussion of this, see Stephen Toulmin, The Uses of Argument (Cambridge: Cambridge University Press, 1958), ch. IV.

(parapsychology), about which many scientists are unwilling to generalize, insisting that the experiments are in some way unacceptable. Some scientists will admit that an "extra chance" effect does occur, but will not accept the hypothesis that its cause is extra-sensory. But still, one instance is usually enough for science.

A third reason which may cause us to accept the validity of the descriptive generalization is that we can not think of any contradictory or qualifying information. If the listener can not, for example, think of a situation in which the United States acted against the interest of a colony in a national movement, then the listener will more likely accept the instances as typical and the generalization as valid. If an instance of colonialism springs to mind, the listener would deny the typicality of the information presented. Finally, the listener may be willing to take the word of the speaker as to the typicality of the instance.

The descriptive generalization from example is not circular, therefore, if the listener can recognize the examples as typical and thus consider the generalization as valid on the basis of his own understanding and knowledge outside of the argument as presented. There may be the objection that if this is the case, then there is no new knowledge presented, as the person knows this already. Sometimes this may be true, but the discovery of new knowledge lies in the facts and information which are the premises, not in the process of arriving at a formulation of them. New knowledge can certainly be present in the premises. Further, even a formulation of the familiar can provide knowledge which is new in a psychological sense. The symbolic formulation of reality in a certain way may throw a different light on the reality and thereby change the

perception of the listener. This is a well established process, and general semanticists, psychologists, and psychotherapists all recognize the influence of symbolic formulations on our perceptions of the world. For example, according to C. E. Ayres, the concept of the industrial revolution was invented by Arnold Toynbee as a description of the time. This certainly makes us reinterpret the reality so described, first to see if this is an accurate description of it, and second to consider what possible implications such a description might have.<sup>1</sup> So a descriptive generalization may present new knowledge in this sense also.

It is extremely important to notice that a perfect induction is not attempted in formulating a descriptive generalization. Instead, the assertion of typicality is used to allow an overall conclusion to be reached. For this reason the speaker need make no claim of presenting all possible instances or facts, but instead, only enough to enable the conclusion to be drawn. Aristotle noted this difference between scientific induction and rhetorical proof in Rhetoric II, 20:

If we can argue by Enthymeme, we should use our examples as subsequent supplementary evidence. They should not precede the Enthymeme: that will give the argument an inductive air, which only rarely suits the conditions of speech-making. If they follow the enthymemes, they have the effect of witnesses giving evidence, and this always tells. for the same reason, if you put your examples first you must give a large number of them; if you put them last, a single one is sufficient; even a single witness will serve if he is a good one.

It should be observed that this mode of reasoning is not only the citation of examples or instances. The reality to be symbolized may be a complex and interrelated situation and not just a series of examples. A descriptive generalization usually focuses on certain aspects in the

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<sup>1</sup>Quoted in Curtis MacDougall, Hoaxes (New York: Dover, 1958), p. 161.

situation and pulls them together into a pattern or structure. A speaker may contend that economic aid to a foreign country promotes inflation, and he may support this by describing the situation--the economic principles involved and their effects--and thus show that the generalization is an accurate statement of the effects.

#### Evaluation of Argument from Example

It is obvious that this mode of reasoning cannot be attacked by saying it is not prima facie because too few examples have been presented. The evaluation must come on the basis of the typicality of the evidence. If the examples are not typical of other examples of the same type, or if there are contradictory aspects of the area being described, then the generalization can not be drawn. There are several points of evaluation which may guide the analysis.

1. Assuming the information in the premises to be true, do the principles, relations, or characteristics of it support the generalizations?--This is basically the question: is the description an accurate formulation of the observed reality? I think that this ultimately depends upon our storehouse of symbolic, linguistic knowledge. Our usage of the language has been built into us by reinforcements from birth on, and the result is a very complex system of verbal behavior. But although we may not be able to analyze verbally its rules of usage, we can differentiate between an accurate use of it and one which is not accurate in formulating some aspect of experience. We can, for example, know that we should say that "most sunglasses have green lenses," and "the United States has almost always supported Britain in foreign affairs," rather than using some other qualifying adverb. We can recognize appropriate usage of such

words as probably, never, most, nearly all, some, occasionally, always, etc., even though we could not write our specific rules for their usage. Even so, this is a private affair, and such person's usage is personal with him, but there is enough of a common reinforcing environment to make it possible for most people to use these terms consistently. So it is with all of language, though perhaps less obviously than with the above types of terms. This is thus the first aspect to be considered in evaluating an argument from example, whether or not the evidence is adequately and satisfactorily formulated. We might consider such questions as:

Does the evidence say something relevant which the conclusion does not?

Does the conclusion go beyond a description of the evidence?

Would another formulation be a more accurate representation?

2. Is the information representative, typical, and consistent with the rest of the field?--The testing of this aspect was discussed earlier.

3. How much of the time would the relationships hold true, and under what qualifications would they be altered?--Are the factors concerned (causative or correlative) of high regularity or probability? This would make the generalization a stable one. If the relationships are of low probability, then the generalization is not so reliable.

4. Were special circumstances present which might alter the situation?--If other factors are operating to change the characteristics or relations involved, then the generalization is not accurate unless it takes these into account.

## 2. Argument from Criteria to a Verbal Classification

### Definition of the Process

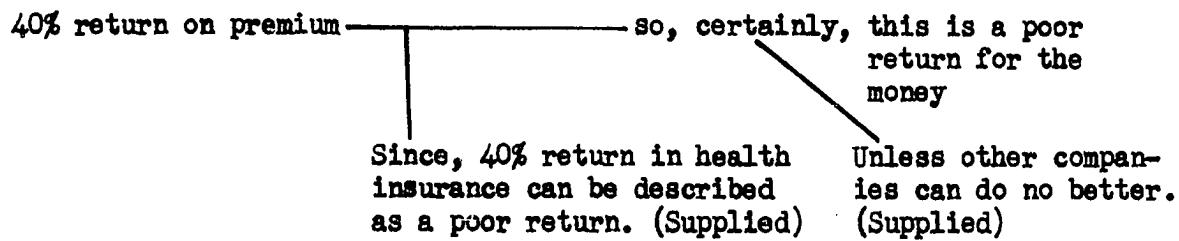
The purpose of this argument is to classify or categorize a situation; to prove that a certain label, classification, or verbal description may properly be attached to an aspect of reality. To evaluate a person as "stupid," a mathematical problem as "difficult," a textbook as "well written," or an economic plan as "impractical" requires proof in the form of reasoning by criteria. To reach the conclusion, the premises demonstrate that the event has the characteristics or attributes which comprise the definition of that classification. The verbal category has a certain meaning, the advocate demonstrates that the event fits into that meaning, and therefore the classification is justified.

### Sample Arguments

#### Sample A:

In voluntary health insurance you generally get a poor return for your money because overhead and profits of the insurance company eat up huge chunks of the premiums you pay. On individual policies these companies spend for overhead and profits an average of about 60% of what you pay them and only about 40 cents of your premium dollar goes for benefits to policyholders. Obviously such insurance is a mighty poor buy.<sup>1</sup>

#### Layout of the Argument



<sup>1</sup>Oscar R. Ewing, Harding, pp. 352-353.

In this example there are actually two conclusions involved. The first one is "You generally get a poor return for your money from voluntary health insurance." This is a descriptive generalization which must be proved from examples. But the examples must demonstrate a "poor return," which is the second conclusion. This one must be established by reasoning from criteria. The premise is the citation of the amount of money spent on overhead and on benefits. An implicit understanding of the meaning of "poor return" (the criterion) is assumed, and the low proportion of voluntary health insurance benefits is asserted to meet this criteria, therefore justifying the description of "poor return."

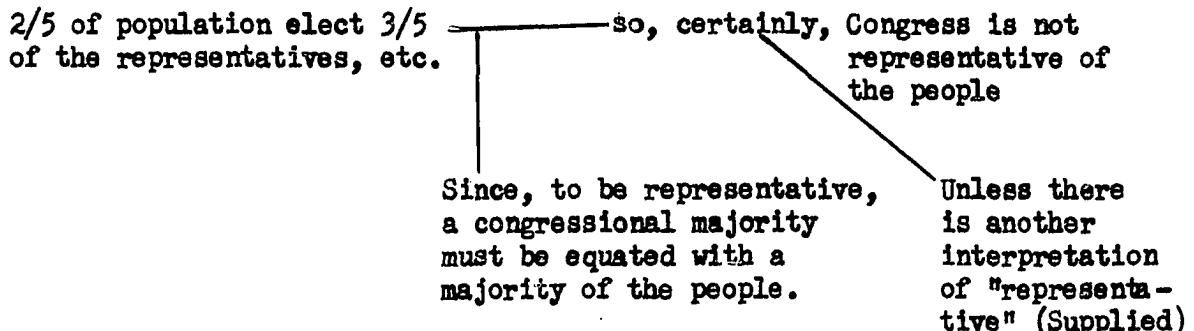
Where does this understanding of the meaning of "poor return" come from? The audience is expected to have had enough experience with business and commercial dealings to agree that a 40% return on an insurance premium is lower than it should be, and this would be considered a poor return. One may even discover a third conclusion in this argument—that such insurance is a "poor buy." This conclusion is based on the same evidence as the first argument from criteria, saying that insurance which provides such a low return on the premium should be classed as a "poor buy."

Sample B:

Now we indict Congress on several counts: first of all because Congress is not representative of the people. If policy is to be made by a majority of the people, then the Congressional majority cannot be equated with the majority of the people. Let's look at some statistics. Two-fifths of the population elect three-fifths of the representatives to the House, and the majority of the Senators are elected by only nineteen percent of the population. You note that! They say, "Congress is the best policy determining body." Why? Apparently because it is representative. But it is not. It doesn't represent the majority of the people; it represents a minority of the people. Those statistics are from the textbook, Politics

of American Democracy, published in 1959.<sup>1</sup>

Layout of the Argument



The speaker asserts that Congress is not representative of the people. The criterion for classifying or describing a governing body as representative is that every unit in the total reference group must have equal numerical equivalence in the "representative" group. The speaker states this criterion. His evidence shows that the Congress does not provide equal numerical representation for each person in the nation, and therefore does not meet the criteria for being a representative group.

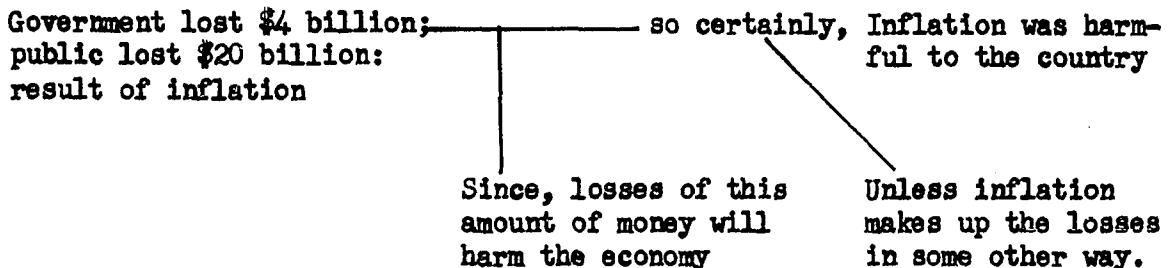
Sample C:

However, these economists would go on further to say that just as certain as inflation is, it is also certain to bring with it harmful and detrimental effects to our economy. Eric Johnson was speaking to the Senate last summer and pointed out that, in the seven months' period that followed the outbreak of the Korean crisis, prices and inflation so rose in this country that the government lost 4 billion dollars in defense expenditures alone, and the consumer public lost some 20 billion because of the inroads that inflation made upon our economy. Thus, he pointed out that these effects were harmful and detrimental.<sup>2</sup>

<sup>1</sup>John Raser, Windes and Kruger, 59.

<sup>2</sup>John Claypool, Windes and Kruger, 207.

### Layout of the Argument



The speaker's conclusion is that inflation was harmful to the nation's economy during the Korean War. To prove this, he presents evidence to show that the economy was deprived of large amounts of money, amounts large enough to affect the economy detrimentally. The criteria implicit in the argument are the amounts of money necessary to affect the economy and the effect on the economy of the loss.

### Commentary on the Process

The argument from criteria is one of the most common types of reasoning observed in this study. This process was involved in 51 out of 250 examples of reasoning collected. Despite this prevalence, the process has not been recognized as a mode of reasoning in any of the argumentation or public speaking textbooks which were surveyed during this study. (Except for a brief mention of "classification" in Crocker, which does not develop the concept in a way to indicate its significance or usefulness.)

Three major elements are involved in this process. The first is the evidence or basic description of the situation. The amount of evidence necessary is dependent on the criteria. Sufficient evidence must be presented to fulfill the criteria, and reasonably so. The criteria allow the reasoner to justify the classification. These criteria may be

a set of characteristics, as in the criteria for a monopoly in restraint of trade. They may be accepted judgments of ethical standards, as in proving the acts of a war criminal were unethical because they caused the death of innocent persons. The criteria may be related to understood patterns of "behavior," as in proving that socialized medicine is inefficient because of burdening of doctors, lack of facilities, and difficulty of administration. These criteria are often not expressed by the speaker or advocate, leaving the audience to assume them. Usually the criteria can be easily inferred from the evidence that is presented, and it must be inferred if the argument is to be evaluated. Probably an interesting study could be made on the types of criteria which are used by speakers. The basis for the criteria could be traced to many areas, ranging from social values to experiential observation. In whatever field, the criteria are the symbolic meaning of the classification; the understanding of what the category consists of.

When a speaker argues from criteria, his suppressed criteria can be presumed to be ones which will be commonly understood and accepted in the audience. This is not peculiar to reasoning from criteria, for in the presentation of many forms of reasoning there is a tacit premise which is based on beliefs or assumptions held by members of the audience. In an article in the Quarterly Journal of Speech, Lloyd Bitzer contends that this is the essential element in the Aristotelian enthymeme.<sup>1</sup> He asserts that the enthymeme is reasoning in which the premises presented by the speaker are joined with premises from the audience to reach a conclusion.

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<sup>1</sup>"Aristotle's Enthymeme Revisited," Quarterly Journal of Speech, vol. XII, no. 4 (December, 1959).

Charles Mudd, in his article, "The Enthymeme and Logical Validity," also points out that rhetorical reasoning discovers or creates universal premises on the basis of what is known about the audience.<sup>1</sup> They are true, he says, because they are believed. This is not the commonly accepted use of the word "true" among logicians, but the point is well taken if we think of it as proof of the conclusion rather than "truth." The important moral from these comments is that the criteria utilized must be acceptable to the audience and hence must be analyzed in relation to the audience and their understanding of the criteria. In the sample argument A above, if it were common knowledge that private insurance companies and also government sponsored plans both provided a low percentage of return on premiums, the audience might consider a 40% return an adequate and acceptable one. The criteria would have changed.

The third element in the structure of the argument is the conclusion. This may take a variety of forms. As we have seen, it may be a classification, such as "communistic," "efficient," "representative," etc. Or it may be a value judgment, as "beneficial program," "bad," or "unfair." And rather than simply labeling, argument from criteria may be used to arrive at a description such as "hostile activities," or "helpful to the farmers," or "teacher shortage." This argument clearly resembles the categorical syllogism. Often it can be clearly translated into syllogistic form, with the criteria as the major premise, the evidence the minor premise, and the conclusion as the conclusion:

All insurance policies which return 40% are poor buys.

Voluntary health insurance policies return 40%.

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<sup>1</sup> Quarterly Journal of Speech, vol. XIL, no. 4 (December, 1959).

Therefore, voluntary insurance policies are poor buys.

The argument fits this structure so easily because it involves the categorizing and classifying of events, which is also the function of the syllogism. In the argument from criteria, the criteria are usually less precise than in the standard textbook syllogism, and it often may not be possible to formulate them precisely at all. As in the argument from example, it is a question of usage built up from experience.

#### Evaluation of the Argument from Criteria

To evaluate the argument, its structure must first be discovered, and so it should be cast into the Toulmin layout pattern. This will isolate the criteria being used and the definition implicit in them. There are several aspects which can be analyzed to discover how reasonable the argument is. Obviously they must focus either on the acceptability of the definition and criteria, or upon the situation--whether it meets the criteria. (Since the argument can be cast into syllogistic form, it might seem that one approach to analysis could be to use the tests of syllogistic reasoning. However, this is not useful, because (1) the argument usually deals with individual events, which do not fit into the classical categorical syllogism, (2) it deals with material truth and probabilities, again not the province of the syllogism, and (3) in the samples of argument which I studied, there were no mistakes which could be analyzed via the syllogistic rules, probably because of common-sense understanding of the process.)

1. What is the implicit definition being used?--This is to ask: What criteria are being used? How explicit are the criteria? This is a

necessary first step in analysis of the argument. There will normally be several criteria involved in the definition, which is the warrant of the layout, and these should be made explicit in the analysis.

2. Is the definition acceptable; are the criteria acceptable as a definition of the classification, label, adjectival category, etc.?--In other words, are these criteria adequate to classify an event in the way it is being classified? The British parliament in 1770 would have disagreed with the definition of "representative" as "providing equal numerical representation."<sup>1</sup> And Edmund Burke challenged the definition of a representative as one who follows the will of the people in his voting.<sup>2</sup> Evaluating the definition and criteria is the basic step in the analysis of the argument. In addition to the general consideration of adequacy and acceptability of the definition and criteria, two other questions will help evaluation.

3. Are there exceptions or qualifications to the definition and criteria?--If, for example, other aspects of health insurance are more important than the money returned, there would be a qualification on the criteria of "money returned" as the definition of a "poor buy."

4. Are other criteria necessary for an adequate definition?--In a

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<sup>1</sup> William Murray, Lord Mansfield, presents the doctrine of "virtual representation" in his speech to Parliament on February 3, 1776, "A member of Parliament, chosen for any borough, represents not only the constituents and inhabitants of that particular place, but he represents the inhabitants of every other borough..." (From Chauncey Goodrich, Select British Eloquence, New York: Harper and Brothers, 1852).

<sup>2</sup> See his Bristol speech, September 6, 1780, where he says, "I did not obey your instructions! No, I conformed to the instructions of truth and nature, and maintained your interest against your opinions with a constancy that became me." (from Goodrich, op. cit.)

monopoly charge, the prosecution must prove not just restraint of trade, but conspiracy in restraint of trade. There may, in other words, be more criteria to fulfill than the advocate presents.

5. Do the characteristics described meet the criteria?--This is a necessary requirement; the situation must meet the criteria for classification or labeling. To assert that the teacher shortage is an evil of the present educational status quo and then to show only that there is a shortage of teachers does not prove that it is an evil. Some disadvantage, some resulting problem, must be produced. An advocate may claim that union organizations have monopoly powers, and present evidence to show that unions control many workers in some fields. But, by definition, a monopoly must control all or nearly all of the field, and the situation must meet this definition.

6. Are enough characteristics described to justify inclusion in this category?--Too few of the criteria may be met, and so the event can not be included in the category. If a speaker claims that unions have monopoly powers, he must show that this is characteristic of most or all unions, not just one union, and he must show that they have monopoly powers, such as control of labor, control of prices, control of hiring and firing, and all powers which are criteria for a monopoly. Control only over minor factors is not enough. To prove that a situation is a hoax, there must be a deliberate intention involved, according to Curtis MacDougall; if the perpetrator does not realize the fraud, it is not a hoax. Thus to prove a hoax, one must prove deliberate concoction of an untruth, not just falsehood (as in law, where the intent to defraud is

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<sup>1</sup>Hoaxes, New York: Dover, 1958, p. 7.

necessary for fraud to be charged).

7. Could the event fit better into another category, or be classified differently on the basis of its characteristics?--A program which is classed as dangerous or disadvantageous, for example, on the basis of certain characteristics, might be classified as beneficial if other characteristics can be shown which will be more significant and which will classify it as beneficial. The characteristics which are used for reclassification may be either the ones which the speaker has presented or they may be additional ones. Aristotle refers to this method in terms of labels which influence attitudes and interpretation of behavior:

For the purposes of praise or blame, the speaker may identify a man's actual qualities with qualities bordering on them. Thus a cautious man may be represented as cold and designing, a simpleton as good natured, a callous man as easy-going. And so in each case we may substitute one of the collateral terms, always leaning toward the best; terming the choleric and passionate man, for instance, a plain-dealer, and the arrogant man superb and dignified.<sup>1</sup>

In refutation, attacks on this mode of reasoning are often made by showing additional characteristics which would change the classification or prevent the event from being classified in this way. While the advocate may classify a government as democratic on the basis of certain political activities, an opponent may point out other activities which show it is not democratic, or not wholly so.

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<sup>1</sup>Rhetoric I, 9.

### 3. Argument from Definition to Characteristics

#### Definition of the Process

In this mode of reasoning the process begins by defining a situation, principle, concept, or state in a certain way. On the basis of this definition, attributes or characteristics of the event are concluded, or logical implications of the definition are drawn. If the definition is accepted, then the implications or applications of the definition must be accepted also. The premise of the argument is the definition itself, which must be agreed upon; the conclusion of the argument is the application of the principle or the assertion of the characteristics which follow from the definition. The process is one of applying logical consistency to statements about reality.

#### Sample Arguments

##### Sample A:

This is, we often hear, a Christian country; as the message of Christ calls us to good will, to the love of our neighbor, to the renunciation of the goods of this world, to humility, and to the forgiveness, not the slaughter, of our enemies. To say that we must kill Communists because they are atheists and we are Christians is a strange distortion of Christianity.<sup>1</sup>

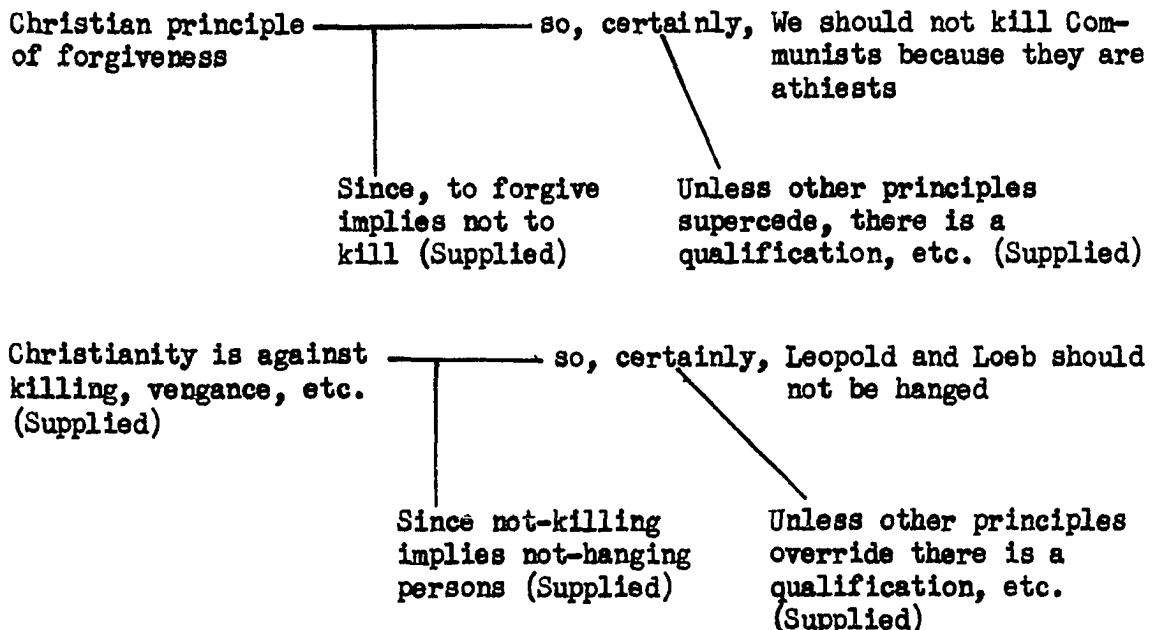
##### Sample B:

This is a Christian community, so-called, at least it boasts of it, and yet they would hang these boys in a Christian community. Let me ask this court, is there any doubt about whether these boys<sup>2</sup> would be safe in the hands of the founder of the Christian religion?

<sup>1</sup> Robert Hutchins, in Harding, 37.

<sup>2</sup> Clarence Darrow, in Attorney for the Damned, ed. by Arthur Weinberg, (New York: Simon and Schuster, 1957), p. 52.

### Layout of the Arguments

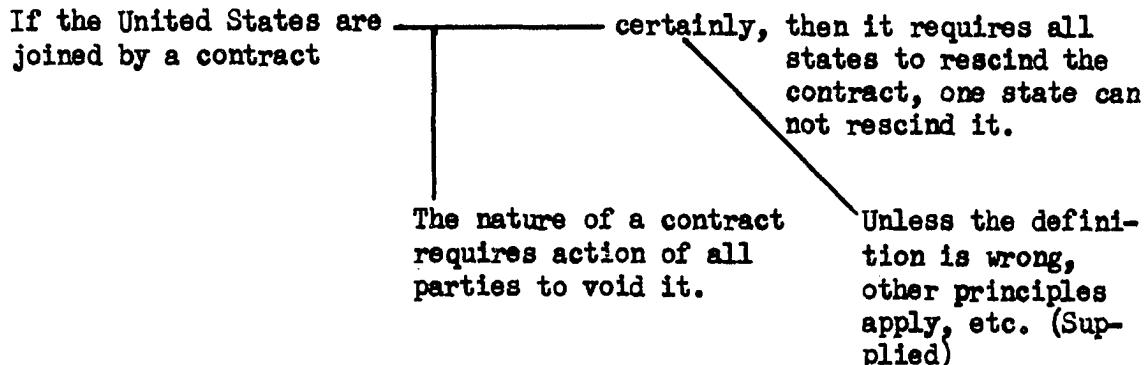


Both of these samples are similar in content. Both define Christianity and point out that by definition it is explicitly against violence, vengeance, killing, and similar actions and attitudes. Then these principles are applied to a specific situation to establish what action should be taken. Since there is little likelihood that the audience will disagree with the definition of Christianity, they will be lead logically to the application of the definition to the specific cases. The arguments are also psychologically compelling because of the strong associations they have with morals and ethics. Although the obvious refutation of the argument is to assert that other principles are more important, there are few persons who would be willing to say openly that there are principles more important or higher than those of Christianity. However, not all arguments from definition are as strong as these two.

Sample C:

If the United States be not a government proper, but an association of States in the nature of contract merely, can it, as a contract be peaceably unmade, by less than all the parties who made it? One party to a contract may violate it--break it, so to speak, but does it not require all to lawfully rescind it?<sup>1</sup>

Layout of the Argument



The speaker here is presenting a hypothetical argument, an "if, then" proposition, but the structure and process of the argument is the same as a material status quo argument. The very definition of a contract, the argument runs, includes the characteristic that it can not be rescinded by one of the parties, although one party can violate or break it. To void it, all parties must agree. Therefore the implication is that one state can not logically withdraw without the permission of the other parties.

Commentary on the Process

The argument from criteria moves from characteristics to a classification or descriptive term, but the argument from definition moves from a classification, principle, or term to characteristics or

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<sup>1</sup> Abraham Lincoln, The Speeches and Writings of Abraham Lincoln, ed. by Roy Basler, (Cleveland: World, 1946), p. 347.

implications. It moves from a class to the classifying attributes, from a principle to an application of that principle, from a species to the attributes of that species. A situation is defined and the implications of the definition are drawn as the conclusions, so that acceptance or agreement on the definition also requires acceptance of the conclusion.

For example, Robert Hutchins defines a university as a center of advanced study, and draws the implication from this definition that the university must limit its attendance in order to remain a center of advanced study.<sup>1</sup>

Acceptance of the definition requires accepting the conclusion. The thing defined may be a principle, a policy, or a concept, as well as a classified event. For example, in Peanuts, the comic strip by Charles Schultz, this sequence occurs.<sup>2</sup>

1. Lucy: (steps on an ant)
2. Charlie Brown: "I thought your policy was live and let live?"
3. Lucy: (thinks)
4. Lucy: "He wasn't really living."

Clearly, this is brilliant reasoning from definition. Lucy's asserted position (lassiz faire and let lassiz faire) has the implication that she will not step on an ant, but let the ant live its own life, because it is living. This is argument by definition. Lucy counters this ploy by denying that the ant falls under the category of the "really living," which is argument from criteria. (We ignore the pun in the slight change of meaning in the word "live.") This is a humorous treatment of the argument,

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<sup>1</sup> Harding, 364.

<sup>2</sup> Charles M. Schultz, But We Love You, Charlie Brown, (New York: Holt, Rinehart and Winston, 1959), p. 18.

but it is essentially the same as the arguments preceding the Civil War regarding the moral rightness of the treatment of the Negro.<sup>1</sup>

Very often the argument from definition is used to confirm a particular action or policy. A basic policy or principle is defined and then another action is shown to be consistent with this basic policy. Or it could be inconsistent, as in the Peanuts example. This means that the argument from definition is concerned with logical or semantic consistency, and moves from a concept or principle to other concepts or principles which are consistent.

Richard Weaver, in the Ethics of Rhetoric has observed that Lincoln makes extensive use of the argument from definition.<sup>2</sup> He points out that Lincoln argues from definitions of the nature of the federal union, human nature, the essence of being human, and other legal and moral principles. This is a characteristic legal, Aristotelian form of argument, and many examples of it can be found in Lincoln's speaking and writing. The Weaver article is the major reference on argument from definition.

It may be noted that the argument from definition is more obviously analytic than other forms of semantic reasoning; it is circular. The conclusion of the argument is assumed in the premises, and the truth of the premises is assumed in the conclusion. If the rebuttalist does not accept the conclusion, he need only deny the premises—to deny the definition, or to deny that it applies in this case. And within the argument there can be no escape from circularity. Only by reference to outside standards,

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<sup>1</sup>See Richard Weaver, "Lincoln and the Argument from Definition," The Ethics of Rhetoric (Chicago: Henry Regnery, 1953).

<sup>2</sup>Op. cit.

knowledge, and concepts for prior agreement on the premises can the circularity be broken. The most effective argument from definition will thus use premises that the audience will agree upon, and in this sense it is similar to the argument from criteria. The agreement may be because of an accepted definition which the audience recognizes. A debater may say, for example:

Well, now, what are we talking about when we say 'a technological breakthrough in nuclear weapons?' We'd like to submit that by the very nature of a breakthrough this information is largely at this time classified. That is to say, we don't know what a breakthrough is going to be until it actually occurs. I think this is obvious by the definition of a breakthrough.<sup>1</sup>

Probably most of the audience would accept the definition as a legitimate one. On the other hand, the agreement with the definition of Christianity presented by Hutchins and Darrow in the sample arguments is on more personal, emotional grounds, rather than just a calm understanding of what a word means. Of course, the speakers have chosen principles which the audience will find it difficult to deny, even though they may disagree with the conclusions. Since people have strong tendencies to desire consistency in their belief systems, this argument is psychologically as well as logically effective.<sup>2</sup> In using this form of argument, the speaker should thus attempt to draw his premises from already held beliefs and attitudes, and verbalize them in such a way that the audience will agree with them. Then the speaker may infer the implications or characteristics for his conclusions. Both classical and modern rhetoricians have

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<sup>1</sup> William Welsh, Windes and Kruger, 83.

<sup>2</sup> For a discussion of the role of self-consistency in personality dynamics, see Leon Festinger, A Theory of Cognitive Dissonance (Glencoe: Free Press, 1957).

been concerned with this necessity. Aristotle pointed out that the background of the argument must come from the audience:

We must not, therefore, start from any and every accepted opinion, but only from those we have defined--those accepted by our judges or by those whose authority they recognize; and there must, moreover, be no doubt in the minds of most, if not all, of our judges that the opinions put forward really are of this sort.<sup>1</sup>

Contemporary rhetoricians and psychologists are also concerned with the belief systems of persons in relation to their response to arguments.

Lloyd Bitzer has contended that the essence of the rhetorical enthymeme proposed by Aristotle is its foundation in the already held beliefs of the audience.<sup>2</sup> Wayne Minnick, in a recent volume on persuasion, discusses the importance of the value systems of the audience, and points out that the desired response must be shown consistent or at least not inconsistent with the beliefs and values of the audience.<sup>3</sup> And Hovland, Janis and Kelly have reported an experiment testing the susceptibility of group members to counternorm communication.<sup>4</sup>

#### Evaluation of the Argument from Definition

The first step of the evaluation must be to discover the implications which are set up by the speaker: Principle x implies y; p by definition equals q. This separates the premises from the conclusion and makes explicit the definition, the implication, and the conclusion. There are

<sup>1</sup>Rhetoric II, 22.

<sup>2</sup>Op. cit.

<sup>3</sup>The Art of Persuasion. (Boston: Houghton Mifflin, 1957).

<sup>4</sup>Several experiments of this nature are reported in Carl Hovland, Irving Janis, and Harold Kelly, Communication and Persuasion (New Haven: Yale University Press, 1953).

three general factors to consider in evaluation.

1. Is the definition an accurate or an agreed upon definition?--

Is this a good definition of the concept, a good statement of the position or principle, a good description of the situation? Since you know the conclusions, these can be used to test the definition for qualification of the premise. There may be a qualification placed on the principle, e.g., in the case of Leopold and Loeb, or capital punishment in general, certain values are given precedence over other values.

2. Do the implications or characteristics follow from the premises?--

The question asked is, does this conclusion actually follow from the definition, does the principle logically imply this consequence?

Obviously the speaker must show that there is a logical consistency between the premises and the conclusion, and some speakers may fail to actually establish this. The fraudulent evangelist who asserts that one must contribute to the collection as a consequence of being saved may have a difficult time establishing the conclusion with an argument from definition.

3. Are any conflicting, inconsistent, or superseding principles involved?-- This is not an internal test of the argument, but it brings to bear on the reasoning the question of total coverage of the possibilities of the situation. Although the principles and its application may be acceptable and consistent, there may be other principles which take precedence, or the definition may be set in a framework with other factors which supersede its implications. There is a possibility of a hierarchy of values, in which one value or principle holds until a particular stage is reached, in which case it is overruled by another value

or principle. Free speech, for example, is a principle which is defined by law and protected by the Constitution. But under certain circumstances, other values (literal survival of the nation) may supersede the application of this principle.<sup>1</sup> Thus in evaluating the argument from definition, the question must be asked if there are any other aspects of the situation which could counter or negate the principle and definition or its applications.

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<sup>1</sup>Charles Black, "Chief Justice Black and the Bill of Rights," Harpers, v. 22, no. 1329 (February, 1960).

#### 4. Argument from Sign to an Unobserved Event

##### Definition of the Process

In this form of reasoning, one known event is taken as an indication of the existence of an unobserved event, attitude, state, or condition. From the fact of the occurrence of the first event, the conclusion is that the second event is or was present. The assertion of the existence of B on the presence of A is on the basis of an observed or understood correlation between the occurrence of A and B. This argument is usually called "reasoning from sign," but I have used the description "argument from sign to an unobserved event." This is to emphasize the distinction between it and argument from criteria and argument from cause, processes which may be easily confused. In argument from criteria, the data are characteristics which comprise the definition of the classification, whereas in argument from sign, the data are events which are caused by the unobserved event. In argument from cause to effect, the conclusion is the assertion of an event which will exist, given the premises, whereas in sign, the conclusion is an event which exists, though it is unobserved.

##### Sample Arguments

###### Sample A:

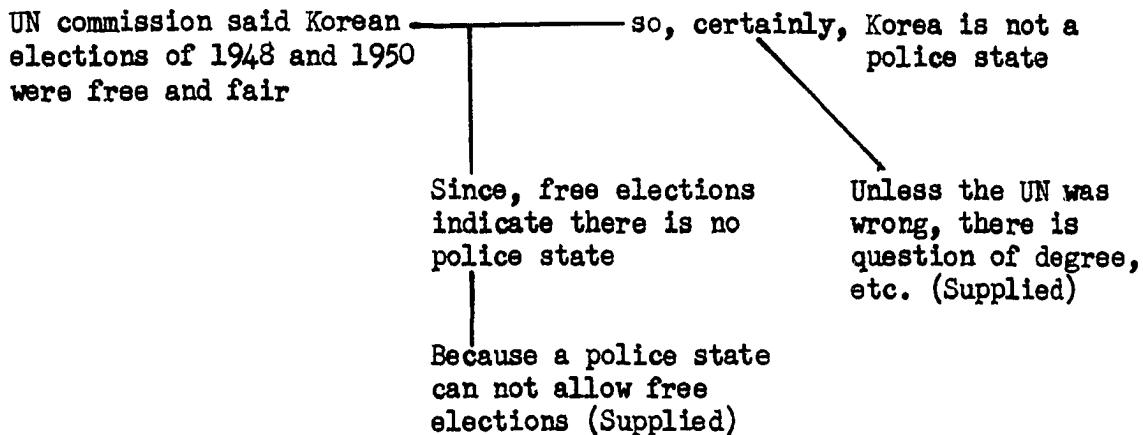
Mr. Ackerman: One thing which is often said about Rhee's government is that Rhee was running a police state. You do not agree with this, Mr. Bunce?

Mr. Bunce: I think that you have to look at it two ways. The idea of a police state is something which would make it completely impossible to have a free election. Do you not agree, Mr. Bond, that the last election was relatively free?

Mr. Bond: I do. It seems to me that the "police state" charge can be pretty effectively answered by recalling the circumstances surrounding the Korean elections of 1948 and 1950, both of which were found,

by those commissions, to have been fair and free elections.<sup>1</sup>

#### Layout of the Argument



The sign relationship is between free elections and the entity of a police state. If we accept the generalization that a police state can not have free elections, then the existence of free elections becomes a sign that there is no police state. Thus there is a reciprocal correlation between the existence of the two situations, and either one may be taken as a sign of the other. Causal relationships are involved in this form of reasoning. In this sample argument the generalization (backing) asserts that the situation involved in a police state would causally prevent the existence of free elections.<sup>2</sup> The proponent of the argument asserts that the relationship is a "certain" one (not to have it would be "absolutely impossible" he says) and so the conclusion is qualified by "certainly." However the later developments in Korea (revolution and overthrow of the authoritarian Rhee government) suggest that a more moderate qualifier would have been in order. Rebuttal would hinge on how

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<sup>1</sup> Harding, 117.

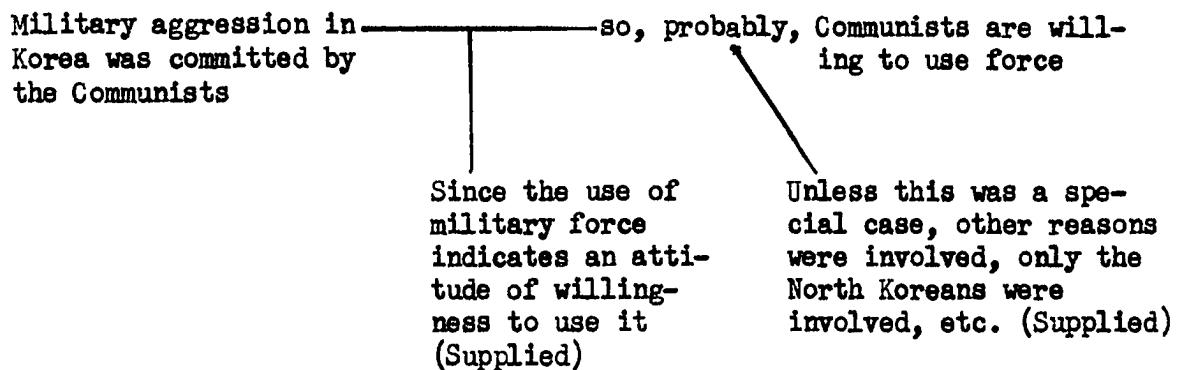
<sup>2</sup> For a discussion of causal reasoning see the commentary on reasoning from cause to effect and section C of this chapter.

reliable free elections actually are as an indication of a free state, to what degree the elections were free, and how reliable the report of the UN commission was.

Sample B:

The second signal flashed last June. Up till then the spread of Soviet Communism had been by subversion and internal revolution as in the case of Czechoslovakia, not by military aggression. The aggression of the North Koreans established a new pattern. It could hardly be argued any longer that the dwellers in the Kremlin never intended to use military means to gain their objective, that their sole concern was with a battle of propaganda, of intrigue, and sabotage.<sup>1</sup>

Layout of the Argument



The use of military force in attacking South Korea is interpreted as a sign that the Communists are now willing to use force to gain their objective; the event is taken as the sign of an attitude. The correlation can be considered a high one, since it will be recognized that if this attitude were not present, the use of force would be very unlikely. The refutation of the argument could take the approach that the action of the North Koreans would not be representative of the total Communist bloc, or that special considerations overrode the usual Communist policy of non-force.

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<sup>1</sup>James B. Conant, in Harding, 257.

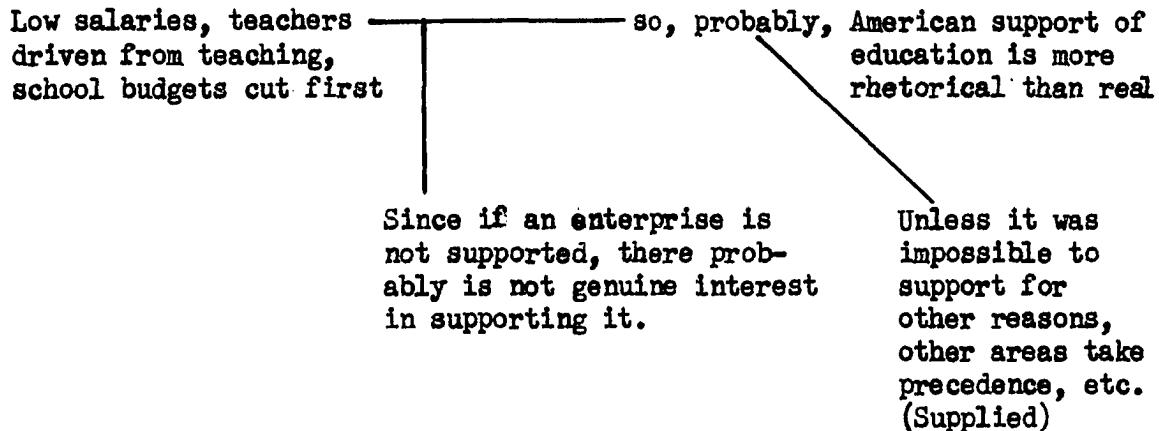
Sample C:

It is often said that the American education is the American substitute for a national religion, but many countries have been able to reconcile support of an official religious establishment with disregard of its principles, and American support of education often appears to be of this kind. The devotion seems to be to the symbol, rather than to the activity, and is rather rhetorical than real.

Popular education is a splendid subject for a Fourth of July address; yet 350,000 teachers have been driven from the profession by the pitiful salaries now offered.

In some parts of this country, a teacher may count herself fortunate if she receives \$500 a year, and we can be certain, I think, that if there is another depression the experience of the last one will be repeated. The expenditures on the schools will be the first cut and the last restored.<sup>1</sup>

Layout of the Argument



In this argument the lack of certain events implies the lack of another event, in this case, an attitude. The lack of support for education is taken as a sign of lack of interest and sincere support. The causal relation involved is this: if Americans are sincere in their desire to support education they will do all they can to make it effective and productive, which includes paying adequate salaries and maintaining support of schools through all conditions. The sign relationship would seem to be fairly strong, so the conclusion would be qualified

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<sup>1</sup>Robert Hutchins, in Harding, 360.

by "probably." Information which would counter the reasoning would be an indication of other explanations of the sign: some areas do not have adequate financial resources for adequate support, other aspects of society in greater need are being satisfied first, etc.

### Commentary on the Process

The argument from sign always involves a causal or correlative relation and can be expressed as a conditional (of probability):

$$p \supset q$$

$$\frac{p}{q}$$

For example, free elections imply no police state, and there were free elections; therefore, there was no police state. Note, however, two important characteristics of sign reasoning. First is that it is always concerned with the past or the present--never with the future. This is because it is effect to cause reasoning, and this must always deal with actual existence, not predicted existence. Secondly, the causal relation is in inverse order relative to the movement of the reasoning process. That is the fact asserted as the conclusion is the cause of the sign. Again, this is because the relation involved is effect to cause.

For this reasoning process to be valid the cause should be a necessary cause of the sign. "Necessary cause" means that the effect can not occur without the presence of this specific event. That is, the advocate should try to show that for the sign to occur, it is necessary that the unknown event be present, and that no other events could have caused the sign. Of course, this is difficult to do, and the advocate must usually be content to show that other possible causes were not present and that

this is the most likely conclusion.

The argument is one of probability rather than certainty, and so it must always be implicitly stated as "p implies q with x degree of probability." The higher this degree of probability, the stronger the argument, and for sign reasoning the correlation must be of high degree: either certainty or high probability, else the sign is not reliable as an indication of the second event. Consider the high degree of probability involved in this attempt at sign reasoning from the comic strip Krazy Kat, drawn by George Herriman:<sup>1</sup>

1. (Krazy Kat and Ignatz Mouse are watching a bird with a long neck, which is sitting behind a wall.)  
Krazy: Gooze or ganda?  
Ignatz: Don't ask me.
2. Krazy: Who should I ask?  
Ignatz: As the bird.
3. (The bird leaves.)  
Krazy: Gone--
4. (They look over the wall and discover an egg in a nest.)  
Ignatz: Well, what does that tell you?  
Krazy: Who evva hoid of a egg tellin anybody anythin? Foolitch.

Though the logic seems to have escaped Krazy, the sign is one of high probability: egg-laying habits are highly correlated with sex differences.

The high correlation of the sign with the conclusion seems to be the difference in usage between argument from sign and argument from circumstantial detail. In the former, one or more events are highly correlated with another event, and on the basis of this high correlation, the conclusion is asserted. But in argument from circumstantial detail, the conclusion is a hypothesis, a causal context which accounts for several

<sup>1</sup>The date on this strip was given as 20 March, 1941. It was reprinted in George Herriman, Krazy Kat (New York: Henry Holt and Co., 1946.)

facts which individually have low correlation with the hypothesis, but which together can all be adequately explained by the single theory. Sign may be piled upon sign, but each must have a high correlation with the conclusion by itself. For example, Stalin points out signs to indicate that British Prime Minister Attlee is not truly a supporter of peace:

...If he is really in favor of peace, why did he reject the proposal of the Soviet Union in the United Nations Organization for the immediate conclusion of a peace pact between the Soviet Union, Britain, the United States of America, China, and France?

If he truly stands for peace, why did he reject the proposals of the Soviet Union for an immediate start on the reduction of armaments, for the immediate prohibition of atomic weapons?

If he is really in favor of peace, why does he persecute the fighters of peace, why did he prohibit the peace congress in Britain? Can a campaign in defense of peace threaten Britain's security?

It is obvious that Prime Minister Attlee is not in favor of preserving peace, but of unleashing a new aggressive world war.<sup>1</sup>

While this argument could be interpreted as a series of acts explained by a hypothesis, it seems more reasonable to call it a series of signs which all individually point to the conclusion. Any one of these signs could have been used in isolation with very much the same conclusion being inferred, as the opposite of any of them could be considered highly correlated with desiring peace. So the non-existence of the former could imply the non-existence of the latter, and indeed, many people of the world today reason in this way.

The causal or correlative generalizations on which sign reasoning depends are not always made explicit in the argument, although in the above sample A the causal relation is asserted by the speaker. Nevertheless the generalization must be there to warrant the inference.

<sup>1</sup>Joseph Stalin, in Harding, 193.

These generalizations must be derived from another type of argument, and it seems that this has to be argument from example to descriptive generalization.

Some authors have called the sign reasoning process one based on substance-attribute relationships, but this does not appear to be a useful description, because in none of the samples of argument studied for this thesis was a substance-attribute relationship present.<sup>1</sup> Instead, generalizations relating to causal relations or correlations were the basis of the inferences. The two types of causal relationships which are involved are (1) inferring from an effect to a cause, and (2) inferring from one effect to another effect of a joint cause. The first is illustrated by all of the samples of argument given to illustrate sign reasoning thus far. Reasoning from effect to effect was not observed in this study, but it should occur occasionally, and might be illustrated by the correlation of corruption in labor unions with membership apathy. Braden and Brandenburg seem to imply that all sign reasoning is effect to effect causal reasoning, but this is obviously not the case, as these arguments have indicated.<sup>2</sup> Further discussions of sign reasoning and the evaluation procedures are in McBurney and Wrage, The Art of Good Speech, and the Ehninger article.<sup>3</sup>

<sup>1</sup> Sign reasoning is described thus by McBurney, O'Neill and Mills, op. cit.; Austin Freeley, op. cit.; and Douglas Ehninger, op. cit.

<sup>2</sup> See the footnote in Waldo Braden and Ernest Brandenburg, Oral Decision-Making, (New York: Harper & Brothers, 1955), p. 113.

<sup>3</sup> James H. McBurney and Ernest Wrage, The Art of Good Speech, (New York: Prentice-Hall, 1953), chapter 8; and Douglas Ehninger, "The Logic of Argument," in Argumentation and Debate, ed. David Potter, (New York: Dryden, 1954).

### Evaluation of Sign Reasoning

Since the references just cited have discussed the evaluation of argument from sign in some detail, I will try to suggest only the basic approaches by which it must be evaluated. The argument should be phrased clearly in the form of an implication so the premises and conclusion are distinct. If the process is from cause to effect, then the sign will be the effect, and the conclusion will be the cause or complex which produced the sign. There are basically three aspects to evaluate.

#### 1. What is the correlation of the sign with the event signified?--

This is to ask how strong is the causal relation or association of occurrence between the two events. Some signs are certain and some have varying degrees of probability, as Aristotle notes in his Prior Analytics, XXVII, and Rhetoric, I, 2. For the argument to have high validity, the correlation must be one of fairly high probability; there must be a generalization which says that these two events are found together a high percentage of the time, or that this is likely on the basis of past experience. If the relation is effect to cause, the question is whether the effect is always traceable to this particular cause. If the relation is effect to effect, the strength can be analyzed on the correlation alone, or it can be traced to a common causal matrix for the two effects and then evaluated as to how reliably the two effects can be assumed to be associated on that basis.

#### 2. Are there other events which would more reliably account for the sign?--This applies if the process is from effect to cause, and it asks: What other causes might have produced this effect? What other factors could have operated? What other possible reasons might there be?

In the argument about Prime Minister Attlee there are obviously other factors which would affect his actions in the items listed by Stalin, so that his attitude toward peace can not be directly indicated by those actions, but rather those actions may point to other factors which would cause them, e.g., distrust of Russia. For the sign reasoning to be plausible, other causes for the sign must be unlikely or of low probability. Obviously, also, what may be a highly probable sign under one circumstance may change and point to a different attitude, entity, or state under other circumstances; the same sign may indicate different conclusions under changed circumstances. New factors may enter and change the relationship or alter it temporarily, and these must be considered in the hypothesis of causation.

3. In effect to effect sign reasoning, the process of analysis is more complex, for there are two causal relations to analyze. The approach suggested in the first question above is applicable, since the correlation may be used apart from consideration of "cause." But another means of analyzing the effect to effect process is to move from the sign to the cause, and from the cause to the other effect, evaluating the probability of both lines of causation. The first part of this is treated under question 2 above, and the latter involves the process of cause to effect reasoning, which will be discussed under another part of this chapter. However, the standard approach to causal analysis is appropriate: With what certainty is the effect produced? Is the cause adequate? Would other factors intervene?

## 5. Argument from Cause to Effect: Prediction

### Definition of the Process

This may be termed reasoning from cause to effect. In using this process the speaker asserts that because certain events exist, then certain other events can be expected to exist either simultaneously or subsequent in time as a result of the first events. Given A, we can predict B, because A casually produces B. There is an implicit causal descriptive generalization involved in causal reasoning, and usually it is a very complex one which is difficult to isolate or simplify. Cause to effect reasoning may take two forms. The first is a prediction on the basis of existing conditions, saying that certain events will occur in the future. The second form is that of a conditional or hypothetical structure, in which the results of hypothetical conditions are predicted: If we adopt your proposal, then the budget will be overdrawn and we will lose members. In the latter, the causal conditions are not in existence, but they are hypothesized and their implications predicted.

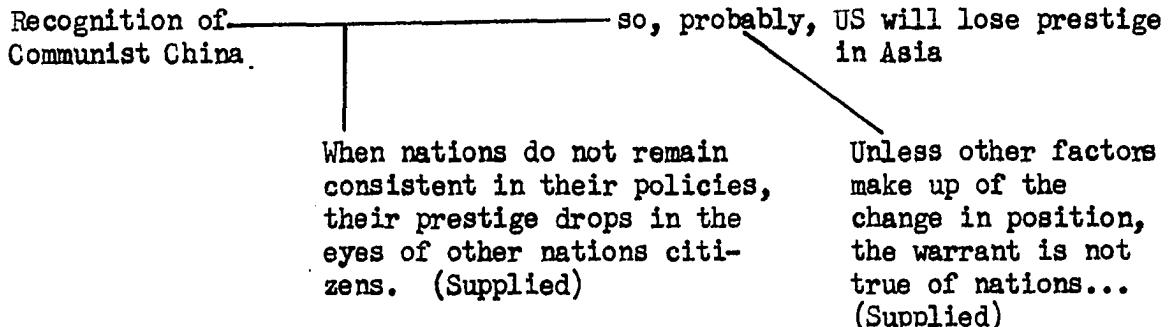
### Sample Arguments

#### Sample A:

We contend, thirdly that recognition of Communist China would harm our relations in Asia, not improve them, simply because we will once more be retreating in the face of a communist bluff. We have said, we're going to defend Formosa against Communist Chinese attack; and now if we abandon the island of Formosa, the effect on the Asians, I am sure, would be quite startling. But more important than that is the premise that for the past five years we have maintained that the United States will not recognize Communist China so long as Communist China violates international law and refuses to accept her international obligations. At this time Communist China is holding Americans prisoners of war as spies, one of the grossest violations of international law one can find in the books. Would it be wise for this country, at this time especially, to recognize this government

when they continue to violate international law? We consider, then, that this effect on the Asians would be to decrease our prestige in Asia.<sup>1</sup>

#### Layout of the Argument



The complexity of reasoning from cause to effect is evident in this sample. Here the effect depends upon the attitude of the Asians, and so the speaker is second-guessing the Asians. This involves a causal generalization about human behavior which says that a nation will lose prestige if it reverses a policy to which it has strongly committed itself. The United States has made clear its principles on the nonrecognition of Red China, and to recognize it would be to go against our policy, principles, and position. This would cause our prestige to drop. This argument is stated in hypothetical form, with the assertion that if one event can be predicted to occur also: If we recognize Communist China, then our prestige in Asia will decrease. Although the speaker asserts this unequivocally, it is clearly a "probably" argument. The refutation of this argument could take several approaches.

1. The generalization is false in this situation, because nations are not viewed in the same way as are persons.

<sup>1</sup>Dennis Holt, in Windes and Kruger, 187.

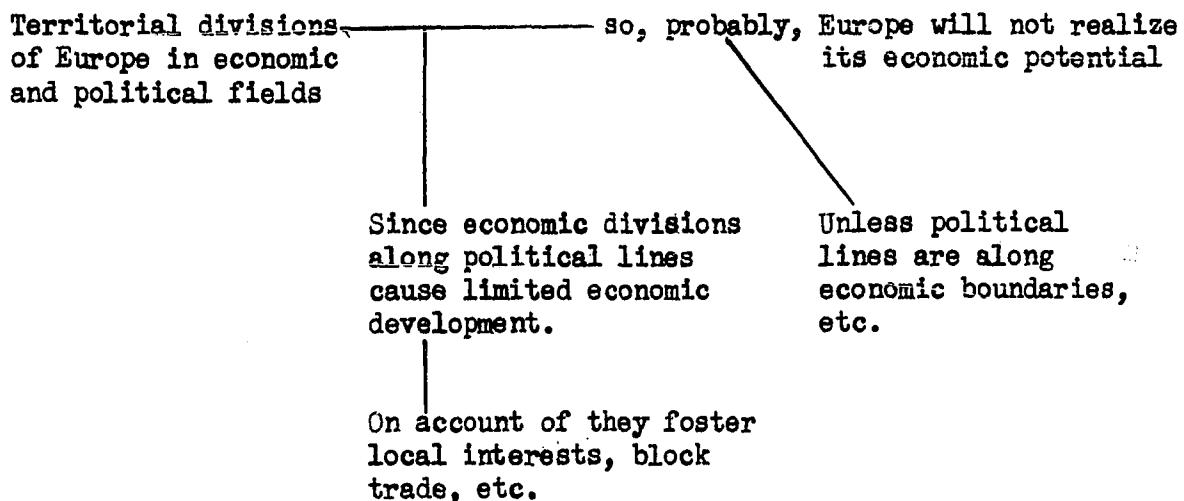
2. Other factors might prevent a drop of prestige: the Asians might recognize that other reasons have become more important than our original principles, and so not lose respect.

3. Other results might be produced: in fact, our prestige might go up because Asians would respect us for being realistic--many of them have recognized Communist China.

Sample B:

Europe cannot attain the towering material stature possible to its people's skills and spirit so long as it is divided by patchwork territorial fences. They foster localized instead of common interest. They pyramid every cost with middlemen, tariffs, taxes, and overheads. Barred, absolutely, are the efficient division of labor and resources and the easy flow of trade. In the political field, these barriers promote distrust and suspicion. They served vested interests at the expense of peoples and prevent truly concerted action for Europe's own and obvious good.<sup>1</sup>

Layout of the Argument



This argument is stated in terms of the present, and not in terms of a hypothetical situation. Europe is presently divided by territorial fences. The speaker asserts that these boundaries do have and will have

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<sup>1</sup>Dwight Eisenhower, in Harding, 532.

certain effects, with the result that Europe will not be so economically productive as it otherwise would be. The factors underlying this causal prediction are spelled out specifically, something not always done in this type of argument. In the above layout, the causal factors are placed below the warrant, to show that they form the backing for the warrant. Each one in itself is a causal generalization, and further proof might be adduced to support each one. However, as the generalizations become more detailed they can rely for their acceptance on the knowledge and experience of the audience. For this speech the audience was the English Speaking Union, which should be reasonably familiar with the economic principles which are described by the speaker. For persons less sophisticated, it might be necessary to show some of the dynamics of the situation to explain why the effects result.

This argument draws its premises from the present and predicts events in the future. The first sample of argument presented a hypothetical situation and predicted the consequences of that alternative. Reasoning from cause to effect may take either form, but in each, the warrant leading to the conclusion is a causal generalization asserting the consequences of an event.

In evaluating this argument, these questions might be asked:

1. Is the generalization always true? Political barriers do not always produce bad economic effects. For example, the United States and Canada have a long history of joint economic development.
2. Are there other factors which might negate the bad effects of the territorial barriers? For example, the nations could cooperate to a large extent among themselves and achieve economic effectiveness without

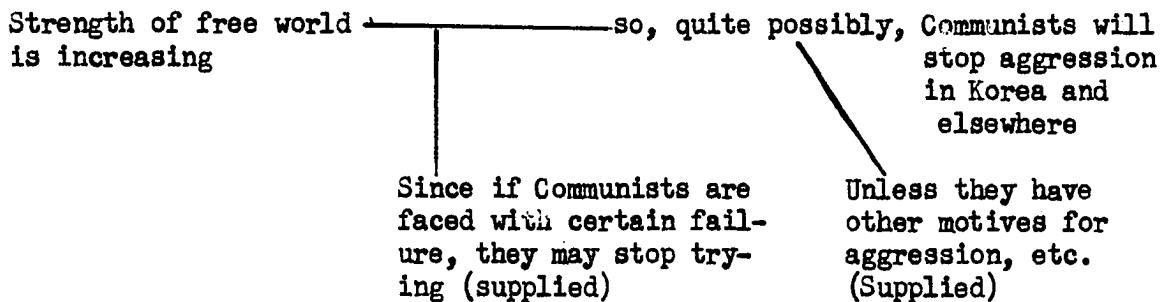
giving up political boundaries; or United States aid might counter some of the harmful results of the barriers.

3. Have relevant factors (causes) been omitted? Political barriers may be only part of the cause. Actually, the attitudes of the Europeans is another factor which is operating to create the ill effects, so the argument is not a complete statement of the situation.

Sample C:

The free world as a whole is growing in military strength everyday. In the United States, Western Europe, and throughout the world, free men are alert to the Soviet threat and are building their defenses. This may discourage the Communist rulers from continuing the war in Korea--and from undertaking new acts of aggression.<sup>1</sup>

#### Layout of the Argument



Here is a rather rare statement of an argument--one in which the speaker does not claim certainty, but is content to be reasonable and say that this may occur (which I have translated as "quite possibly"). The qualification is no doubt based on the recognition that other factors may cause the Communist forces to continue their aggressive action, and so even though the increase in free world strength would increase the probability of the effect, there may be no resulting change because of other causes. The generalization is a bit more involved than is

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<sup>1</sup>Harry Truman, Harding, 144.

suggested in the warrant. It assumes that (1) the communists are taking aggressive action primarily to conquer Korea, and (2) if they are faced with failure they will be motivated to stop their action. If this generalization is true, then the increase of strength will increase the probability of this effect. This particular argument from cause takes its premises from the present and predicts a future effect which will result from them.

Qualifications:

1. The generalization may not be true in this case--the Communist forces may fight on even though there is an increase in free world strength, because of a hope of success.
2. Other factors may be operating in their motives for fighting which will cause a continuation of the action, e.g., harrassment of the Allied forces.
3. Factors may operate to nullify the cause, such as a new development in Communist strength.

Commentary on the Process

The fundamental process in argument from cause is the use of a causal generalization (or correlation) which states that one set of circumstances will produce another set of circumstances, and then using the first set of circumstances as premises and moving to the second for a conclusion. Von Wright describes this in A Treatise on Induction and Probability: "From the propositions that something has been the case under certain conditions and that the conditions are repeated we infer, as we say, the proposition that the same thing will be the case again. The

conclusion of such an argument we shall call a prediction."<sup>1</sup>

The complexity of this argument usually results from the complexity of the generalization involved, which may involve many factors. Most textbooks on argumentation or even on logic will use examples which illustrate causal reasoning in an oversimplified way: the law of gravity, the effect of rain on the growth of corn, the effects of poisons and antidotes. In these cases the generalizations are not difficult to formulate and are highly probable. But in a generalization on the effects of corruption in a union, on the results of territorial barriers, or on possible plans to halt inflation, the causal relations are many and complex, and are more conditional in their probability. As a result there is no precise formula by which one can calculate the probability of the economic effects of a war or of the political results of a policy. We can make educated predictions, but that is about all. And the same comments must apply to evaluating such an argument: we can only make educated evaluations.

In the arguments studied for this thesis, cause to effect reasoning was often used to show the implications of policy, proposal, plan, or action, usually in a hypothetical form: if this plan is adopted, then these consequences will result. Very rarely was cause to effect reasoning used to predict the future consequences of a situation now in existence. This would suggest that in rhetoric the major function of this mode is to predict consequences of possible alternatives (which would further suggest that advocacy is more concerned with the contingent future

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<sup>1</sup>Paterson, N. J.: Littlefield, Adams, 1960, p. 14.

rather than with the consequences of the status quo). There is no inherent reason why this mode of reasoning should be used more for conditional propositions than for propositions taking their premises from the present, and it can be used validly for both purposes.

In the samples of cause to effect reasoning studied, almost never was the generalization itself supported, and usually it was not even made explicit. One of the reasons for this is that the generalization is not a simple one such as "things fall when dropped," but one which has many elements with varying probabilities, and the proof of the generalization is found in the experience of the audience. When a speaker asserts that if the government nationalizes industries, poor planning of the operation of those industries will result, how reasonably can he prove it? This is a causal argument, asserting that government operation will produce poor planning. The generalization must be that when the government operates a business, there is usually a large amount of poor planning in the operation. This relationship may be recognized as a correlation more or less intuitively, although contrary examples (the Tennessee Valley Authority) show it can not be a certain relation. But to prove the generalization on the basis of the causal factors operating is more difficult. We must talk in terms of human initiative, competition and rivalry, public relations, bureaucracy, red tape, and probably dozens of other elements. These are the factors which cause the correlation. There may be the question, "Why be concerned with cause when the correlation is so evident and so much more scientific?" Sometimes this is a good question and one can make a gross correlation of the two variables—the cause and the effect. But the many other "causes" contributing to this correlation are

also correlations, so actually the contributing causes are also correlations, but with this difference: I think we can more easily conceive of them as direct causes than we can in the overall gross relation. And, most important, we must consider the contributing causes because they are the constituents of the overall relationship, and it is on the basis of these that we must evaluate the probability of the generalization. It is the strength of these individual elements that determines the probability of the whole relation. Thus in evaluating the probability of the asserted effect, we must evaluate the probability of the factors which contribute to it. As can be seen from the samples of argument which have been given here, even these elements may depend upon intuitive generalizations rather than established "laws." Nevertheless, to analyze the generalization underlying a causal argument one should consider not only the generalization with its asserted correlative relations but also the factors in experience which contribute to the probability of its correlation.

Because of this complexity which is involved in cause to effect reasoning, most causal arguments will seem to be straight assertions that B will follow from A, since the speakers will rarely make the generalization explicit. However it is there, and it would seem reasonable to treat the discourse as an argument, because there are premises (the assumed conditions) and conclusions (the predicted effects) and a warrant (the generalization) enabling us to get from the premises to the conclusions. Since it can be tested as an argument, it can usually be tested as an argument, albeit a brief one.

Evaluating Argument from Cause

From the preceding discussion it is clear that the initial procedure involves separating the premises, conclusion, and generalization. It is necessary to phrase the generalization as clearly and as specifically as possible for the effective analysis of the argument. Then several factors can be examined for evaluation.

1. Does the cause have a valid causal relation with the effect?-- That is, is the cause a true cause of the effect? Accidental or coincidental relations can not be used to prove cause to effect. An example of such invalid relations are superstitions. These are usually based upon chance relationship which become habits because of reinforcement.<sup>1</sup> Another cause of accidental relationships being taken for genuine ones is expectancy set, which may result in casual relations being perceived as causal ones.<sup>2</sup> In the valid argument from cause, however, we must be able to perceive the generalization as a true causal relation, else the prediction does not hold.

2. How probable is the effect on the basis of the correlation?-- This is to ask the degree of probability of the correlation. The higher the correlation of the two major variables, the more probable is the argument. For example, in the argument on the effects of government operation of basic industries, the generalization is that government operation involves poor planning. However, though there may be many examples to support this correlation, such cases as the Tennessee Valley Authority

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<sup>1</sup>See B. F. Skinner, "'Superstition' in the Pigeon," Journal of Experimental Psychology, v. 38, 168-172.

<sup>2</sup>See Arthur Hastings and Stanley Krippner, "Expectancy Set and 'Poltergeist' Phenomena," in ETC., XVIII, no. 3 (Oct., 1961)

and the Rural Electrification Administration demonstrate that this is not always the case; the correlation is not a certain one.

Not only should the gross correlation be considered, but the cause should be broken down into the sub-causes contributing to it. Their significance and probability should also be determined. This will give a more reliable evaluation of the likelihood of the effect. For example, in the argument on government operations, let us assume that we can show that competition with other firms is one of the reasons TVA has been efficient. If we show this factor will not be present if the government operates all the companies in one industry, then we can establish with more probability that the generalization is true and government operation would result in inefficiency. In other words, by reducing the relation to its contributing relations, we can evaluate negative instances. To the opposite point, if it is known that one reason for the efficiency of TVA is the separation from local politics, then if the government-operated industries will be freed from local politics, then their operation would be more efficient. This would lower the probability of the generalization.

Thus, in most arguments from cause, the generalization will be a complex one, involving many causal or correlative relations. Both the gross major relation and the component contributing relations must be evaluated in order to test the probability of the occurrence of the effect.

3. Is the cause a sufficient cause to produce the effect?--Logicians make a distinction between sufficient and necessary causes.<sup>1</sup> A

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<sup>1</sup> Irving M. Copi, Introduction to Logic (New York: Macmillan, 1961), 327-330.

necessary cause is one which is essential for the production of the effect. There may also be other causes involved, but this one is required, else the effect will not occur. One of the necessary causes in argument sample C is for the Communists to be aware of the growing strength of the free world. This is not the only factor that is necessary, but it is a sine qua non. Necessary cause is subsumed under sufficient cause, which is the cause required in and of itself to produce the effect. (Both necessary and sufficient cause may involve several sub-causes.) If there is sufficient cause, the effect will be produced. Copi points out that in reasoning from cause to effect we can argue only from sufficient cause. This is the point made by argumentation theorists when they say, "The cause must be adequate to produce the effect."<sup>1</sup> Freeley illustrates this with the argument that diplomatic recognition of Communist China would promote a split between that nation and Russia:

In replying to this argument, some negative teams maintained that diplomatic recognition is not capable of causing such a change in the foreign policy of the government recognized. In support, they maintained that our diplomatic recognition of Russia has not caused any change in Russia's foreign policy.<sup>2</sup>

Thus the cause presented as the premises of the argument must be capable of resulting in the effect, and the generalization must assert this. The logician would have us require sufficient cause to obtain a certain relation, but in rhetoric we can usually only approach sufficient cause, since we deal with relations of probability.

#### 4. Are any other factors operating to interfere with the production

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<sup>1</sup>For example, McBurney, O'Neill and Mills, op. cit., p. 101; Austin Freeley, Argumentation and Debate, (San Francisco: Wadsworth, 1961), p. 100.

<sup>2</sup>Op. cit., p. 101.

of the effect?--Though the causal relation may be highly probable, other causes may block the production of the effect by breaking the connection between cause and effect by modifying the causal factors which produce the effect or by acting on the effect itself. In sample argument B on economic problems in Europe, a countering factor might be new cooperative behavior which is becoming evident in the European Common Market. These actions are changing the effect by modifying the results of political boundaries; the political boundaries are still existing, but other factors are operating. A speaker may argue against the establishment of a wage and price control program on the grounds that it will be politically influenced, and his opponent may counter with the argument that a board can be given autonomy and separated from the legislative branch of the government so that it will be less subject to political pressure. Here the direct connection between pressure groups and the board has been broken.

Thus in any cause to effect argument, there may be either internal factors which have been overlooked or outside factors operating, and these factors should be considered in evaluating the strength of the argument.

## 6. Argument from Circumstantial Evidence to Hypothesis

The inductive method of hypothesis is associated with scientific investigation, in which connection it is sometimes called the hypothetico-deductive method.<sup>1</sup> This process consists in making a hypothesis about reality and then examining the evidence to see if it confirms the hypothesis. The more supporting evidence is found, the more probable is the hypothesis.<sup>2</sup> Though the method of hypothesis is discussed in the literature of scientific investigation, philosophy of science, and logic, it has not been listed as a means of rhetorical proof by any argumentation textbooks save one. In Braden and Brandenburg's Oral Decision-Making, the argument leading to a hypothesis is labeled as argument from circumstantial detail. In the field of law it might be called argument from circumstantial evidence. And because of the similarity to sign reasoning, it could be termed reasoning from multiple sign. Whatever it is called, in whatever context, it does exist as a major means of argument in rhetoric.

### Description of the Process

This can be called a process of explanation: the reasoning begins with several facts and then infers a theory to account for those facts or to explain them. The facts are the premises, and the theory which

<sup>1</sup>Harold Larrabee, Reliable Knowledge, (Boston, Houghton-Mifflin, 1945), p. 115; Lionel Ruby, The Art of Making Sense, (Philadelphia: Lippincott, 1954), ch. 16; and E. M. Adams, Fundamentals of General Logic, (New York: Longmans, Green, 1954), p. 304-309 are descriptions of the hypothetico-deductive method in science.

<sup>2</sup>For a discussion of the logic of the hypothetical method, see S. F. Baker, Induction and Hypothesis, (Ithica: Cornell University Press, 1957).

explains those facts is the conclusion: circumstantial details lead to a hypothesis which explains those details. The hypothesis can usually be termed a theory, since it is a pattern or formulation of relationships involving the facts, and it explains the circumstantial evidence causally. This could be considered similar to sign reasoning, except that in the latter the individual signs are highly correlated with the occurrence of the events they signify--the signified events are as close to necessary causes as is possible in the land of probability. In reasoning to a hypothesis, however, the individual facts making up the circumstances have low individual correlations with the causal hypothesis, and it is only when many facts fit together into a pattern that the probability of the conclusion becomes significant.

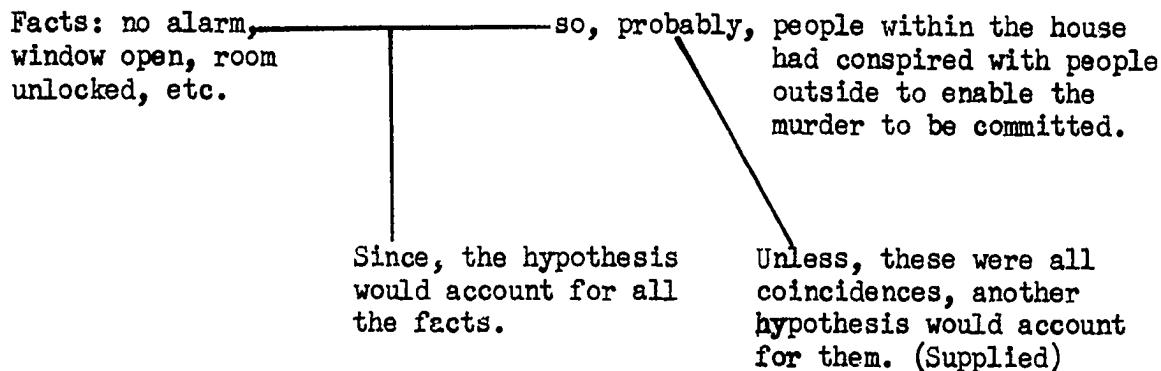
#### Sample Arguments

##### Sample A:

Let me ask your attention, then, in the first place, to those appearances on the morning after the murder, which have a tendency to show that it was done in pursuance of a preconcerted plan of operation. What are they? A man was found murdered in his bed. No stranger had done the deed, no one unacquainted with the house had done it. It was apparent that somebody within had opened, and that somebody without had entered. There had obviously and certainly been concert and cooperation. The inmates of the house were not alarmed when the murder was perpetrated. The assassin had entered without any riot or any violence. He had found the way prepared before him. The house had been previously opened. The window was unbarred from within, and its fastening unscrewed. There was a lock on the doors of the chamber in which Mr. White slept, but the key was gone. It had been taken away and secreted. The footsteps of the murderer were visible, out doors, tending toward the window. The plank by which he entered the window still remained. The road he pursued had thus been prepared for him. The victim was slain, and the murderer had escaped. Every thing indicated that somebody within had cooperated with somebody without. Everything proclaimed that some inmates, or somebody having access to the house, had had a hand in the murder. On the face of the circumstances, it was apparent, therefore, that this was a premeditated,

concerted murder; that there had been a conspiracy to commit it.<sup>1</sup>

#### Layout of the Argument



The pattern of argument from circumstantial evidence can be clearly seen in this sample. The speaker presents several facts, all related to one situation, and presents a unified theory, or alleged fact, which, if true, would causally account for all the facts. If it was true that a conspiracy existed, then all of the facts would be reasonably explained on the basis of the hypothesis. Otherwise the facts would not only be rather surprising individually (which is to say, not what would normally occur), but also explicable only by a series of individual causes, which is a theory less likely, considering the probability of the total pattern. However, refutation of the argument would take the approach that a pattern of other hypotheses might be possible. Perhaps the victim would occasionally open the window at night to gaze at the stars--this would account for the window's being unbarred and unfastened. The servants perhaps despised the victim, and so were not alarmed when he was killed. In short, the first possible attack on this argument would be: "There are explanations for the facts other than the one of conspiracy."

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<sup>1</sup>Daniel Webster, W. M. Parrish and Marie Hochmuth (eds.), American Speeches (New York: Longmans, Green, 1954), p. 133-134.

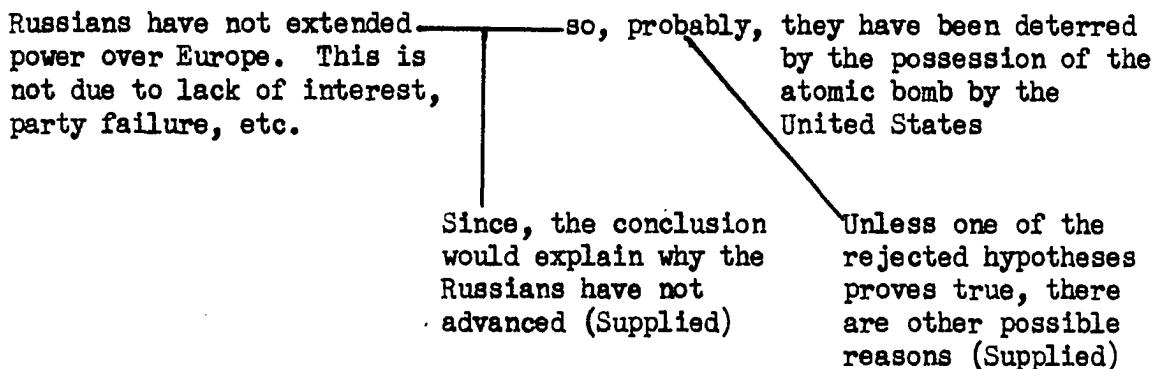
A second method of attacking the argument would be by presenting evidence which would contradict the hypothesis. If it could be shown that all the persons in the house dearly loved Mr. White, then a conspiracy would be less probable.

Sample B:

Why has the Soviet Union not extended its power to the English Channel since the close of World War II? A few may argue that the failure is evidence of a lack of interest on the part of the Soviet Union—that the rulers in the Kremlin have no desire to spread their doctrine. In the light of recent history any such assumption appears not only improbable but highly dangerous. Others may think the failure reflects the inability of the Communist Party in France, Italy, and the Low Countries to pull off another revolution of the Czecho-slovakian type. Certainly no such revolutions have occurred, and we Americans can take satisfaction in the fact that aid through the Marshall Plan has been of prime importance. But surely the one deterrent to direct military aggression has been and is today, the overwhelming destructive power of the United States strategic air force armed with the atomic bomb.

Let me spell out this last point. If Russia tomorrow should move its troops toward the Atlantic Ocean, European territory would be conquered, but the Russian industrial centers would be destroyed from the air. That would be a bad swap from any point of view. It seems clear that we could strike a devastating series of blows against the Soviet's vital centers.<sup>1</sup>

Layout of the Argument



This is a carefully developed argument in that it attempts to eliminate alternative hypotheses, but it is weak in its support of the

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<sup>1</sup>James B. Conant, Harding, 258.

concluding hypothesis. Two possible hypotheses are first mentioned: (1) lack of interest, and (2) failure of internal revolution. The first of these is rejected by referring to a generalization about Soviet behavior. The second is mentioned and dismissed without any reason. But a third hypothesis is suggested with the assertion that this is the best one, and explanation is given in support of it. This evidence for the hypothesis is an explanation showing that the hypothesis fulfills the need to account for the data. The reasoning is that the United States' possession of the atomic bomb has had effects which have prevented the Soviet Union from attempting to take over Europe. This incorporates causal reasoning in predicting the effect of the atomic bomb. The function of the hypothesis as an explanation is clear in this sample: the conclusion provides an explanation for the fact of non-aggression; it answers the question, "Why is this so?" or "What could account for this fact?" The fact of the Russians' not attempting to conquer Western Europe is accounted for if we assume that they fear the use of the atomic bomb should they attempt such an action.

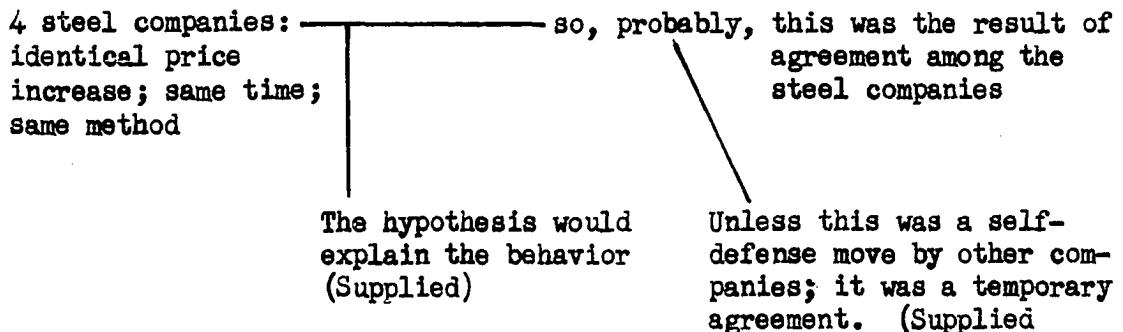
This sample also points up the difference between reasoning from sign and reasoning from circumstantial evidence. If the evidence were taken as a sign of the conclusion, the inference would be of low probability, because there are many other possible causes. However, with the elimination of alternative explanations, and with the internal reasoning made explicit, the circumstantial evidence can be explained by the hypothetical conclusion with higher probability than if it were sign reasoning. The qualification of the probability of the argument would hinge on (1) the presentation of alternative hypotheses or (2) evidence to counter

the proposed hypothesis. One of the rejected alternative hypothesis might be resupported, e.g., to contend Russia is planning to take over the European countries by subversion, not force, and is still pursuing this end. Or evidence could be cited to show that Russia is not afraid of the atomic bomb.

#### Sample C:

Did the price-fixing result because oligopolies exist? Indeed it did. The first announcement of this increase was made by the Carnegie Illinois Steel Corporation. Bethlehem Steel, Republic, and Inland Steel, as well as other large concerns, followed suit without hesitation. By a remarkable coincidence all of these companies not only decided to raise the price by exactly the same amount, but they were inspired to achieve this increase by switching their quotation base from gross tons to net tons. Now, doesn't that look as if there was a definite oligopolistic agreement for the control of prices? We would say there certainly is.<sup>1</sup>

#### Layout of the Argument



The speaker asserts that the price mechanism in the steel industry is the result of oligopolistic agreements. This is the hypothesis and conclusion. For evidence, the speaker presents the facts that all the companies increased prices the same amount, the same time, and changed to the same quotation base. The circumstantial evidence can all be related and explained with the theory that there was agreement among the companies

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<sup>1</sup>Dorothy Koch, in Windes and Kruger, 231.

to do this. Otherwise the evidence would be a series of quite remarkable coincidences. In this case the hypothesis would adequately explain the facts, and so the speaker considers it verified. Alternative hypotheses are not considered by the speaker, but this is not necessary in rhetorical proof (as it would be in a court of law), though their consideration and elimination may add to the strength of the final hypothesis. An attack of this argument could take several approaches:

1. Alternative hypothesis: This was not coincidence, but the companies all followed one initial company in self defense. This alternative hypothesis might be reasonable if it can be supported with more evidence. Inherently it is not more probable than the original hypothesis, since both explain the facts equally well.

2. There is insufficient evidence to justify the theory of an oligopoly. There may have been a temporary agreement or an agreement in this one area rather than the total complex of an oligopoly.

#### Commentary on the Process

The method of hypothesis is a less frequently used argument than such pervasive modes as criteria or example, occurring only ten times in the more than 250 arguments studied for this thesis. Still, it occurs more frequently than some better known modes such as analogy, and it is further useful because there are some conclusions which can be established in no other way. Any conclusion which is a theory of causation will require either reasoning from sign or reasoning from circumstantial evidence as inferential support.

The only text to discuss this mode of reasoning is Braden and

Brandenburg, and their description is: "The reasoner's goal is to find a reasonable hypothesis, one which seems to account for the clues. In this type the reasoner fits a series of related details together into a pattern or sequence."<sup>1</sup> This is a generally accurate description of the process, although this gives the impression that the hypothesis is descriptive, when actually it is usually causal. The advocate presents facts or circumstantial evidence of an event. Then he states a theory or hypothesis, perhaps another tentative fact, which, if true, would explain the occurrence of the evidence. By "explain" is meant "account for" or "show the cause." It is important to note that the hypothesis is in one sense an integrating explanation. It embraces the total situation and relates facts together into a pattern. A scientist would say that the hypothesis is "simpler" than the facts it explains, meaning that one unified explanation is a less complicated way of accounting for some facts than an individual explanation for every fact.<sup>2</sup> However, the concept of simplicity can backfire. I recall one author who claims it would be much simpler to explain flying saucers with the hypothesis that they are interplanetary space ships, instead of trying to explain each sighting individually with causes such as weather balloons, airplanes, light refractions, temperature inversions, and other specific causes.<sup>3</sup> While the superficial explanation would indeed be simpler, the other consequents of the hypothesis

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<sup>1</sup>Op. cit., 119.

<sup>2</sup>S. F. Barker, op. cit., ch. 9.

<sup>3</sup>Unfortunately, I do not remember the author who used this scientific approach to a unified theory of unidentified flying objects. I trust it is obvious that his theory is ultimately more complex than the one it replaces.

would be greatly more complicated than the alternative, and so it is doubtful that we could agree that the hypothesis of interplanetary space ships is a simpler hypothesis in the long run.

In like manner, poltergeist phenomena in a "haunted house" can be explained very "simply" by hypothesizing a ghost that makes noise, throws objects, and haunts in general. However, the "ghost hypothesis" asks more questions than it answers, and so is not a simpler hypothesis.<sup>1</sup> In saying that the hypothesis must be simple, we can only make a judgment about what is simple. The hypothesis itself may be quite complex, and yet on the basis of what we know about the situation and on the basis of our background knowledge and experience, we may consider the hypothesis a "simple" one, even though it may be "complicated." But the hypothesis fails in simplicity when we must say "That theory is more complicated than the facts it attempts to explain."

On occasion, a hypothesis will be offered in explanation of a single fact. For example, in a printed interview, Joseph Stalin explained that the Soviet Union was reducing arms and war preparations, and:

If despite all these facts and scientific considerations, Prime Minister Attlee considers it nevertheless possible openly to slander the Soviet Union and its peaceful policy, this can only be explained by the fact that by slandering the Soviet Union he thinks it is possible to justify the armaments race in Britain now being carried on by the labor government.<sup>2</sup>

Here are two facts: 1. Attlee should know that the Soviet Union is not preparing for war; 2. Attlee continues to accuse the Soviet Union of preparing for war. The hypothesis derived to explain these facts is that

<sup>1</sup>For a description of the operation of hypothetical reasoning in the investigation of a haunted house, see Arthur Hastings and Stanley Krippner, *op. cit.*

<sup>2</sup>In Harding, 193.

the English Prime Minister is making the assertions to justify his government's action. It is apparent that this hypothesis would explain the circumstantial evidence. It is also apparent that there are other hypotheses which would also explain the limited circumstantial evidence, so that the suggested hypothesis does not have high probability; there are other adequate explanations which have equal support. To increase the probability of Stalin's conclusion, either the alternative explanations would have to be eliminated, or additional circumstantial evidence presented so that the pattern would become more apparent.

This brings us again to the distinction between reasoning from sign and reasoning from circumstantial evidence (see p. 82). It is apparent that in sign reasoning the event signified is a hypothesis and is a causal or correlative explanation of the existence of the sign. Why, then, distinguish between sign and circumstantial evidence? The difference seems to be this: in sign reasoning there is usually only one sign, and this is highly correlated with the thing signified. Further, the signs are usually all of the same class of events. In reasoning from circumstantial evidence there may be one or more facts, but individually the facts have low correlation with the hypothesis, and the facts may be from several different types of events. There is one further difference, and that is that a hypothesis may be the assertion of a relationship of facts, the formulation of a pattern, whereas a sign can only indicate another event or a state or a condition. Larrabee comments:

We must go beyond the mere amassing of facts or even beyond attempts to describe and classify them by their superficial properties, and seek an underlying pattern that explains them. Explanatory hypotheses of this sort are guesses that such-and-such a principle or

generalization accounts

<sup>1</sup> generalization accounts for, or implies the facts which we are trying to understand.<sup>1</sup>

As this concept indicates, a hypothesis may be about an unobserved entity, a theory, or a relationship that can not be verified by the senses; a sign can only be of a verifiable event or state.

In most of the samples of argument analyzed for this study, the hypothesis was clearly a causal hypothesis, either direct or indirect. For example, one speaker reported on research into the effects of cortisone:

Dr. Dorfman: What sort of changes does one actually see when these drugs are administered?

Dr. Conn: If a patient has severe arthritis and is bedridden, one frequently finds that the swelling of his joints disappears in several days and that a man who otherwise would not be expected to be able to walk is up walking. Then when the drug is stopped, within a few days, sometimes several weeks, he is essentially back to the same place that he was before. So that we have not actually hit the underlying disease.

Dr. Selye: One can, I believe, conclude that the manifestations of the abnormal reactions are inhibited by these drugs. I would interpret it as indicating that the actual causative agent is not eliminated.<sup>2</sup>

Here the hypothesis accounts for a particular pattern which has been observed. Its probability is increased by the lack of alternative hypotheses which might also explain this pattern, although there may be some (e.g., the hypothesis of reinfection from the environment).

Another type of causal hypothesis that occurred in the argument samples was that of motivation. Sample B and the selection from the Stalin interview provide examples of postulating a motivation as a causal explanation for the evidence. With both the causal and the motivational

<sup>1</sup>Op. cit., 177-178.

<sup>2</sup>Harding, 331-332.

hypotheses, experience plays an important role in their construction and in their evaluation.

Evaluation of the Argument from Circumstantial Evidence

1. Does the hypothesis explain the circumstantial evidence?--This should be the first question asked. Assuming that the hypothesis is true, does it account for the circumstantial evidence presented? This is another way of asking, "Does the evidence presented logically follow from the hypothesis?" Daniel Webster, in his summation for the Knapp murder trial, used reasoning from circumstantial evidence to a hypothesis, and made this process of reasoning explicit:

If one desirous of opening a lock turns over and tries a bunch of keys till he finds one that will open it, he naturally supposes he has found the key of that lock. So, in explaining circumstances of evidence which are apparently irreconcilable or unaccountable, if a fact be suggested which at once accounts for all, and reconciles all, by whomsoever it may be stated, it is still difficult not to believe that such fact is the true fact belonging to the case.<sup>1</sup>

This, then, is the first test of the confirmation of the hypothesis: If it were true, would it account for the evidence?

2. Is the evidence adequate to justify the hypothesis? As we observed in commenting on the Stalin argument and on sample C, there may be insufficient evidence presented by the speaker to justify the hypothesis, even though the evidence presented is explained by the hypothesis. This is the case which justifies saying, "This is possible, but there is so little evidence that any hypothesis is premature." In explaining why North Korea attacked South Korea, the South Korean ambassador hypothesized an answer on the basis of less than adequate evidence:

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<sup>1</sup>In Parrish and Hochmuth, op. cit., 135.

I wish now to turn to the question of why this mad attack was launched. The briefest answer, and perhaps the best, is contained in a phrase used by Mr. Paul Hoffman, director of ECA, when he called the Republic of Korea a "bastion of democracy in Asia." The continued existence of the Republic of Korea could not be tolerated by the Communists. It was too much of a success. The Republic of Korea was the only part of northern Asia which was not in Communist hands. So long as the Republic of Korea continued to exist, the people of Asia would know that the United States, and the rest of the free world renounced aggression.<sup>1</sup>

The hypothesis asserts a motivation to explain behavior, and it is clear that the conclusion would indeed account for the facts. However, there should be more evidence to support the conclusion before the hypothesis can be accepted as highly probable. For example, other evidence might be presented to show that this was the attitude of the North Koreans toward South Korea. It is a rather broad jump to move from the bare fact of an attack on a country to the guess that the motivation was to eliminate the existence of a democracy.

In short, for the argument to be a strong argument, enough circumstantial evidence must be presented to justify the formulation of a particular hypothesis. In evaluating how much evidence is required, our judgment must be used; one cannot say that three pieces of evidence or eight facts are necessary. Our educated judgment can suffice to answer once we are aware of the question.

3. Can other evidence be deduced from the hypothesis?--If the conclusion is true, then other manifestations of the cause should be evident. If there is additional evidence which confirms the hypothesis, then its probability increases. This is the scientific method. Consequences are deduced from the hypothesis and these are tested. If they are true, the

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<sup>1</sup>John M. Chang, in Harding, 114.

hypothesis receives further confirmation. Barker describes this as the basic process in reasoning by hypothesis:

Roughly, then, the method of hypothesis consists in deducing consequents from a hypothesis and in verifying them; the hypothesis is regarded as confirmed if some consequents are verified and none is falsified; and one hypothesis is regarded as better confirmed than is another if more consequents of the former than of the latter have been verified and none falsified.<sup>1</sup>

Thus from the explanation of the motive of the attack on South Korea, we would expect to find additional evidence of the dislike of the democracy in South Korea, and if we could discover or recall such confirming evidence, the hypothesis would become more probable. This method of deducing consequents and then confirming them is the basic method used by Sherlock Holmes in many of his investigations. He formulates a theory, using sign and circumstantial evidence, and then searches for further evidence whose presence he has deduced from his theory.<sup>2</sup>

4. Is there any contradictory evidence?--Evidence which would contradict the conclusion may exist, and would thus make the theory invalid, if it can not be explained away. This is perhaps another way of saying that any apparently contradictory evidence should be accounted for. There are two ways in which one may look for contradictory evidence. One is by utilizing the process described above in step three and deducing consequents from the hypothesis. If any of the evidence contradicts the consequents, then the conclusion can be questioned. The second approach is simply to attempt to recall evidence which might disconfirm the hypothesis. In evaluating Stalin's hypothesis about Attlee, one might

<sup>1</sup>S. F. Barker, op. cit., 153-154.

<sup>2</sup>For an interesting analysis of the logic of Sherlock Holmes, see Lionel Ruby, op. cit., ch. 17.

think of actions which Attlee has taken to promote the cause of world peace; these would be inconsistent with the hypothesis and would render it questionable.

5. Are there other hypotheses which would be equally or more probable?--As we have noted in several of the samples of argument, several hypotheses may be possible from the premises (samples A, B, C, the Stalin argument). In fact, reasoning from circumstantial evidence will often take the form of several hypotheses, all of which save one are eliminated:  $p \vee q \vee r$ , not p, not q; therefore r. In logic, this is termed "eliminative induction." The second sample argument (B) takes this form. The question of rival hypotheses is an extremely important one in the analysis of this process of argument, because the possibility of an alternative explanation will render the conclusion indeterminate until further verification. If other explanations can be legitimately inferred from the evidence, then the argument is not a strong one, and further evidence is necessary.

## 7. Argument from Comparison

### Definition of the Process

In this form of reasoning, one event is shown to be similar to another, and conclusions drawn about the first event are then applied to the second. The warrant is that if the situations are similar in their characteristics and relationships, then an assertion, conclusion, prediction, etc., on the basis of one event can be similarly made about the second event. The events or situations are from the same class. One city is compared with another city, one revolution compared with another, or an economic plan compared with a previous use of a similar plan. Aristotle would say that the events are from the same species.

### Sample Arguments

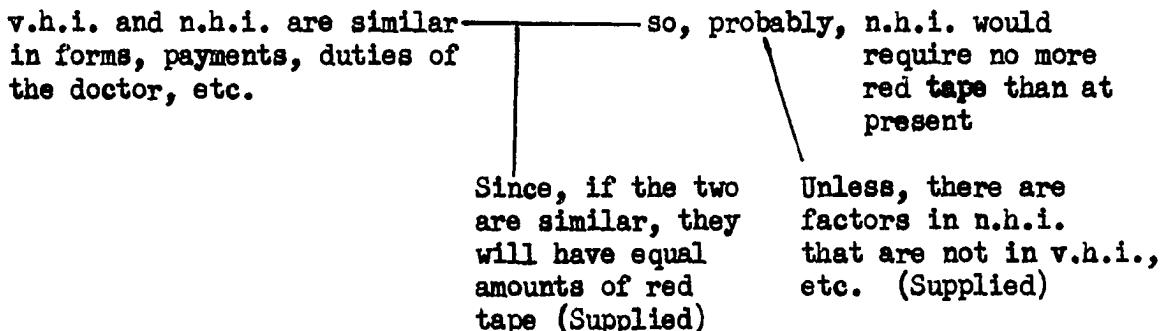
#### Sample A:

Now what about the doctor under national health insurance? You hear a lot of talk about regimenting doctors, about doctors spending long hours making out reports, socialization of medicine etc., etc. You can put all that talk down as just plain "baloney." The proof of this is very simple. Today, the doctors are almost all plugging for voluntary health insurance. But under voluntary health insurance, doctors have the same problems regarding the making of reports, arrangements for payment of their services, handling of hypochondriacs, etc., as they would have under national health insurance. The only difference between national health insurance and voluntary health insurance, so far as the doctor is concerned, is that his bill would be paid by a check from a national insurance fund instead of from a private insurance fund.<sup>1</sup>

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<sup>1</sup>Oscar R. Ewing, in Harding, 354.

### Layout of the Argument



The two situations being compared are voluntary health insurance policies and a national health plan. The speaker asserts that doctors have the same requirements under voluntary health insurance that they would have under national health insurance. The two plans are similar in terms of their procedure, forms, etc. Therefore a conclusion drawn about the plan of voluntary health insurance can reasonably be applied to national health insurance also. The question is one of "red tape," and there is an implicit assertion that the voluntary system does not regiment doctors, make them fill out long forms, etc. This descriptive generalization is asserted about the national program on the basis of the similarities between the two programs. To refute this argument, the differences between the two plans would be demonstrated, differences which relate to the point in question. Evidence could be presented to show that more forms would be required, that more hypochondriacs would be expected to appear at offices, and that other differences would obtain.

### Sample B:

In the course of my whole life, I have never heard before so much said about the particular counsel who happen to be employed; as if it were extraordinary that other counsel than the usual officers of the government should assist in the management of a case on the part of the government. In one of the last criminal trials in this country,

that of Jackman for the "Goodridge robbery" (so called), I remember that the learned head of the Suffolk Bar, Mr. Prescott, came down in aid of the officers of the government. This was regarded as neither strange or improper. The counsel for the prisoner, in that case, contented themselves with answering his arguments, as far as they were able, instead of carping at his presence.<sup>1</sup>

#### Layout of the Argument

In a previous, similar case an outside counsel assisted the prosecution

so, probably, it is not unusual for an outside counsel to assist the prosecution and the defense should not complain

Since, if the two situations are similar, there is precedent for the outside counsel and the reaction to it should be the same. (Supplied)

Unless, there are other factors which make this situation different. (Supplied)

In this particular court trial (the White Murder Case), Webster went to Salem, Massachusetts, to assist in the prosecution. The defense lawyers were understandably not pleased with Webster's presence, and in this argument Webster contends that there is nothing strange or unusual about the presence of a person who is not of the regular court. He cites a previous case tried in the same country, and points out that in that case an outside prosecutor was present, and at that time the defense attorneys did not complain about his presence. Therefore he concludes that the two situations are similar and the defense attorneys have no basis for complaint. To counter this argument, the defense attorneys might point out that the precedent is not the disturbing element, but the presence of a person of Webster's stature, which could be expected to carry undue weight with the jury. Or they might claim that the situations

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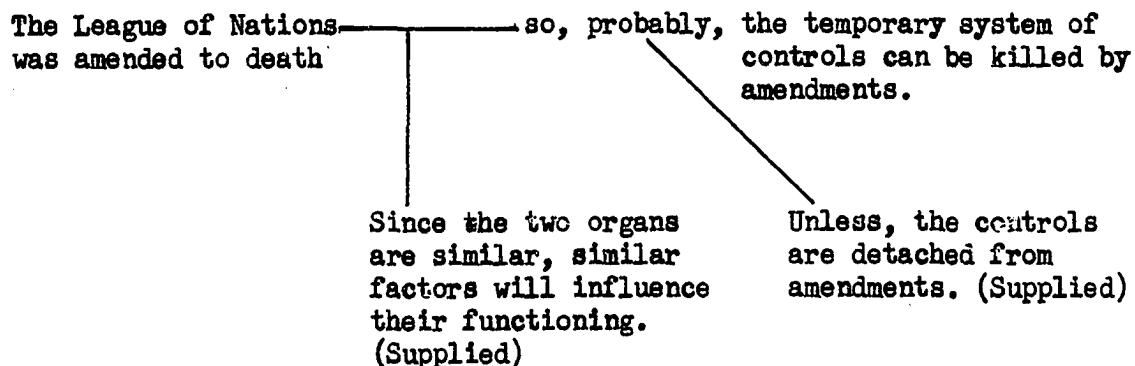
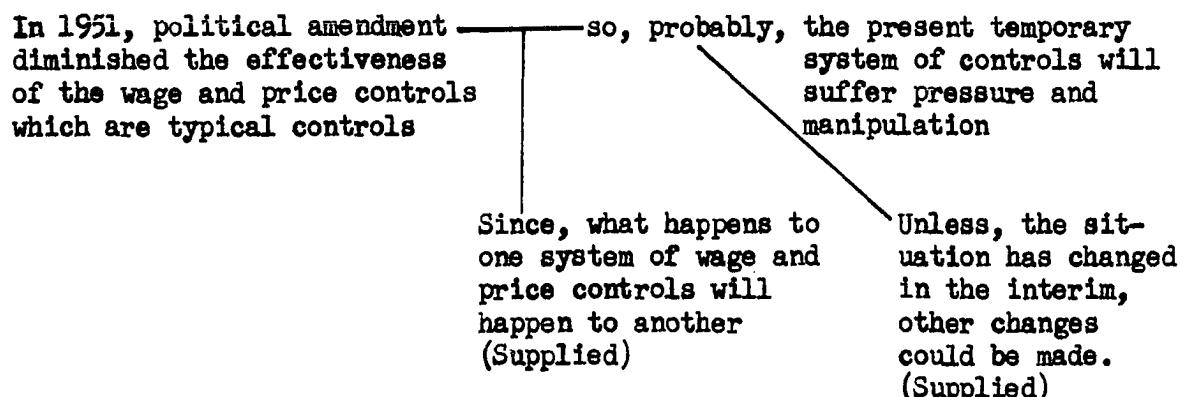
<sup>1</sup>Daniel Webster, in Parrish and Hochmuth, op. cit., p. 127.

are not actually similar; that the position of Prescott was different from that of Webster.

Sample C:

The final inadequacy that we find is that a temporary system of price and wage controls encourages excessive political pressure and manipulation upon this agency as it is needlessly forced year after year into the controversial political arena. Under the present system, this agency has had to come up year after year for renewal, and we saw back in 1951, when it did come up, that the debilitating Capehart Amendment was added to it and, therefore, diminished its effectiveness. We find, as we look at the League of Nations, that you don't have to kill an organization outright to make it less effective; just amend it to death, just keep adding amendments time and time again, and ultimately you are going to see that your agency is not effective.<sup>1</sup>

Layout of the Argument




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<sup>1</sup>John Claypool, in Windes and Kruger, 209.

Here seem to be two arguments from comparison. The first says that what happened to the temporary controls program in 1951 could happen to any plan. The controls of 1951 are asserted to be similar to the controls in effect at the time of the argument, and therefore, what happened to the controls in 1951 can happen to the controls in 1952. Since these are generally the same type of controls, the conclusion can be applied to the present laws. The refutation would consist of demonstrating changes in the controls, in Congress, in the structure of the controls, or in other factors which would prevent the reoccurrence of such a situation.

The second argument is a comparison of the wage and price control system with the League of Nations. The similarities here are more general, but might be something like these: both are political organizations concerned with making policy and executing it; they both depend upon outside authority for their authorization; they both may be obligated to enact unpopular programs; both are subject to control from outside. With these similarities, the speaker points to the League and how it was modified and "amended" until it was incapable of effectual action. Because of the similarities, this situation can also occur, says the advocate, with the price and wage control system. To refute this argument from comparison, one might point out the fact that the League failed for many reasons, not just because of amendments. Therefore the conclusion drawn about the first situation would not be justified, and so could not be applied to the second situation. Differences between the two situations may be presented: the nations in the League did not give up sovereignty while the Congress delegates authority to a controls board. And further, one can say there is no valid comparison between an international

confederation and a quasi-legislative board in control of economic factors in a nation.

#### Commentary on the Process

The argument from comparison is labeled "literal analogy" in all argumentation texts which have been studied for this dissertation with the exception of Alan Nichols' text, which labels it "example." Aristotle also labels this process as "argument by example."<sup>1</sup> In contemporary literature, analogy is divided into literal and figurative analogies. The difference is described by Braden and Brandenburg:

Ordinarily analogies are divided into two types, literal and figurative. The first compares objects or events in the same or similar fields or classes: war with war, apples with apples, and men with men. The second type compares object or events in different fields: a three-legged stool with government, a football team with a battering ram, and an airplane crew with a machine.<sup>2</sup>

This form of argument, which I label argument from comparison, corresponds to the literal analogy in standard classifications. It seems advisable to me to treat this process as distinct from the figurative analogy with which it is usually classed. There are several reasons for this. The main reason is that the argument from comparison involves a different process from analogy in arriving at a conclusion. This will be apparent in the description of the two processes. Further, argument from comparison can be highly probative, while argument from analogy can never be. It is

<sup>1</sup> Rhetoric II, 20 (1393a). Aristotle does not mean argument from example to generalization, which is the current understanding of the argument from example, but rather he intends that the speaker utilize a factual example to compare with another factual situation, and apply conclusions from the first to the second.

<sup>2</sup> Braden and Brandenburg, op. cit., p. 128.

not a question of degree, as often asserted, but the result of the processes used to demonstrate the conclusions. Further, the argument from comparison must be evaluated or tested in ways which are different from the tests of reasoning for the argument from analogy. These reasons should be adequate to justify separating these two types of reasoning and conceiving of them as two different and distinct forms.

Two theorists on argumentation, Karl Wallace and Arthur Kruger, have each set out strong claims that even the division of analogy into figurative and literal sub-classes is illegitimate, and that all analogy is one process of reasoning: omnia analogia est divisa en partes unus. This theory will be discussed later after the process of reasoning considered here is explained.

The process involved in comparison can be described in this way. Two similar situations, contexts, or events are presented. One is the situation about which the speaker wishes to draw a conclusion; the other is a factual situation of the same kind as the first situation. A statement or conclusion which is true about the second event is asserted to apply to the first event. The assumption is that the same relationships of facts, correlative relations, or characteristics apply in each situation. Therefore, what can be said about one situation can also be said about the second situation.

Many types of conclusions may be drawn by this method, although textbooks usually list only one, which is that of predicting characteristics. That is, one may assert that some characteristic, as yet unobserved, will be found because of its presence in the compared situation. Another type of conclusion which may be reached is that of prediction of

effects. For example, in justifying the Korean War, President Harry Truman said:

The course we have been following is the one best calculated to avoid an all-out war. Our experience in Greece and Berlin shows that it is the most effective course of action we can follow.<sup>1</sup>

There is an implicit prediction of what effects the action will have on the world situation. This sort of conclusion is based on causal relationships which are operating. Another type of conclusion is one in which a classification is made on the basis of similar criteria in the compared situations. The sample argument B by Daniel Webster illustrated this conclusion. Webster classifies his presence as normal and acceptable by showing a previous situation where the same facts were present and where they were classified as normal and acceptable. In a sense this is saying, "We classified this in x way before, so we should do the same now." In general, the comparison is almost a free-floating argument process: it can support many different types of conclusions. Kruger comments:

Reasoning by direct analogy involves a comparison between two sets of data. From the known structure of one set, knowledge concerning some unknown portion of the second set is inferred. The basis for inference is that the structure of the second set is the same as that of the first and that consequently invariant relationships, whether descriptive or causal, which are manifested in the first set will be manifested in the second.<sup>2</sup>

Let us note the process more specifically. There seem to be five elements involved.

1. A particular event, situation, or complex is presented by the advocate. It may be described in detail or not.
2. An assertion is made about event #1. This assertion # 1 may be

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<sup>1</sup>Harding, op. cit., p. 144.

<sup>2</sup>Kruger, op. cit., p. 181.

a descriptive generalization, a classification, a correlation, etc.

3. A second event is presented and shown to be similar to event #1 in terms of factors such as causes, characteristics, facts, and relations which are relevant to the conclusion.

4. A hidden warrant implicitly occurs just before the conclusion.

It can be stated symbolically as:

$$(x) Ax \cdot Sxy = Ay$$

This can be phrased verbally as: for any event if it has some particular characteristic, and there is another event which is highly similar to that event, then the other event probably has that characteristic also. Of course, by "highly similar" we refer to the elements in step 3.

5. Assertion #1 is claimed to hold for event #2. This is the conclusion of the argument.

Let us consider two general types of conclusions and the use of comparison to prove them. We will begin with causal comparisons. In these there is the assertion of effects or the use of reasoning from sign. Most argumentation texts say that argument from "analogy" involves moving from one particular instance to another particular instance, rather than from instances to a generalization. However, most also observe that a generalization is implicit: from the particular instance a generalization is drawn and then applied to the second particular instance. This is true. There is an implicit generalization involved which is phrased symbolically in step four of the process. When the comparison is such that the conclusion #1 involves the application of causal generalization, these generalizations are not one principle, but are a complex of

relationships and facts. Consider the argument of Michael DiSalle, in explaining why the price freeze during the Korean War was taking hold slowly:

I know that Mr. Reuther, Mr. Newsom, and all you good people listening tonight want to know why prices have continued to go up after the freeze. We remember that prices continued to rise for over a year after OPA's general maximum price regulation. This was even after a year of what was called "jawbone control," and the issuance of over one hundred schedules. Our price freeze is less than a month old with our very first action, the issuance of voluntary standards, dating back to December the 19th.<sup>1</sup>

To list the causal factors in this comparison would be difficult, as textbooks on economics illustrate, but clearly they are causal and clearly they are complex. The point to note is that it would be difficult in most comparisons to isolate single generalizations out of the complex, because many are woven into the situation, and to isolate one would be to take it out of the context and hence lower its probability. So the generalization is virtually one which applies only to this specific type of situation and might be phrased, if it could be, in terms of the specific facts and relationships of that narrow range of similar situations. The conclusion thus depends upon the probability of the conclusion on the basis of the causal factors operating in the first situation, and how many of these factors exist in the second situation in the same relationship. Necessary cause is not enough; sufficient cause must be present.

The above example also illustrates another point in the use of comparison. Rarely are the similarities "spelled out" in argumentative discourse. They are considered self-evident, or the advocate assumes that the brief mention of the two situations will be adequate to indicate

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<sup>1</sup>Harding, 287.

their similarities. When Robert Oliver says, "The persuasive speaker should seek for a logical basis which will permit him to prove as little as possible..." he might well direct the speaker to comparisons.<sup>1</sup>

The other general type of conclusions which arguments from comparison may support can be termed verbal conclusions. This is the argument from criteria or the argument from definition. In the argument B from Daniel Webster we see the use of comparison to classify a situation on the basis of criteria. This process occurs frequently in legal argument, where the concept of precedent is based on comparison. Kruger notes this:

This principle is especially apparent in the field of law, where direct analogy is the basis for deciding most law suits. That is, on the basis of a decision handed down in one set of circumstances, a structure or principle is abstracted, which is now applied to subsequent cases whose structure appears to be similar.<sup>2</sup>

The justification for the classification is presented by the comparison, which shows that events have been classified in that manner previously. Sometimes this classification may be somewhat hidden, as in this comment on the classification of the fall of Europe as "dangerous to the US."

Our military men, we know now, were full of apprehension as to what would be the consequences to the United States of the loss of the British Isles. The margin of victory then was narrow enough, we all recall. But with the weapons of the 1950's an enemy in control of the channel ports would be far more dangerous, perhaps impossible to stop.<sup>3</sup>

The speaker points out that we classed the situation as "dangerous" in 1940, and with the added war potential of the new weapons, the situation will be even "more dangerous" in the 1950's.

<sup>1</sup> Robert T. Oliver, The Psychology of Persuasive Speech (New York: Longmans, Green, 1957), p. 227.

<sup>2</sup> Kruger, op. cit., p. 183n

<sup>3</sup> James B. Conant, in Harding, 263.

The process involved in using a comparison to argue from criteria is one of demonstrating that the same criteria are operating and are fulfilled. The speaker usually demonstrates that the characteristics of the two situations are similar, therefore, the same classification should apply.

In argument from definition, the process moves in the opposite direction. Again, observing judicial decisions we can find many examples. Here again, argument from precedent utilizes this process. Once a charge has been classified in a certain way, the attorney can argue from precedent that a certain decision should be rendered to be consistent with the law regarding that charge. The attorney can compare the application of the law in previous cases to the present case and suggest that the same principles be followed. This is an approach taken by Clarence Darrow in his plea against capital punishment for Leopold and Loeb. He pointed out that no killers under twenty-one had been executed by hanging in Illinois, but instead the courts applied the penalty of life imprisonment. He presented previous applications of the law and compared them to the case in question to show how the law had been interpreted before, and therefore should be so interpreted again. The essential requirement in supporting the comparison is to show that the definitions of the situations are the same (the principles, classes, values, etc., are the same). Once the definitions are established as similar, then consistent conclusions drawn in the first situation can be claimed to apply to the second situation as well.

It should be clear at this point that argument from comparison can establish a high degree of probability. It is not certain, however, only

probable, as Copi points out: "No argument by analogy is intended to be mathematically certain...Probability is all that is claimed for them."<sup>1</sup> But because of the generalizations involved, the argument can be highly probable. In the comparison involving causal generalizations, the conclusion is as probable as the strength of the causal factors operating in common between the two compared events. If enough causal relations operate in both instances, then conclusions about one can be asserted with the same degree of probability about the other (with the usual qualifications about other interfering factors, broken causal chains, etc.). And this can produce highly probable conclusions.

The same approach to probability will apply to conclusions from criteria and from definition. If the situations are similar in the necessary characteristics, and there are no inconsistent characteristics, then the classification according to the criteria is strongly justified. In like manner, if the definition can be established with certainty, then the application of the definition will follow for both instances.

Using the above approaches to the argument from comparison, it can be made into strong rhetorical proof, with conclusions which have reasonably high probability.

#### Evaluating Argument from Comparison

The tests for argument from comparison fall into two general groups. The first two of the tests apply to testing event #1 to justify its use as a comparison. The last six tests apply to the comparison with the second event. These are the two aspects of the process which contribute

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<sup>1</sup>Copi, op. cit., p. 313.

to its probability.

1. Is the conclusion (assertion) reasonable for event #1?--The conclusion, assertion, or generalization drawn about the first event in the second step of the process must be a legitimate conclusion, whether it is a causal generalization, a descriptive generalization, a definition, or characteristics. This can be tested by the tests of reasoning for the particular type of argument being used. It is obvious that unless the conclusion about the compared event is accurate, it can not be applied to the second event. In sample C, for example, one might question the assertion that the League of Nations was killed by amendment.

2. Do the events and the factors involved seem to be typical of their type?--This is, in a sense, a way of testing the reasonableness of the pattern, which will tell whether it can be asserted to apply to other examples of the same type. The test for typicality is also a question of educated judgment, like the tests for typicality in argument from example. From the general knowledge of the factors or characteristics operating we can evaluate how reasonable it seems for these factors to occur in such a situation. Another way of phrasing the question might be, "What is the probability of the existence of these elements in the context of such a situation?" The more likely the existence of these elements, the stronger is the argument. This is what Baird terms testing the underlying generalization.

3. Are the elements which are compared really similar?--In step three of the logical process, there is the assertion that certain elements in each of the two situations are similar. For the comparison to be valid, these must actually be similar; if they are not, there is no

sound comparison possible. For example, in Truman's justification of the Korea action by comparison with Greece and Berlin, the situations are not similar. Neither Greece nor Berlin developed into a war which involved the United States and other Free World nations.

4. Are the similar elements the essential elements or factors?--

The common characteristics must be relevant to the conclusion drawn. If this were not true, the generalization could not be reasonably formed and applied to the second situation. Note that the similar characteristics may be only implied or may be very generally stated, so that they must be inferred by the one testing the argument. There are, of course, problems in determining which factors are relevant. Copi defines "relevant" in this way: "One property or circumstance is relevant to another, for purposes of analogical argument, if the first affects the second, that is, if it has a causal or determining effect on that other."<sup>1</sup> We would agree, I think that the characteristics involved in the imposition of wage and price controls are the essential characteristics: economic pressures, previous commitments, desire not to comply, profit seeking, etc. These are the elements which make the price controls difficult to apply.

5. Are an adequate number of essential similarities presented?--

Enough similarities must be presented to make it reasonable that the conclusion can be applied to the event #2. Consider this argument by Louis N. Ridenour on the changes in weapons. The first part of the argument consists of examples of technological progress in the last half century. Then he makes a specific comparison:

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<sup>1</sup>Copi, op. cit., p. 322.

Of course, all this has had a profound effect on the tools and methods of warfare. Former Secretary Patterson pointed out that we finished World War II with weapons which were more than 90 percent new. That is, more than nine out of ten of the new weapons in the hands of our troops at the end of the last war were new either in the sense that they had been designed *de novo*, or very completely redesigned, since the beginning of that conflict. The weapons suggested by World War I, of which the Maginot line was perhaps the epitome, were of little use in the second World War. By the same token, we must expect that our ideas of weapons and strategies based on World War II are likely to be incomplete or misleading as guides to the future of armed maneuver and of warfare.<sup>1</sup>

This quoted comparison, by itself, is not as strong as the total argument, which is not quoted. However, the similarity of continued technological progress is an essential similarity which must be present for the conclusion to hold true. After all, for hundreds of years there were little basic changes in the weapons and strategies of war, and it is only with the technological progress of modern times that radical and new weapons have been developed. So to prove that we cannot rely on old weapons, just as World War I weapons were changed for World War II, we must also show that the technological progress which made this possible is still present. This similarity must be included to show that the conclusion applies.

6. Are there any differences in essential elements?--If there are further factors in the two events which are different and which are "relevant" in the sense that they would affect the conclusion, these may weaken the argument. This test may be rephrased by saying that any differences in the two events must be non-essential, or non-relevant differences. Nichols quotes Sidgwick in discussing the comparison, arguing that because the government has successfully operated the postal service,

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<sup>1</sup>Harding, 314.

it can also operate the railroads:

What we do, whenever we argue by analogy from case  $\beta$  to case S, is to class these two cases together, though only for a special and limited purpose. We are, or profess to be, sufficiently aware of all the differences that exist between, say, the postal service and the railway service, but we claim that for the one purpose of satisfactory management in the public interest these differences are negligible. When we say that any two things are essentially the same we never mean that they are precisely similar in every respect; but that, though different, their difference is unimportant as compared with their resemblance.<sup>1</sup>

7. Is the strength of the conclusion reasonably relative to the known similarities?--Considering all of the above factors, then, the argument should be considered in terms of the conclusion in relation to the premises. The more specific and the more extreme the conclusion, the less probable it is. Copi illustrates by saying that because your Plymouth gets exactly eighteen miles to the gallon of gasoline, then mine will also. Knowing what we know about automobiles, and knowing the normal similarities and differences between the two cars and drivers, we could conclude that this conclusion is extreme, and that a conclusion of a range of mileage would have greater probability. In other words, the two events compared may be legitimately compared, but this does not mean that any conclusion is reasonable; the strength of the conclusion must be relative to the premises.

This test, it will be noted, is another of those apparently circular forms of rhetorical reasoning, because it is rather clear that you can not know whether the conclusion is appropriate to the premises without knowing about what sort of conclusion is expected from the premises to

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<sup>1</sup>Alan Nichols, Discussion and Debate, (New York: Harcourt, Brace, 1941), p. 360.

begin with. However, in advocacy, the speaker and the audience bring to bear their background and experience regarding the situation, and with this external (to the statement of the argument) information, the strength of the conclusion can be judged.

8. How many events are utilized in the comparison?--Truman referred to Greece and Berlin in drawing conclusions about Korea; to advocate government management of the railroads we could compare the postal service, and the Tennessee Valley Authority. The larger the number of comparisons which can be cited, the more likely the conclusion will be. This is because each comparison serves to support the generalization in a causal conclusion, the classification in a comparison involving criteria, or the application of a definition. The more cumulative the comparisons, the more probable is the conclusion.

### 8. Argument from Analogy (Figurative Analogy)

This has been considered another form of argument from comparison, and it has been the more controversial. Some authors have asserted that it proves nothing, while others have claimed that it is definitely probative. In any event, people who argue use analogy as reasoning, so it deserves consideration.

#### Definition of the Process

To support a conclusion, a comparison is made between the situation under consideration and another situation. The second, analogical event is similar, not on the basis of facts or circumstances, but on the basis of abstract principles; the structure of the abstract relationships of the two events is the same. The conclusion which is drawn about the analogical event is applied to the topic situation.

#### Sample Arguments

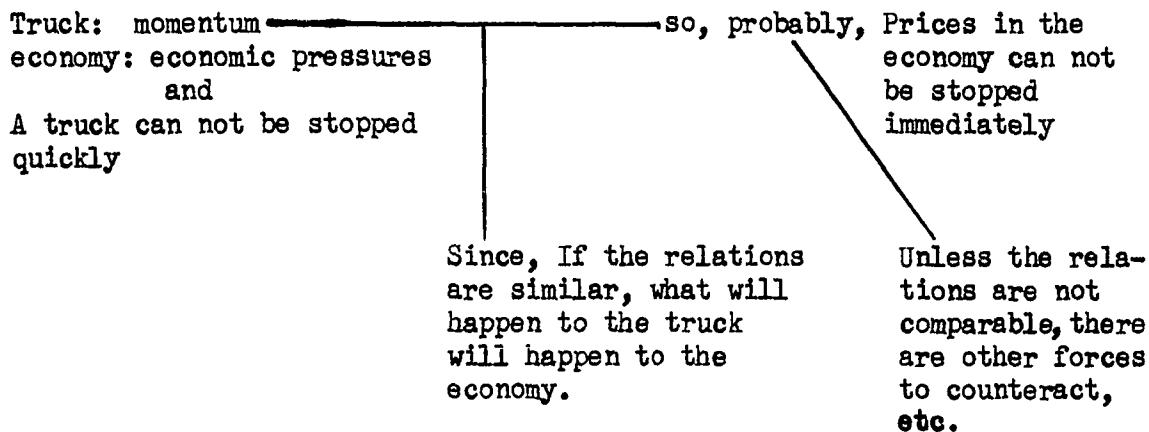
##### Sample A:

I know that Mr. Reuther, Mr. Newsom, and all you good people listening tonight want to know why prices have continued to go up after the freeze. You and I realize that we cannot simply apply the brakes suddenly to a truck going seventy miles an hour without a smash-up. You have to apply the brakes gradually. We must be fair to three million business concerns selling more than eight million items. And we must protect 152 million American consumers.<sup>1</sup>

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<sup>1</sup> Michael DiSalle, in Harding, 287.

### Layout of the Argument



The argument compares the economy to a truck. Just as a truck has forces which have built up at its high speed, so the economy has forces and pressures. Just as the truck must be slowed gradually, so must the pressures of the economy be slowed gradually. The relationship between the truck and momentum are asserted to be the same as the relationships between the economy and economic pressures, thus the conclusions that can be drawn about the truck (momentum on the basis of the relationships) can also be drawn about the economy (pressures). This is the basic process in argument from analogy, and if it is well applied, it would seem probative. In this particular case, it is not well applied. The speaker is discussing wage and price controls, but the economic pressures affected by wage and price controls are not comparable to the momentum of a truck going seventy miles per hour. In one there is a high amount of energy which maintains the movement of the vehicle; in the other, there is no comparable "movement" of wages and prices--there are no strong forces effecting great pressures and causing "economic momentum." Perhaps a more valid analogy would be to compare the problem to one of keeping the speed of

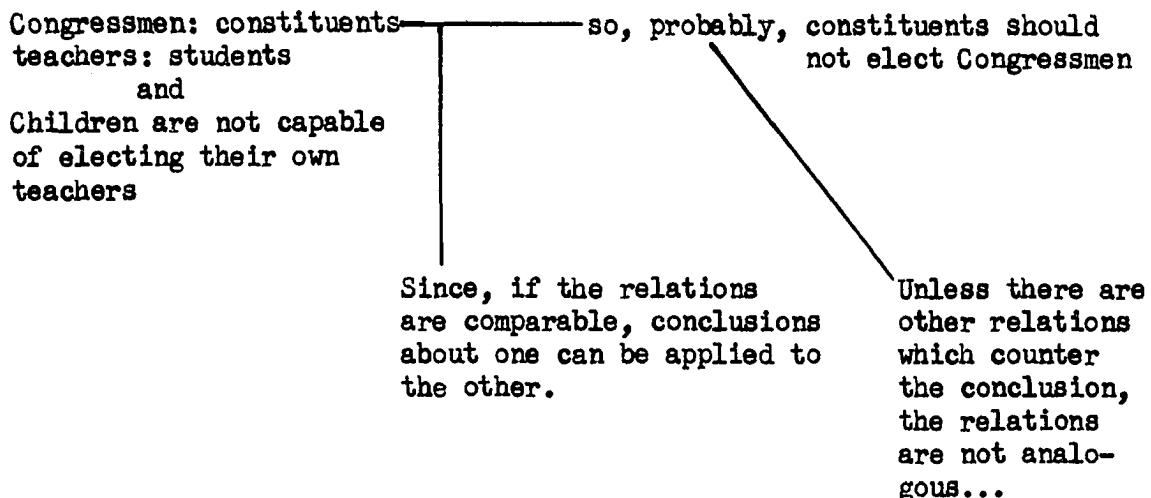
the truck constant instead of accelerating. This, however, would make the conclusion impossible. The main attack on this particular argument is that the relationship cited do not apply to the situation under consideration.

Sample B:

Robert Thouless reports on an analogy:

I have also heard the democratic election of members of Congress attacked on the grounds that children are not regarded as capable of electing their own teachers.<sup>1</sup>

Layout of the Argument



Thouless comments on the analogy:

Again, however, the analogy is obviously imperfect. Adult men and women are presumed to know more about the qualities required of an efficient ruler than children know about those of a good teacher. Moreover, governing and teaching are such very different functions that a method of selection serviceable in the one case may not be in the other. In addition, the democratic selection of the governing class partly serves to secure that those who rule shall not do so in their own interest; no similar problem arises with teachers. In fact there is so little analogy between the selection of teachers and a Congressional election that no conclusions can safely be drawn by analogy from one to the other, whatever other weighty and reasonable

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<sup>1</sup>Thouless, op. cit., 112.

objections may be urged against democracy.<sup>1</sup>

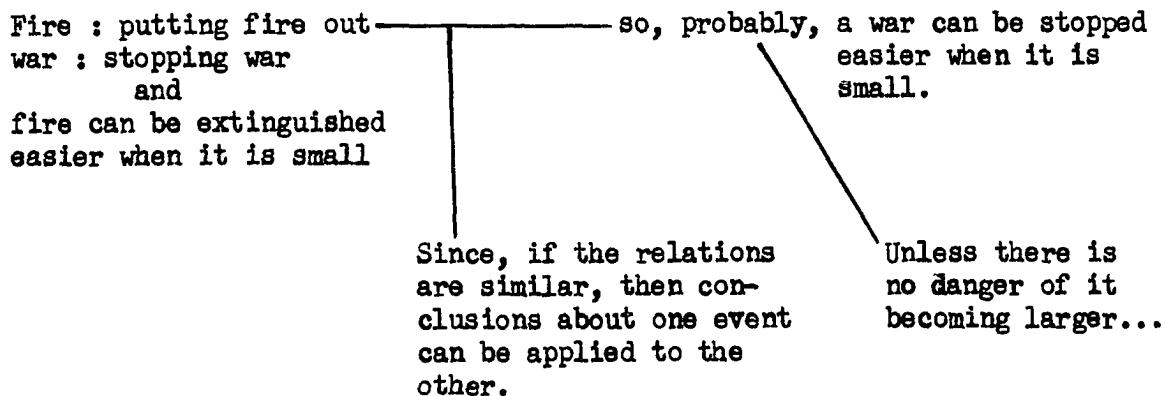
Note that the process of the argument is based on the validity of the analogy of relations: constituents are to Congress as students are to teachers. If this relation is true, then a conclusion about the analogical situation can be applied to the situation under discussion. In sample A, the relations compared were reasonably similar, but the conclusion drawn did not follow from the relations. However, in this sample, the two relations which are compared are not in any way analogous, and the argument fails.

Sample C:

In explaining the importance of the United Nations action in Korea, President Truman said:

The best time to meet the threat is in the beginning. It is easier to put out a fire in the beginning when it is small than after it has become a roaring blaze.<sup>2</sup>

Layout of the argument



The structure of this reasoning is clear, and I think there would

<sup>1</sup>loc. cit.

<sup>2</sup>In Harding, 141.

be little disagreement about classifying it as argument. To justify the immediate action in Korea on the general basis that wars tend to get bigger, and that action at the first outbreak is more likely to have effect than action later, involves elaborate explanation. However, the relations suggested are immediately apparent and are similar enough to demonstrate the logic of the situation. The suggestion is that a fire will get bigger if not extinguished, and if it is allowed to get bigger, then it will be much more difficult to put out. There is the further association of the necessity of putting out a fire and not allowing it to burn unchecked. These relations are applied to a war: it begins small and becomes larger; it is undesirable and should be stopped. And, like a fire, because of the relations involved, it can be more easily stopped at the beginning than later. Because the principles are similar, the conclusion for one set can be applied to the other, and on the basis of that conclusion about war, Truman can say what action should be taken in this specific war.

Of course, the argument is not perfect. One criticism might be that we have no assurance that the war in Korea would become larger and would spread as a fire might.

#### Commentary on the Process

The first question to consider is whether argument from analogy is really an argument or is instead only an illustration. Almost all authors in the field of argumentation do not consider it to be a form of proof. One text says, "Figurative analogies are useful for illustrative purposes

only and have no probative force."<sup>1</sup> However, some authors assume a more tentative attitude and grant that the analogy has "little if any probative value..."<sup>2</sup> The use of the analogy in psychological proof is described by Freeley:

Carefully developed literal analogies may be used to establish a high degree of probability. Figurative analogies, on the other hand, have no value in establishing logical proof. If well chosen, however, they may have considerable value in establishing ethical or emotional proof, in illustrating a point, and in making a vivid impression on the audience.<sup>3</sup>

On the other hand, Karl Wallace and Arthur Kruger view both the literal analogy and the figurative analogy as probative, and say that the degree of probability depends upon the similarities between the structural relations in each case.<sup>4</sup>

Solely in terms of the samples of argument which I have observed, I think it is reasonable to classify analogy as a separate form of argument and as one which has probative force. Certainly it is true that analogies are used frequently for illustrative purposes, but there are also cases in which conclusions are drawn on the basis of analogical comparisons. The difference between the illustrative and the argumentative analogy is stated by Robert Thouless:

These illustrations are merely intended to give a vivid picture of an abstract matter; they are not meant to be a method by which we can find out anything new about it. When, on the other hand, we use a

<sup>1</sup>McBurney, O'Neill, and Mills, op. cit., 107.

<sup>2</sup>Lionel Crocker, op. cit., 66.

<sup>3</sup>Freeley, op. cit., 94.

<sup>4</sup>Kruger, op. cit., 181 ff.; Karl Wallace, "On Analogy: Re-definition and Some Implications," in Studies in Speech and Drama in Honor of Alexander M. Drummond, (Ithica: Cornell University Press, 1944).

concrete illustration in order to deduce new conclusions, it is no longer a mere illustration, it is an argument "by analogy."<sup>1</sup>

When conclusion are drawn on the basis of the analogy, then it is an argument. In the samples of argument, you will observe that the premises of the argument consist of two elements: first is a statement of the similarities which are asserted, and second is a statement about the analogical situation. The conclusion of the argument is the translation of the statement into the context of the second situation.

The basic structure of the analogy involves an equation of relations. Wallace uses the metaphor of the "ratio" to refer to this. He means by this that a metaphorical equation can be set up to show the relationships asserted to apply in the analogy:

king : state    head : body

The assertion that the king is to the state as the head is to the body, and therefore, King James I of England concluded, if you cut off the head of the state, the state will be unable to function.<sup>2</sup>

Argument C provides another clear example of the establishment of a similarity of relations. The relations in the analogical situation may be drawn from many sources, it will be noted--life experience, a maxim, fables, or parables--only the structure of the relations is important.

The probity of the argument is dependent upon the relations which are set up as similar. The relations are abstract, in the sense that

<sup>1</sup>Thouless, op. cit., 103.

<sup>2</sup>This is an argument cited in Fearnside and Holther, op. cit., 25. They comment that this is a figurative analogy, and hence proves nothing, although one might observe that James I thought it did.

they have only structural, or psychological, or metaphorical similarities. This is a difficult concept to verbalize, and perhaps the reason is that we have no vocabulary for it, but the concept can be easily seen from noticing the samples of analogy and observing the differences between them and the samples of argument from comparison. In arguments from comparison, as I have defined it, the facts and the evidence are similar; they are drawn from the same type of event. Argument from analogy uses comparisons in which the facts are not similar, but rather the broad generalizations of relations are similar.

The proof value of the argument from analogy lies in the validity of the correlation of relations. If there are legitimate similarities between the relations so far as they are described, then statements about the first set of relations can be made about the second set of relations. (Qualification: the conclusion must be related to the relations. It can not assert facts, irrelevant extensions of the situation, etc.). If the relations are comparable, then the conclusion has probative force.

This analysis, of course, makes the weakness of analogy clear; it is very difficult to get relations that are comparable enough to enable reasonable conclusions. This is why figurative analogies have been frowned upon by theorists on argumentation as lacking force, and why such popular authors as Stuart Chase and Robert Thouless include chapters in their "straight thinking" books on fallacies of the argument by analogy. But it is well to note that these two writers do not defenestrate analogy, but instead suggest precautions about using it for more than it is worth.

In analogy, more than in other forms of reasoning, the experience

of the listener is used in supplying support for the argument. It gains strength by evoking understanding and experiential support in the mind of the listener for the principles it asserts. In a sense, it may provide a guide for the thinking of the listener which, it is presumed, will agree with the conclusion on the basis of experience with the relations. The argument is a clue to proof. The listener fills in the details, one might say, and then if he agrees that the relation is valid, and it holds from case to case, then the conclusion holds. This means that the proof is more in the ear of the hearer than in the words of the speaker. This does not, however, keep it from having logical force as proof. Here is a sample in which the relations are stated and conclusions drawn. All of the facts of the relations are not cited, but they are apparent on a moment's reflection and appear reasonable.

Every species of plant or animal is determined by a pool of germ plasm that has been most carefully selected over a period of hundreds of millions of years.

We can understand now why it is that mutations in these carefully selected organisms almost invariably are detrimental. The situation can be suggested by a statement made by Dr. J. B. S. Haldane: My clock is not keeping perfect time. It is conceivable that it will run better if I shoot a bullet through it; but it is much more probable that it will stop altogether. Professor George Beadle, in this connection, has asked: 'What is the chance that a typographical error would improve Hamlet?'<sup>1</sup>

The relation to the clock and Hamlet of the gene pool is not made explicit, but it can be understood, accepted, and used as the basis of a conclusion. This example illustrates another characteristic of the analogy, which has been noted by Karl Wallace: the analogy often takes an unfamiliar situation and makes it clear by comparing it to a familiar situation.

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<sup>1</sup>Linus Pauling, quoted in Copi, op. cit., 350-351.

The model or map is always more familiar than the ground or basis it illuminates, and thus aids in the ordering and communication of thought. In rhetoric this is seen readily in the fable, the parable, and the example.<sup>1</sup>

This is why the analogy has ethical, emotional, or illustrative proof; it presents an unfamiliar situation in terms of a vivid, clear, familiar situation.

The view of the unity of the arguments from comparison and analogy held by Wallace and Kruger needs to be considered. These theorists consider both the figurative and the literal analogies to be the same type of argument, varying only in degree of resemblances, and so can be treated functionally as one. Wallace considers two types of analogies. The first is the simple behavioral act of responding to a stimulus, and in this context, an analogy is an identity of responses which are made to two unlike stimuli. The stimuli have some similar elements and these are selected and responded to by the organism. This is what the psychologist calls stimulus generalization. The second type of analogy is what is termed in symbolic logic and the philosophy of science as an isomorphic relation. This occurs when for two situations, a one-to-one correspondence between individual elements of each situation can be obtained. This can be described as a mapping relation, since for each relation  $N_1$  in one context, there is a corresponding relation  $n_1$  in the other context, just as points on an accurate map can be correlated with points on the territory which it maps. When this is the case, Rudolf Carnap comments, the two contexts are said to have the same structure.<sup>2</sup>

<sup>1</sup> Wallace, op. cit., 420.

<sup>2</sup> Wallace, op. cit., 419. For the logical statement of isomorphism, see Rudolf Carnap, Introduction to Symbolic Logic and Its Application, (New York: Dover, 1958), 75-77.

Wallace considers this isomorphic relation to be the basis for analogy.

He concludes that "whereas the simpler cases of analogy may be described as an identity of response (or relationship) between two unlike stimulus-patterns (or contexts), the complex analogy may be termed an isomorphic relationship between two unlike contexts."<sup>1</sup> From this definition he concludes that figurative and literal analogy need not be separated.

Actually there would seem to be no good grounds for such a distinction. If our earlier sketch of analogy be acceptable, the "figurative" variety is a case where the two contexts are different to the point of being outside their "normal" category, class, or kind, and the "literal" variety is an instance where differences between the two contexts are held to a more restricted area, the traditional class. In the former case, the identity of relationship is usually single; in the latter, it is manifold. Put in this way, is it not evident that in the figurative analogy the differences, no matter how great, may yield a ratio that is just as sound or real as any that obtain in the literal analogy? To say that London : England :: heart : body may have the force of a fact; whereas the literal analogy with its many relationships may at best attain a high degree of probability. Is it not plain, moreover, that any figurative analogy, though it may be first discovered as a single relationship, is potentially many-sided? We can often extend it and make its isomorph.<sup>2</sup>

Kruger takes a similar viewpoint and classes figurative and literal analogy together:

As for figurative and literal analogies, while it is true that things resembling one another in many ways are more likely to have in common certain structural relationships, it is also possible that things unlike in many ways may exhibit the same structural relationships. A map of a given territory, for example, and the territory itself are surely dissimilar in many ways; yet both have in common a certain structural relationship. And it is the structural relationship which is important in analogy, as in all reasoning.<sup>3</sup>

Both Wallace and Kruger ultimately base their classification on the concept of structure: each situation has elements that stand in similar

<sup>1</sup>Op. cit., 419-420.

<sup>2</sup>Ibid., 421.

<sup>3</sup>Kruger, op. cit., 182-183.

relations to each other; in some way they exhibit similar structures. On this basis they are both perfectly correct in their classification, because it is true that both the comparison and the analogy involve showing similarities between two or more cases. However, this virtually amounts to repeating the definition of analogy in other words, because the definition of an analogy almost always includes the statement that the two compared cases have certain elements which are similar to each other. This is, when applied, the same as saying that certain of their structures are the same. The distinction missed by both Wallace and Kruger is that there are differences in the types of structures which are compared in analogies which make the "literal" and "figurative" comparisons vastly different. This difference is in the type of elements which are compared. In the comparison the elements which are compared are facts, evidence, and actions. In the analogy, the compared elements are principles, relations, and abstract concepts. In the comparison, the reasoning involves specific causal generalizations, specific classifications, and specific definitions which use the same vocabulary from case to case and which depend for their validity upon the actual facts which support them directly. In the analogy, the generalizations are not related to the specific cases, the vocabulary must change when moving from the analogical case to the actual case, and the generalizations draw their validity from a willingness to transfer the relation from one context to another in a metaphorical manner. For these reasons, it seems advisable to separate the two processes of reasoning, and a study of the sample arguments included in this dissertation will show that the differences between the two types is quite clear. Further, the difference is apparent

in the different procedures which can be followed in evaluating the argument from comparison and the argument from example.

The difference between these types of reasoning is apparent in the formulation of some of the writers on rhetoric and on argumentation. Two of them go so far as to class what I have called argument from comparison as "argument from example," Aristotle in Rhetoric II, 20, says

We will first treat of argument by Example, for it has the nature of induction, which is the foundation of reasoning. This argument has two varieties; one consisting in the mention of actual past facts, the other in the invention of facts by the speaker. Of the latter, again, there are two varieties, the illustrative parallel and the fable.

The first type of argument would be classed as a comparison, the latter as an analogy. Aristotle later comments that the argument from example is more effective for the speaker because "in most respects the future will be like what the past has been," which shows his awareness of the causal relations usually involved in the comparison. Alan Nichols also makes the distinction between the two, and labels them example and analogy.<sup>1</sup>

#### Evaluation of Argument from Analogy

Since the argument hinges on relations, concepts, and principles rather than on facts, immediate generalizations, and characteristics, the testing of the reasoning must focus on the relationships involved. Since the argument is more a clue to proof than proof itself, there must be projection of meaning into it in order to analyze it.

##### 1. Is the analogical correspondence a valid equation of relations?--

Are the factors in one instance equated justifiably with the factors in

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<sup>1</sup>Nichols, op. cit., 345.

the other? In the argument relating congressmen and teachers the relations are actually dissimilar and so the relation failed. Stuart Chase cites another example illustrating this weakness:

A lady letter writer draws a parallel between the Reds and a local marauder. The Reds, she says, stole China from Chiang, implying that China was the Generalissimo's personal possession. "Would you relinquish a claim to your property because a thief stole it from you?" she asks heatedly, apparently confusing the property laws of Montclair, New Jersey, with international power politics.<sup>1</sup>

As Chase indicates, the relations which are being equated are not the same.

2. Are there any differences in the relationships which could affect the conclusion?--This could be considered a corollary to the first test. This applies to a situation in which there may be some apparent similarities, but when you think about it, many differences. Thouless gives a fictional example of a bad argument which illustrates this:

The invasion of Great Britain by the Romans and of America by European settlers were examples of invasions of culturally backward areas by more civilized peoples which resulted ultimately in benefit to the countries invaded. Abyssinia was also a culturally backward area which was invaded by the more civilized Italians. Therefore, the invasion of Abyssinia by Italy must ultimately benefit Abyssinia.<sup>2</sup>

Comparing the national debt to a personal mortgage has some similarities, but there are many more differences that preclude conclusions on that basis, as Stuart Chase points out.<sup>3</sup>

3. Are the relationships accurate in terms of the actual situation?--

<sup>1</sup>Op. cit., 85.

<sup>2</sup>Op. cit., 220.

<sup>3</sup>Op. cit., 87.

The relations which are compared may be reasonably similar, but yet not applicable to the case in point. The first sample argument was of this type. When Mr. DiSalle discussed applying the brakes to the economy, the comparison was valid, but not in terms of wage and price controls.

4. Can contrary conclusions be made from the same analogy?--Sample C which compared a war to a fire, could have been answered by saying that it was only a small, isolated fire, and should be allowed to burn itself out, by saying that if we attempt to put it out, we stand the danger of catching ourselves on fire.

5. Does the conclusion appear true on the basis of previous experience, the context, and the facts of the situation?--This test applies to all types of argument, but with analogy it is particularly important because of the increased probability given by outside confirmation.

Baird comments,

The method of analogy can at best produce only probability. Resemblance in itself is insufficient for satisfactory deduction but must be followed by classification, correlation, and other logical procedures that penetrate fully into the respective divisions that are under comparison.<sup>1</sup>

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<sup>1</sup>Op. cit., 136.

## 9. Argument from Authority (Testimony)

### Definition of the Process

Almost every writer on argumentation, rhetoric, or public speaking discusses the use of authority and the tests of authority. Some textbooks class the use of authority under evidence, others class it under argument, and some take the precaution of listing it under both. The latter approach is probably the most accurate one, but we will be concerned with the use of authority to support conclusions.

In using argument from authority the speaker supports his conclusions directly by presenting an authority who asserts that the conclusion is true. The process is, in effect, to say "X says that this is true or advisable, etc., and therefore we can infer that it is true or advisable, etc." Note that this is a form of sign reasoning: the fact that X asserts the conclusion is taken to be a sign that the conclusion is true.

### Sample Arguments

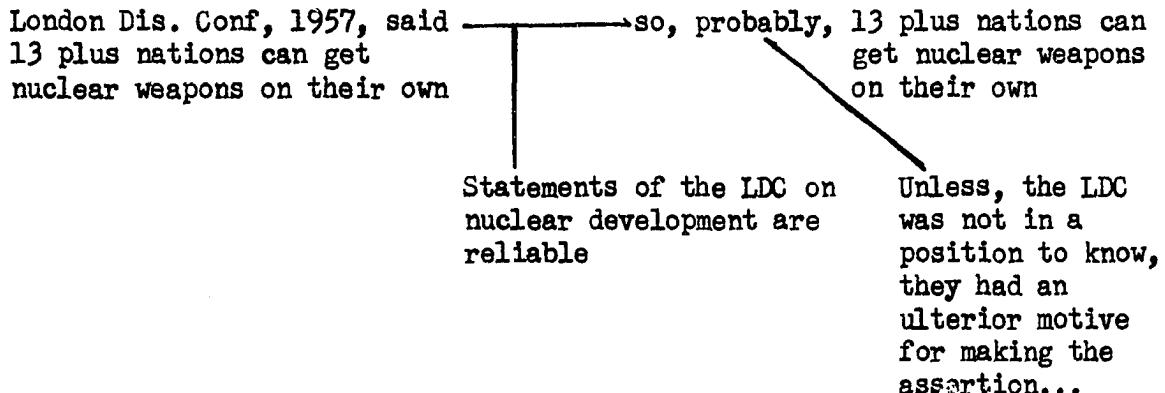
Sample:

The first concerns the ability of these nations to obtain these nuclear weapons. We suggest that they certainly do have this ability, that many nations have come into the ability in recent years. The London Disarmament Conference, in its follow-up report in 1957, said, --and I note this opening phrase--"On their own without outside help the following nations can achieve nuclear weapons"--a long list follows--"Belgium, Canada, Sweden, Switzerland, France, Japan, India, Italy, Argentina, West Germany, Egypt, Israel..." and many other nations. We note that many sources, such as the Senate's Disarmament Sub-committee, have all echoed this very important and very strategic possibility.<sup>1</sup>

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<sup>1</sup>Windes and Kruger, 84.

### Layout of the Argument



The conclusion of this argument is what we would call a descriptive generalization: it makes a general statement about a certain aspect of reality. To prove that this descriptive generalization is true, the speaker presents an authority which says that it is true. The quotation from this authority is specific enough to be a direct statement of the point. The speaker then cites another authority to support the same point, but without a direct quotation, only asserting that this source agrees with the conclusion. In essence, sample A says, "Because of London Disarmament Conference says this is true, it is true." The evaluation of the argument must then focus on how reliable the conference is when it makes statements like this. With what probability can their statement be accepted as true? This is a question of the correlation of a sign relation with an event, and we test it by moving into an analysis of causal factors which would cause or allow the conference to make a true generalization. For example, did they have the evidence available to enable them to draw a conclusion? Are they competent to evaluate the evidence and draw such conclusions? Do they have any sets or biases which would cause them to be inaccurate or untruthful? If they reached

another conclusion would they honestly report it, or would they tend to the quoted conclusion? How objective is their general behavior?

Sample B:

...While the defense of Europe is essential for the survival of Europe, it is just as essential for the survival of a free United States. Again on this point General Eisenhower speaks with authority:

"Western Europe," he reminds us, "has the greatest pool of skilled labor in the world and a vast industrial capacity second only to that of the United States. Now if we take that whole complex with its potential for military exploitation and transfer it from our side to another side, the military balance of power has shifted so drastically that our safety would be gravely imperiled."

Note carefully General Eisenhower's use of the words "gravely imperiled," which he repeated to emphasize the seriousness, to his mind, of the possibility of the loss of Europe.<sup>1</sup>

Layout of the Argument

Eisenhower says that the loss  
of Europe to the Soviet block  
would gravely imperil our  
safety.

so, probably, the loss of Europe  
to the Soviet  
block would imperil  
our safety.

Eisenhower's opinion  
on the defense of  
Europe and the US is  
reliable.

Unless he is  
biased, the sit-  
uation has  
changed.

The conclusion here is the effect of an action (what we would classify as cause-to-effect reasoning and classification). The speaker quotes Eisenhower to prove that the loss of Europe would result in a change in the balance of power, and further, that this would be classified as dangerous to our safety. The implicit assertion is that it is probably true if Eisenhower says it. Note that in this argument the speaker did not just quote the conclusion reached by Eisenhower, but

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<sup>1</sup>James B. Conant, Harding, 263-264.

quoted the reasoning leading up to this conclusion. This is an admirable trait in the use of argument from authority, because it lends weight to the authority's conclusion. It also enables one to make a better evaluation of the argument, since the observer can analyze the internal reasoning used by the authority as well as the general qualifications of the authority. Thus the reasoning can be analyzed on two levels: first is the analysis of the weight of Eisenhower's authority, and this leads to the analysis (secondly) of the reasoning within the quotation itself. Our evaluation of the argument would proceed by asking such questions as these:

1. Is Eisenhower in a position to know the industrial and military capacity of Europe?
2. Would Eisenhower honestly report the facts, or would he be biased in a way that might motivate him to distort the information?
3. Is Eisenhower competent to evaluate the information he has?

The internal argument in the quotation itself could be evaluated by applying the tests of argument from cause to effect and argument from criteria to classification.

Sample C:

Now I would like to go to my second indictment of the affirmative case, and that is that the Supreme Court thwarts national policy is not an accurate statement because all the Supreme Court does is take part in the policy-making process and law-interpreting process, and eventually the public and the nation always get their way in national policy. Now that sounds like a strong statement, but I've got a few more people who tell me it's true, and I'm going to show you what they say is true. I'd first like to turn to Robert H. Jackson, the former Supreme Court Justice, who should know if anyone does. He said, in Vital Speeches in October, 1953, that "The practical play of the forces of politics is such that judicial power has often delayed but never permanently delayed the persistent will of substantial majorities." In other words, the majority always gets its ways.

Let's turn to some more support. Professor Jack W. Pelverson, University of Illinois,...his book, The Federal Courts and the Political Processes, states, "In almost every decision in which the judges have imposed a check on Congress in the name of the Constitution, in one way or another Congress eventually has done what the judges told them they could not do and should not do." Let's turn to further support of this idea that judges can't really thwart national policy. James McGregor Burns, and that same man, Jack Walter Pelverson, told us that, in their joint effort, Government by the People, published in 1954, "Judges have no armies or police to execute their laws; they have no authority to levy taxes, to support their activities. In the long run they must adapt themselves to the nature and demands of government by the people." Now what do we draw from this? Simply that the Supreme Court does not thwart national policy because always eventually the policies which the people apparently want and always the policies which Congress endorses eventually are put into effect.<sup>1</sup>

#### Layout of the Argument

R. H. Jackson, J. W. Pelverson, and J. M. Burns say that the policies desired by the people and Congress always are adopted.

so, probably, the policies desired by the people always eventually win out.

Since, these men's evaluations are accurate and reliable.

Unless they have some ulterior motive, they have not considered all facts...

This argument from authority is more elaborate than the previous two, since three sources, rather than one or two, are cited specifically to support the same conclusion. The conclusion is in the form of a descriptive generalization, one which is directly asserted by each of the quoted statements. Each of the statements, therefore, is a descriptive generalization, taken as true on the basis of the source. The speaker qualifies the sources partially: one is a former Supreme Court Justice, one a professor at the University of Illinois, and the third presented only as the co-author of a book. Of the justice it is said, "who should

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<sup>1</sup>John Raser, Windes and Kruger, 57.

know if anyone does." In this argument, neither within the quotations themselves nor outside them is the generalization supported by evidence or further argument. Only in the last testimony by Pelverson and Burns is there a suggestion of a causal relationship to explain the generalization as true because of the fact that these three men have stated that it is true. Testing of the argument will again focus on the reliability which may be placed on the accuracy of these men in regard to this subject. Because of the legal and political nature of the generalization, the acceptability of the source will depend partially upon their qualification to comment on such a subject. Thus, some of the tests of the reasoning would be:

1. What are the qualifications of the sources in the field of legal and political processes? What has been their experience, their training? What evidence do we have of their qualification?
2. How are they regarded by other authorities in the field?
3. How objective is each on this subject? Do they have any biases or prejudices which would influence their conclusions?

And we would ask, in addition to these questions, the usual ones regarding the knowledge of the sources regarding the immediate topic, their known reliability, and other tests of authority.

#### Commentary on the Process

Some argumentation texts do not consider the argument from authority as a genuine argument. McBurney, O'Neill and Mills state:

In general argumentation opinion evidence is frequently called the "argument from authority." This is an inaccurate label for it is not properly an argument--i.e., a process of reasoning--but evidence. It consists in establishing a fact by quoting the opinion of some person

whose knowledge is such as to justify the acceptance of his inferences as truthful.<sup>1</sup>

However, I would point out that "establishing" and "justifying" are usually considered processes involving reasoning. Some textbooks do discuss the use of authority in a chapter on evidence, and it is certainly true that much testimony is introduced strictly to enter factual information into the speech. This is properly classified as evidence, although sometimes the fact itself is to be proved, in which case the discourse becomes argumentative. (For an example of this, see the Webster argument below.) One test of an argument is whether it can be resolved into premises and a conclusion drawn from those premises, with some warrant to justify the process. On this basis we can say, "Yes, Virginia, there is an argument from authority," because much of the discourse which includes testimony does attempt to prove a conclusion on the basis of the testimony. The fact of the testimony is the premise of the argument, and the meaning of the statement itself is the conclusion.<sup>2</sup> When we observe the warrant that allows us to move from the premise to the conclusion, we find that it is something like this: The fact that this person (or institution) has made this statement is a sign that the statement is true. And so argument from testimony reduces to a particular form of sign reasoning. The sign is the fact that a person has made a statement; this is the effect. The cause of the sign is the actuality of what was

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<sup>1</sup>Op. cit., 85.

<sup>2</sup>There is a subtle distinction made here between the meaning of the testimony and the testimony itself. The meaning is the conclusion of the argument, the testimony itself is the premise. This distinction is necessary to avoid confusion in dealing with authority as argument from sign.

testified about. The "truth" of the conclusion is assumed to be the cause of the testimony about it. This reduction of argument from authority to argument from sign was also noted by Richard Whately, in his Elements of Rhetoric.<sup>1</sup>

If this is a form of sign reasoning, then why am I classifying it separately? Normally this would not be done for minor variations of major processes of argument. However, this form of argument is strikingly different from the other uses of sign argument in two ways. First, it is extensively used in argumentative discourse. It is used at least as much as all the other forms of sign reasoning combined. Especially in academic debate is it predominant. For this reason it deserves separate consideration. Probably more important is the fact that there are particular tests for the argument from authority which do not apply to the usual argument from sign, although they are an extension of the same principles used in testing the argument from sign. Because of these special tests which can be applied to this form of argument, it seems wise to consider it as a separate mode of reasoning.

Another aspect of argument from authority indicates its individuality as a form of reasoning: it can be utilized to support any type of conclusion: a classification, generalization, characteristics, effect, hypothesis, or cause. This is because we are asked to accept the conclusion on the basis of the authority of the source, and not on the basis of any internal reasoning relevant to the formulation of the conclusion, as is the case with the other forms of reasoning. Thus, the

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<sup>1</sup>Op. cit., ch. 3, sect. 3.

warrant underlying the process could be symbolized:

(x)  $Ax \supset Tx$  (probably)

which means, for every statement, if it is asserted by A then it is true. The field of statements would be limited, of course, to the subject under discussion--this is an necessary and understood qualification. The warrant is a probable one, and the degree of probability is determined by how likely it is that the source is accurate in the testimony. Applying the tests of sign reasoning specifically to argument from authority, we can derive specific tests for appraising this form of argument. Since the process of reasoning is effect to cause, we are concerned with the causes of the testimony. Thus we will find that most of the approaches to the evaluation of the testimony will be centered around alternative causes, factors which affect the causal relations, and factors which have been correlated with accuracy of testimony. This is the best approach to the analysis of argument from authority, because unless its basic nature is recognized, the evaluation of it is a hit or miss affair.

#### Evaluation of Argument from Authority

Since the use of testimony and the tests for such reasoning have been discussed by virtually every text on argumentation, I will not go into great detail, with many examples, to explain how to evaluate this argument. The major point which this section will present is an organization to guide the evaluation, based on the above analysis of the nature of argument from authority. This seems necessary, because a quick review of ten contemporary books on argumentation revealed at least twenty-one different tests of testimony with only four of the tests

being mentioned by at least five of the texts.<sup>1</sup>

In evaluating the argument, note that the assumed procedure in producing it has been this: Some aspect of reality exists, the source comes in contact with it, makes statements based on his observation or knowledge about the situation, and these statements become signs to indicate the reality. Given this chain of events, there are several places it can be affected, and these are the first tests in evaluation.

1. Was the source enabled to observe the situation?--Did the authority have actual contact with the information, the knowledge, the situation about which he testifies? Is he in a position to know? If the information consists of empirical observations, he must be physically capable of observing. If an opinion or evaluation is involved, he must have access to information on which to make his evaluation.

2. Is the authority competent in this field?--His competence must be discussed in relation to the subject of his testimony. He must have knowledge, experience, and the intelligence to draw his conclusion. These are some of the attributes which the authority must have relative to his competence, and the textbooks list several others in addition. In order to establish that the authority has these attributes, signs may be presented by the speaker, signs such as the high regard of others in the field, position, education, publications, achievements, or public

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<sup>1</sup>A. Craig Baird, Argumentation, Discussion, and Debate (New York: McGraw-Hill, 1950); Waldo Braden and Ernest Brandenburg, Oral Decision-Making (New York: Harper and Brothers, 1955); Luther Courtley and Glenn Capp, Practical Debating (Chicago: Lippincott, 1949); Lionel Crocker, op. cit.; W. Ward Farnside and William Holther, Fallacy: The Counterfeit of Argument (Englewood Cliffs, N. J.: Prentice-Hall, 1959); Austin Freeley, op. cit.; Harold Graves, Argument, (New York: Cordon, 1938); Arthur Kruger, op. cit.; James McBurney, James O'Neill, and Glen Mills, op. cit.; Alan Nichols, op. cit.

reputation. This role of sign reasoning in proving competence of authorities has not been noted by the texts, but it is an important factor in reasoning from authority.

3. Is the authority motivated to be accurate?--This is a causal factor which will contribute to the probability of the conclusions--the demonstration that the source is motivated to be honest, or at least is not motivated to be dishonest. Here will be included questions such as the moral reliability and integrity of the source, the biases or prejudices he may have, how conscientious he is, and his objectivity. We need not insist that the source be pure as the driven snow, else he will be about that solid. Barnlund and Haiman observe:

Considerable nonsense has been spoken and written about the need for objectivity on the part of authority figures. It has been suggested that if an expert is at all biased we cannot rely upon his opinion; that in order to be trusted he must be completely free of prejudice, or have no vested interest in the subjects upon which he passes judgment. We call this nonsense because there is no human being who fulfills these criteria. The question which it makes sense to ask of our authorities, then, is not "Are they completely pure?" but rather "How pure are they?"<sup>1</sup>

They point out that some "experts" are noted for their prejudices, but on the other hand, some are noted for their intellectual honesty, and there can be some distinction made. This question of motivation was nicely phrased by Fearnside and Holther, who say that one of the conditions is: "There is reason to believe that the witness is telling the truth as he sees it, or at least no reason to suppose he is lying."<sup>2</sup>

4. What internal evidence is there of the truth of the conclusion?--

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<sup>1</sup>Dean C. Barnlund and Franklyn S. Haiman, The Dynamics of Discussion (New York: Houghton Mifflin, 1960), 133-34.

<sup>2</sup>Op. cit., 85.

The jaundiced eye of the evaluator now looks at the testimony itself to see what evidence it gives which would bear on the probability of the conclusion. For example, it should be internally consistent; it should be logical. If the source has explained how the conclusion was reached, or what process he used, this can be tested by the appropriate means. The vagueness or specificity of the conclusion may be important to consider. And if there is internal evidence of sound investigation, this increases the probability of the conclusion.

5. Does the testimony have factors which are highly correlated with accuracy?--An important factor is past evidence of the reliability of the source on these matters; how reliable has he been in the past on this subject? Primary sources are more reliable than secondary sources because of specificity and the danger of misquotation. Casual testimony is usually more valuable (more highly correlated with accuracy) than preappointed. Testimony against interests is considered more significant than testimony in conformity with the interests of the source. Publication in an independent, highly regarded magazine or book is more highly correlated with accuracy than publication in slanted sources.

Another factor which will lend support to the testimony is the addition of outside support from other evidence, arguments, and authorities. All these factors will increase the probability of argument from authority.

A reminder should be given that in argument from authority, as with all of the modes of reasoning, additional evidence and argument will strengthen the conclusion. This is particularly true with argument from authority, because the testimony may present only the conclusion, as in sample arguments A and C, and not give the evidence or reasoning supporting

the conclusion. This leaves the conclusion supported only by the weight given by the authority, and this is a force which is generally less probative than many of the other modes of reasoning.

### Patterns of Reasoning

The analysis and description of the forms of reasoning in section B of this chapter was based on the description of the processes involved in moving from the premises of an argument to the conclusion. This is the aspect of the processes of proof that seems most valuable to analyze, since on these processes depend most argumentative proofs, and these modes of reasoning are the processes of drawing conclusions from facts and evidence. Now we can move to a grouping of those processes on the basis of their underlying nature. Within these nine modes of reasoning, two general types or patterns can be observed. Reasoning from example, criteria, and definition seem to be basically symbolic in nature, being dependent upon symbolic formulations to reach their conclusions. Reasoning from sign, from cause, and from circumstantial evidence have at their base causal generalizations, and their conclusions are justified by assumed causal relationships. The remaining three forms of argument (comparison, analogy, and testimony) do not fit easily into either of these groups since they can support both symbolic and causal conclusions. They are, in a sense, free-floating forms of argument.

### Verbal Reasoning

From my observation of the processes of argument from example, criteria, and definition, I would conclude that the processes are basically verbal: they are based upon accepted symbolic formulations that exist in the language and thinking of people because of semantic reinforcement. Let us consider these processes individually to explain their nature.

Consider the concept of classification—not the argument form—just "classification." If an animal or plant has certain characteristics, such as a backbone or chlorophyll, then it is placed in a certain category in the "wonderful world of animals" or plants, as the case may be. The classification is made on the basis of certain characteristics or attributes. Contrariwise, if we know that an animal is classed as a vertebrate, we know that it has a certain characteristic, a backbone. Now, should someone ask us how we know that an animal with a backbone is a vertebrate, our answer would not be in terms of causes, effects, or probabilities, but would be that this is what we mean when we use the term "vertebrate": a backboned animal. To prove that we are right in so classifying the animal, we have only to explain the meaning of the terms. Therefore the basis of the classification is a semantic process. (The proof that I have just completed, that classification is a semantic process, uses precisely this form of argument.)

Now let us apply this process to the argument from criteria and the argument from definition. The conclusion of the argument from criteria is a classification or a semantic category. Here is a list of some of the classifications used as conclusions in arguments from criteria: serious weapon, dangerous policy, deadly enemy, representative government, bad effect, fraud, impractical, poor financial return, etc. Each of these conclusions is a category, and the conclusion is that the event under consideration should be placed into this category. How is this proved? By demonstrating characteristics or elements of the event which will enable us to place it in that category on the basis of our understanding of what we mean by that category. For example, a debater, to

prove the "evils" of international cartels, points to several examples in which cartel agreements have raised the prices of raw materials beyond their normal levels.

Now General Electric sold tungsten carbide for fifty dollars a pound in 1927. Then when they went into this agreement with Krupp Industries of Germany, they hiked the price to 453 dollars a pound. Now you can readily see the evil accruing from such a situation.<sup>1</sup>

To prove that international cartels are evil, the speaker shows that the effects of such agreements are what we would class as bad. The acceptance of the conclusion is dependent upon our own personal semantic system, which tells us what can be classified as "evil." An examination of all of the arguments from criteria will reveal that the classification is made on the basis of characteristics which justify the classification on the grounds that "this is what we mean by the classification." In short, argument from criteria depends upon an understanding of the meanings of words and how they are used.

Argument from definition also can be analyzed as a basically symbolic or semantic process. A definition is stipulated or described, and then the consequences of this definition are drawn. This depends upon an understanding of what the definition means, a semantic process. This is clearly seen in the example on page 51, in which the speaker says, "we don't know what a breakthrough is going to be until it actually occurs. I think this is obvious by the definition of a breakthrough." The meaning of the definition includes certain implications, and the speaker operates via a semantic process in drawing those implications. The same process holds true in the application of a principle.

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<sup>1</sup>Dorothy Koch, in Windes and Kruger, 232.

Argument from example, I believe, can also be classified as having its bases in semantic process. The process is one of forming descriptive generalizations about reality on the evidence of observations or knowledge about reality. McBurney, O'Neill and Mills say that "this kind of argument involves an examination of the real, phenomenal, existential world for the purpose of making accurate statements about it."<sup>1</sup> I contend that this process is in essence a semantic, symbolic one which says: "This is how we symbolize these observations we have made of reality." When we look at samples and make a generalization about them, we are symbolizing our observation in the form of a general pattern. When we are presented with the details of a situation and then we describe it by saying, "Communist China is losing the support of other Asian nations," we are implicitly asserting that this is how we would symbolize the situation in language; this is how we would describe what we have observed. Thus argument from example relies on our understanding of how we symbolize our observations of reality; how we make accurate statements about the world. Notice that if we conclude that an example is typical, what this means is that we can now make an accurate statement about the entire class of events, instead of just that one. To make accurate statements about a class on the basis of a limited observation requires some principles to tell us what we can and can not say from the observation. In short, these are rules for symbolization. Thus, argument from example can be analyzed as symbolic or semantic in nature.

This analysis of a generalization is not the usual one, I will

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<sup>1</sup>Op. cit., 103.

concede, and the process can be approached in other ways. However, it seems to me that the above analysis is justifiable and that it may be a heuristic method for use in approaching this mode of reasoning. It may help in evaluating the argument on the basis of the evidence, in estimating what range of probability is called for, and in determining what other support might be necessary. In the area of analysis of reasoning per se, this analysis may present some new possibilities in the study of induction.

#### Causal Reasoning

Reasoning from sign, from cause, and from circumstantial evidence are based on causal relations which are used as generalizations to justify the conclusion on the basis of the premises. In other words, the warrants operating in these forms of reasoning are causal generalizations, whereas the warrants operating in the first group of modes are semantic rules. The concept of cause, which is implicit in a causal generalization, was stated by Bertrand Russell:

It must be known to use that the existence of some one sort of thing, A, is the sign of the existence of some other sort of thing, B, either at the same time as A or at some earlier or later time, as, for example, thunder is the sign of the earlier existence of lightning.<sup>1</sup>

We may, if we wish, interpret the association of A and B as a correlative relation, rather than a causal relation. Since the exposé of necessary cause by David Hume in his Treatise on Human Understanding (1739) there has been a tendency to view causal relations as correlations. Nevertheless,

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<sup>1</sup>The Problems of Philosophy, (London: Oxford University Press, 1957) (1st edition, 1912), p. 60.

people still continue to talk about causes and effects, and the weather bureau continues to predict the weather with as little success as ever. The notion of cause, while perhaps not analytic, necessary, or deductive, is nevertheless a satisfactory basis for reasoning about the real world, and in fact, it would be impossible to reason beyond immediate experience without this notion. It is safe to predict that speakers will continue to make causal generalizations and use them until philosophers find something more satisfactory to guide our thinking about the world. We may translate the term "cause" to mean "correlation" if this is necessary, but we should note that there is a difference in the use of the two terms. We do not consider all correlations of A and B to imply that A causes B or that B causes A. We limit our "cause" meaning of the term "correlation" to situations where we believe there is a cause, not just an occurrence of two events. We attempt to reduce correlations to more basic, elemental correlations until we have arrived at correlations which we would title causal, and if correlations can not be related to such factors, we do not really consider them causal relationships. (For discussions of causality, see the cited book by Russell and the Introduction of Logic, Irving M. Copi.)

Sign reasoning is almost always reasoning from effect to cause, and this depends upon a causal generalization that p is a necessary condition for the occurrence of q in which q is the sign and p the event signified. The ideal sign argument will have a causal generalization in which the event is a necessary condition for the sign; without the event, the sign will not occur. However, in practice a high correlation is usually all that can be hoped for, and the generalization is a probable one: q is

almost always produced by p. This does not eliminate the possibility of other causes, and hence other conclusions, but it makes one highly probable.

In argument from cause to effect, the warrant can always be stated that p is a sufficient condition for the occurrence of q. This is a probable generalization, and is usually meant as "p almost always produces q," and it is usually the result of several more basic causal generalizations which make it up. The discussion about this mode of reasoning makes this point clear.

The third form of reasoning which may be classified as causal is the argument from circumstantial evidence to a hypothesis. I have indicated that the hypothesis is a causal explanation for the circumstances, or at least provides a link in a causal chain which will explain the evidence. Larrabee observes: "Now most of our explanatory hypotheses use verbs expressing the relation of cause and effect. The description of the causes of anything is what most often constitutes a satisfactory explanation of it."<sup>1</sup> The warrants involved in the examples of reasoning from circumstantial evidence will indicate that the hypothesis is a causal explanation, since they take the form: the assumption of the conclusion will account for the evidence in the premises. The basis of the "accounting for" must be causal generalizations, which show that the event asserted in the conclusion will produce the evidence in the premises.

#### Direct Proof of Conclusion

The remaining three modes of reasoning, argument from comparison,

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<sup>1</sup>Op. cit., p. 272.

analogy, and testimony, could perhaps best be described as free-floating forms, for they can operate to support both verbal and causal conclusions.

The argument from comparison usually operates from causal generalizations, as most logic texts recognize. "It happened in this situation before, therefore it will happen again," is the theme of this type of comparison. However, we have also observed that the argument from comparison can provide a precedent for a verbal classification, in which the conclusion is not the existence of an event, but an instruction on how to classify an event: "X was classified as Y on the basis of these characteristics, therefore Z should be classified as Y on the basis of the same characteristics." Thus comparison can be utilized to support both causal and verbal conclusions.

The argument from analogy apparently operates similarly to the argument from comparison. Usually it functions to support causal conclusions. However, it also can operate to support verbal conclusions. For a sample of the latter, note sample argument C, in the discussion of this mode of reasoning. The conclusion is that a war can be stopped more easily when it is just starting. This conclusion is a descriptive generalization, a form of verbal reasoning.

Finally, the argument from authority is based on the process of a sign argument, as we have noted. However, we have also noted that the use of testimony can support both conclusions asserting the existence of events, and conclusions which are classifications, generalizations, etc. In brief, reasoning from authority is used directly to assert conclusions of all kinds. It is also a free-floating form of proof. Thus argument from comparison, from analogy, and from authority can all be used to

support either verbal or causal conclusions, and their classification depends on the specific use in the context of discourse.

## CHAPTER IV

### A COMPARISON WITH OTHER FORMULATIONS

In comparing this formulation of the modes of reasoning with those presented by other authors on argumentation, I shall point out what seem to me to be the major points of difference: more accurate coverage of the modes of reasoning actually used, definitions and descriptions which are significantly different, and the overall organization of the system.

#### The Comprehensive Coverage of this Reformulation

Perhaps the most apparent difference between this reformulation and other systems is the number of modes of reasoning identified here. There are nine processes listed in this formulation, while most of the other formulations list no more than four or five distinct processes of reasoning. This comprehensiveness is not a matter of changed terminology or of a reshuffling of previous formulations, nor is it semantic juggling. Each one of the nine processes is a distinct and discrete method of inference. Each one is tested in a different manner and each one supports conclusions in a different way. Since these processes are discrete and different in their nature, no one of them can be combined or included with another process, and formulations which do not cover all of these processes are either inaccurate or incomplete. Such a formulation is incapable of dealing with all the processes of reasoning which are encountered in rhetorical discourse.

The method used in this study was an empirical analysis of discourse to discover what forms of reasoning are actually used. Thus, if the study has been careful and thorough, the modes of reasoning are the ones that are actually operating in discourse. Other formulations have not described the full range of processes which are used in argument, and none of them lists all of the important modes of reasoning. Although most of the modes listed in this reformulation have been described at one time or another, no one source has presented a coherent, complete system which adequately describes all of them. Thus the description of the total number of major processes is an important development of this study.

Modes of Reasoning Which have Received Little Attention in Other Formulations

Several of the processes of reasoning described here have been neglected in almost all other formulations of reasoning. These need to be noted, since they may be considered either new additions to the theory of argumentation or deserving of more importance than they have been given previously.

1. Argument from Criteria.--This is one of the most used forms of argument, and yet it has not been described or identified as such in any of the writings on argumentation which I surveyed. Only two authors touch on the concept. Crocker mentions classification as a form of inductive reasoning, but he considers it as substance-to-attribute reasoning and mentions it only briefly. Unfortunately, his discussion confuses argument from criteria, argument from definition, and argument from sign, so that one must feel there is no awareness of the discrimination among

these forms of reasoning.<sup>1</sup>

A somewhat closer description of this type of reasoning is given by Arthur Kruger under the label of "descriptive hypothesis," a phrase he apparently moved over from logic. Unfortunately he confuses the scientific meaning of a descriptive hypothesis with a causal hypothesis and with argument from criteria. As a result there is no clear picture of a specific mode of reasoning which we would call the argument from criteria. Also, unfortunately, in explaining how to evaluate the descriptive hypothesis, examples of sign reasoning are used.<sup>2</sup>

So, although two authors have skirted the fringes of this mode of reasoning, there is no awareness in the literature of argumentation of the process. Neither is this form of reasoning described by any of the works on logic and reasoning which I have surveyed. Nevertheless, the prevalence of this process in discourse indicates that it should be given an important place in any description of argumentative reasoning. The importance of this process is accentuated by the fact that propositions of fact and propositions of value can not be analyzed or proved except by the use of argument from criteria.<sup>3</sup>

2. Argument from definition.--This is another form of reasoning which has been ignored by textbooks on argumentation, even though it is used frequently in argumentative discourse. The major writing on the process is the essay written by Richard Weaver on its use by Abraham

<sup>1</sup>Crocker, Argumentation and Debate, 104 ff.

<sup>2</sup>Modern Debate, 150 ff.

<sup>3</sup>For a description of this type of analysis, see Charles Mudd and Malcolm Sillars, Speech, (San Francisco: Chandler, 1962), chapter IV, "Finding the Issues."

Lincoln, cited under the discussion of the process. In this essay Weaver is not concerned with the process as a form of argument except as a means to approach the study of Lincoln's philosophical system, and hence he does not describe it in detail nor analyze its underlying processes.

3. Argument from circumstantial evidence.--This form of reasoning is the method of science, but it has not received much attention from the field of rhetoric, probably because it was difficult to see how argumentative discourse could utilize reasoning by hypothesis. However, A. Craig Baird considers the argument from "circumstantial detail," as does Braden and Brandenburg. Of the two, the latter does the better job of explaining the analysis and evaluation of the argument. Kruger lists the "causal hypothesis" as one of the modes of reasoning. His initial definition and explanation of the process is accurate, but then he asserts that

a causal generalization is essentially the same as a causal hypothesis, the only difference being that the latter affirms a causal relationship between fairly specific components, whereas the former affirms a causal relationship between abstract, or very general, components.<sup>1</sup>

This is not accurate, and the distinction is never clarified, nor are the specific tests of hypothetical reasoning ever explained.

4. Argument from authority.--In the section describing argument from authority, I observed that most of the texts in argumentation include a discussion of the use of testimony, but most place it under the category of evidence and only a few under argument. As I indicated there, when testimony is used as the premise to support a conclusion, it is an argument and should be included as one of the types of reasoning.

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<sup>1</sup>Op. cit., 162.

### Differences in Definition or Description

1. Argument from example.--One of the important characteristics of argument from example is that it is not designed to be conclusive, inductive proof of the point. Hence it is not required in rhetorical proof to have vast numbers of examples to prove the conclusion. Too many textbooks miss this significant point. In scientific generalization, the typicality of the events sampled is assured by random selection, large numbers, and statistical analysis. However, in rhetorical proof, the typicality of the example is approached by other means, described in the section on this process. In the evaluation of the argument, most textbooks will include a criteria on the number of instances cited by the speaker. However, according to this present analysis, the number is relevant only to establishing the typicality of the examples presented, and a descriptive generalization may be made just as validly from one or two examples as from dozens.

2. Argument from cause.--A major difference in the analysis of causal reasoning exists between this study and the analysis in several texts. In this formulation, I have said that causal reasoning is used either to predict the existence of an event in the future or to postulate the existence of a cause for an event. There is the assertion of the existence of something on the basis of the existence of something else. A major difference from this theoretical position is held by McBurney, O'Neill, and Mills.

A causal argument is one which serves to account for or explain why the proposition is true. Such an argument does not attempt to establish the proposition as being true, but, assuming its truth, attempts to show what causes it to be true. Typically, causal arguments follow arguments from sign in a rhetorical demonstration. The speaker

first presents signs to show that the proposition is true, and then goes on to present argument which show why it is true.<sup>1</sup>

To paraphrase this position, a causal argument does not attempt to prove the existence of an event, it attempts only to present the factors which cause the event to exist. This position is given lip (or rather "pen") service by Ehninger and Freeley, but neither sticks to the commitments it entails in the treatment of causal reasoning. All other textbooks which include causal reasoning as a mode of proof maintain the more orthodox position, the one taken here. Further, all logic books which deal with the concept of causality treat causal reasoning as a method of predicting events in the future. However, the weight of public opinion may be wrong. Let us look at the process itself.

First, if causal argument functions as a ratio essendi ("reason for being") it would be classed as either argument from sign or from circumstantial detail. For the conclusion of the argument must be "the causes of this event are x and y" (since the argument attempts to show what causes the proposition to be true). Sign reasoning functions to indicate the causes of events as does reasoning from circumstantial evidence. Thus what McBurney, O'Neill and Mills describe as causal reasoning would probably be reasoning from effect to cause. This is certainly an attempt to establish the existence of an event.

On the other hand, perhaps there is no attempt at proving the causes in this definition of causal reasoning. Rather, certain causes are stated or asserted without proof. If this is to be the meaning of the term, then the process will not be classified as a form of argument,

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<sup>1</sup>p. 99.

since an argument must have premises and a conclusion, and this interpretation will give causal reasoning neither. Thus, we should probably assume that causal reasoning does attempt to prove something, in which case it must of necessity deal with proof of existence of either causes or effects.

Further, by observing the examples of argument given by McBurney, O'Neill, and Mills, one will see that there is an attempt to establish that certain events have occurred or will occur. The example in this present study of the various forms of causal reasoning will also demonstrate that there is an attempt to prove existence, not just to assert causes. My general conclusion is that causal argument should not be described as explaining causes, but rather predicting and asserting the existence of events.

A second point in regard to causal reasoning is that clear distinctions need to be made between the three types of causal reasoning discussed: sign, cause to effect, and circumstantial evidence. These should be clearly grouped as causal reasoning and they should be differentiated in their function. Unfortunately some textbooks distinguish between causal reasoning and sign reasoning, or causal relations and circumstantial details. Either they should be grouped together under one heading or they should be separated. Otherwise their relationships are not made clear.

Finally, this study makes clear the relationship of causal generalizations to causal reasoning. Too often this is ignored by discussions of reasoning. The causal generalizations form the warrant which allows the conclusion to be drawn. Very often, as in the case with much

cause-to-effect reasoning, the conclusion will apparently be asserted on the basis of the premise without any explanation of the causal relationships. A generalization is always present, though sometimes it is hidden or implicit. A causal argument asserts the existence of events on the basis of other events through the use of causal generalizations. Once this is clear, then the next point which must be made is that these generalizations are derived independently of the causal argument. They are causal generalizations, and are derived from examples, observation, and experience through the process of verbal description--argument from example. It is a process distinct from causal reasoning. The point must be made that causal reasoning in rhetoric is not the discovery of causal laws; it is the use of causal relations to predict the facts and events of reality.

3. Argument from authority.--This present formulation of reasoning analyzes argument from authority as basically reasoning from sign, and hence the tests of argument from authority are based in causal relations. This point is recognized by Whately and by Baird, but is ignored by other authors. Further, the position taken by some that this is not a form of argument is an untenable position.

A second aspect of argument from authority is that it can be used to support any type of conclusion directly,i.e., with no internal reasoning process. While I am sure no theorists would disagree with this observation, it has not been noted in the literature, and should be pointed out in any analysis of this process of argument.

#### The Distinction Between Comparison and Analogy

Most argumentation textbooks which include analogy as a mode of

reasoning divide it into two types, literal and figurative. The former is probative and the latter is not, they say. Two differences have been made in this formulation from the standard treatment of "analogy." First, the contention is that these are very different forms of argument and should not be classed together even nominally but should be dealt with separately and individually. Hence, I have relabeled them comparison and analogy rather than literal analogy and figurative analogy. As I point out in my discussion of them, the differences between the two are quite significant. The comparison deals with factual similarities, the analogy with abstract relationships. As a result the causal and descriptive relationships of the comparison are highly probative, whereas those of the analogy are not so forceful. Further, because of the differences in the type of generalizations involved, the two are evaluated in different ways. In short, it is rather surprising that they should ever have been classed together, and they should be separated.

A second question related to the strength of the analogy in providing proof. The position taken here is that it is probative, though with not the strength of the other modes of argument. When the relationships can be legitimately compared, then conclusions can be drawn on the basis of those relationship, conclusions which can claim reasonable support. In science, where similar structures may exist in isomorphic relations, the analogy may be extended over a large area. In rhetoric, this can rarely be done. Still, Kruger and Wallace are correct in asserting that the analogy is an acceptable mode of reasoning, although it is much weaker than other processes of argument.

### The Distinction Between Verbal and Causal Reasoning

In an attempt to group the modes of reasoning under general processes, I have tentatively suggested a division into two types on the basis of the conclusions which are reached by the arguments. These classifications are of verbal reasoning and causal reasoning. This division is not recognized by any argumentation text or logic text, but there seem to be valid bases for such a distinction.

Argument from example, from criteria, and from definition all conclude with descriptions or characteristics of events, conclusions arrived at through verbal, semantic procedures. These processes depend for their validity upon an understanding of the symbolic relations of our semantic system. Reasoning from sign, from cause, and from circumstantial evidence all support causal conclusions in which the existence of some unobserved event is asserted. The underlying generalizations which warrant the conclusions are causal generalizations. The arguments from comparison, analogy and authority function to support either verbal or causal conclusions, and their classification depends upon their usage.

This tentative division of arguments needs to be considered further, since it is a radically different approach to the analysis of reasoning. It is not the same as the division between induction and deduction, nor between demonstrative and non-demonstrative inference, but it seems to be based on a different distinction.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

#### The Problem

The types of reasoning processes which are used in advocacy have been identified and described differently by almost every author writing on argumentation. In other words, there is little agreement among experts on argumentation concerning the number, names, and descriptions of the important modes of reasoning. As a result, this aspect of the theory of argumentation is confused and chaotic. The speaker who would support his assertions with reasoning, the critic who would evaluate the strength of arguments, and the rhetorician who would evaluate a speech are all faced with a jumble of inconsistent, conflicting, and possibly incomplete formulations. There is clearly a need for a complete, accurate, and consistent formulation of the processes of reasoning which are used in argumentative discourse. This thesis is an investigation of this problem in an attempt to answer the question: "What are the modes of reasoning used in argumentation?" The answer to the question includes the identification and listing of the methods of proof, and analysis of the reasoning process of each, and the methods of testing each mode of reasoning.

### The Method

More than 250 specimens of arguments were taken from speeches, discussions, and writings. An argument was defined as an assertion supported by reasons. These samples of argument were individually analyzed to discover the reasoning process authorizing the movement from the premises to the conclusion. These processes were grouped into categories and described. The definition and analysis of these categories utilized formulations and concepts from argumentation, rhetoric, and logical theory.

### The Conclusions

These nine major categories of reasoning processes were isolated and identified:

1. Reasoning from example to a descriptive generalisation, in which factual information or an example leads to a general symbolic formulation about that type of event.
2. Reasoning from criteria to a classification, in which an event is categorized or symbolically labeled on the basis of its characteristics.
3. Reasoning from definition to characteristics, in which an event or concept is defined and the logical implications of the definition are applied.
4. Argument from sign to an unobserved event, in which the existence of one event implies the simultaneous or previous existence of another event.
5. Argument from cause to effect, in which the occurrence of certain events is predicted on the basis of their causes being present.

6. Argument from circumstantial evidence to a hypothesis, in which a hypothesis is asserted to explain causally a series of factual events.

7. Argument from comparison, in which conclusions drawn about one event are applied to a similar event.

8. Argument from analogy, in which conclusions are drawn about an event on the basis of similar principles or relationships of a situation in which the facts are dissimilar.

9. Argument from testimony, in which the conclusion is asserted to be true because it is asserted by another source of information.

Two principle types of processes were observed in these nine modes of reasoning. The conclusions of argument from example, criteria, and definition are all based on semantic principles; their conclusions are derived from the premises by virtue of the understood meanings of words. The conclusions of argument from sign, cause, and circumstantial evidence are justified by causal generalizations. However, the arguments from comparison, analogy, and testimony may be used to support either verbal or causal conclusions.

#### Comparison with Other Formulations

This reformulation identifies nine principal modes of reasoning, more than any other formulation, which offers the hope that it is a more thorough and comprehensive listing than has been made before. Among these modes of reasoning are types which have been unrecognized or generally ignored in the theory of argumentation up to now, *viz.*, argument from criteria, argument from definition, and argument from circumstantial evidence. Each of the modes identified required a unique process of moving from the premises to the conclusion; each of the nine major modes

of argument is distinct and different from the other modes.

In analyzing the reasoning processes of each of the modes, discrepancies were observed between the actual processes and the descriptions of these processes by some theorists. In the light of this present analysis, redefinitions and clarifications of definition have been made for argument from example, cause, testimony, comparison, and analogy.

#### Contributions of this Reformulation

The worthwhile contributions of this reformulation seem to me to be five:

1. Because it is more comprehensive, this reformulation will enable the rhetorician to deal with almost all of the processes of reasoning which are encountered in discourse.
2. Because of the empirical method employed in the reformulation, the descriptions of the processes are more accurate, which will facilitate the construction and analysis of proof.
3. Particularly, the methods of evaluating arguments will benefit from the careful description of the processes of proof.
4. The distinction between semantic and causal conclusions contributes to the study of logic.
5. Because of the nature of the content, the reformulation and analysis should contribute to the study of the nature of thinking, reasoning, and the use of language.

Appendix A describes the results of a pilot test to determine if the reformulation can be taught, understood, and applied. The results indicate that this is both an accurate theoretical formulation and a practical system for teaching.

## APPENDIX A

## A PRELIMINARY TEST OF THE REFORMULATION

A useful formulation of reasoning should have certain characteristics: for the instructor it must be teachable; for the student it should be understandable; for all it should be applicable. A brief experiment was performed to test these aspects of this present reformulation, and the results indicate that the system can be taught, understood, and applied with a high degree of effectiveness. The statistical analyses of the data show that the students identified the various modes with considerable accuracy and were generally able to discriminate between modes of reasoning which might be confused with each other.

The participating group consisted of twenty-nine members of the debate division of the National High School Institute in Speech, held by Northwestern University in summer of 1962. The participants were almost all pre-senior high school students (one or two were pre-junior students) with some experience in academic debate but little or no formal training in logic or the analysis of reasoning. They were given a lecture by the writer of approximately forty minutes describing the nine processes of reasoning. They were allowed to ask questions and were given two pages of dittoed information describing each mode of reasoning and giving an example of each one (a copy is included below). The lecture and printed material were concerned only with a description and explanation of the processes, not with the evaluation or testing of them. Next each student was given two dittoed pages containing twelve one-paragraph arguments, which included all nine types of reasoning with three types repeated. Each argument was to be identified according to the system which had

been explained to them. They were allowed to use the information sheets and notes from the lecture. No time limit was placed on the test, but all students completed it in about twenty-five minutes.

The results were analyzed in two ways. The first was a simple percentage of the number of correct identifications for each sample of argument. The summary shows that eight out of the twelve examples of argument were correctly identified by a majority of the students. Three of the types of argument were duplicated in the examples, and a study of the percentages shows that with one exception, each type of argument was identified correctly by more than fifty percent of the students. For example, although one of the arguments from criteria was identified by forty-one percent, the other was identified by sixty-two percent. The sole exception was an argument from sign which received only forty-five percent correct identifications. However, with nine modes of reasoning to select from, the statistical probability of each type of argument is one out of nine, or eleven percent, and all of the correct identifications are well above that percentage. This rough measure indicates that arguments can be clearly identified in terms of this system.

The second test used was a chi-square test, which determined if the number of correct answers deviated significantly from the chance expectation.<sup>1</sup> Again, with nine modes of reasoning, the expected number of correct identifications by chance would be one out of nine or three out of twenty-nine. The chi-square test gives the significance of a deviation

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<sup>1</sup>The statistical methods used for this analysis were taken from Benton Underwood, et. al., Elementary Statistics (New York: Appleton, Century, Crofts, 1954); and J. P. Guilford, Fundamental Statistics In Psychology and Education (New York: McGraw-Hill, 1950).

from that expected correct score of three for each example. For this experiment, a chi-square of 6.35 or larger is significant at the one percent level of confidence, that is, the result could be expected to happen by chance less than one time out of a hundred. A study of the summary below shows that the correct identifications were significant for beyond the one percent level for all nine types of argument, which means that the students were able to identify each type of argument according to the reformulation with an exceptionally high degree of accuracy. The only example which was not significantly identified at this level was example G, which is significant only at the ten percent level. However, the other example of sign reasoning received a highly significant number of correct identifications.<sup>1</sup>

This experiment, though preliminary, suggests that the reformulation can be taught, understood, and applied with significant results, and thus is a practical and workable formulation.

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<sup>1</sup>The conclusion I drew from these statistics was that the example itself was confusing. The causal nature of the reasoning is obscured by the phrasing of the argument, and apparently this made it difficult to identify correctly.

## SUMMARY OF TEST RESULTS

<u>Argument</u>	<u>Correct Guesses</u>	<u>Percentage of N (29)</u>	<u>Chi-square</u>
A. Comparison	21	72	121
B. Authority	29	100	251
C. Example	23	79	149
D. Circumstantial Evidence	15	52	53
E. Definition	18	62	84
F. Criteria	12	41	45
G. Sign	6	21	3.34
H. Cause	21	72	121
I. Analogy	29	100	251
J. Criteria	18	62	84
K. Example	12	41	45
L. Sign	13	45	37

## (SAMPLE INFORMATION SHEET PAGE 1)

## TYPES OF REASONING

## 1. Argument from Example to a Descriptive Generalization

A general characteristic or pattern is inferred from one or more examples.

There exists chronic misadministration in the system of unemployment compensation. In California alone, state officials estimate, one out of every five dollars paid this year in unemployment compensation has gone to workers who had no legal claim to the money. In New York fraudulent claims represent nearly forty-two percent of the claims made in a year's time in that state.

## 2. Argument from Criteria to a Verbal Classification

Characteristics of an event are presented to show that it fits into a verbal category or that it should be labeled in a certain way.

On individual health insurance policies, companies spend for overhead and profits an average of about 60% of what you pay them and only about 40 cents of your premium dollar goes for benefits to policyholders. Obviously such insurance is a mighty poor buy.

## 3. Argument from Definition to Characteristics

A situation is defined or identified and certain characteristics are asserted to follow logically from that definition.

We can not say what a scientific breakthrough in nuclear weapons will be. By the very nature of a breakthrough this information is largely at this time classified and we don't know what a breakthrough is going to be until it actually occurs. I think this is obvious by the definition of a breakthrough.

## 4. Argument from Sign to an Unobserved Event

The existence of one event is taken as an indication that another event or situation or state exists.

We contend that we should not have recognized the Russian government. This meant that we approved the Communist government, since the diplomatic recognition of a government indicates that we approve of it.

## 5. Argument from Cause to Effect

This is a prediction of the effects of an event: If A occurs, B will result.

The Free World as a whole is growing in military strength every

## (INFORMATION SHEET, PAGE 2)

day. In the United States, Western Europe, and throughout the world, free men are alert to the Soviet threat and are building their defenses. This may discourage the Communist rulers from continuing the war in Laos--and from undertaking new acts of aggression.

#### 6. Argument from Circumstantial Evidence to Hypothesis

The conclusion is a pattern, event, or fact which explains or accounts for the existence of other facts.

The first announcement of the steel price increase was made by the Carnegie Illinois Steel Corporation. Bethlehem Steel and Inland Steel, as well as other large concerns, followed suit without hesitation. By a remarkable coincidence these companies were inspired to achieve this increase by switching their quotation base from gross tons to net tons. Now, doesn't that look as if there was a definite oligopolistic agreement for the control of prices?

#### 7. Argument from Comparison

Two situations are shown to be similar in facts and characteristics. Statements about one situation are asserted to apply to the other.

Would doctors under national health insurance be regimented and spend long hours making out reports, etc.? You can put all that talk down as plain baloney. Today under voluntary health insurance, doctors have the same problems regarding the making of reports, arrangements for payment of their services, handling of hypochondriacs, etc., as they would under national health insurance. The only difference so far as the doctor is concerned is that his bill would be paid by a check from a national insurance fund instead of from a private insurance fund.

#### 8. Argument from Analogy

The abstract relationships of one situation are compared to another situation, and conclusions drawn about the first situation are asserted to apply to the second.

People want to know why prices continued to go up after price controls were enacted. You and I realize that we simply cannot apply the brakes suddenly to a truck going seventy miles an hour without a smash-up. You have to apply the brakes gradually. We must be fair to the three million business concerns selling more than eight million items.

## (INFORMATION SHEET, PAGE 3)

## 9. Argument from Authority (Testimony)

The truth of a conclusion is supported by the fact that an authoritative person or institution asserts it.

Many small nations have the ability to develop nuclear weapons. The London Disarmament Conference, in its follow-up report of 1957, said, "On their own without outside help, the following nations can achieve nuclear weapons: Belgium, Canada, Sweden, Switzerland, France, Japan, India..." and many other nations."

(SAMPLE TEST, PAGE 1)

EXAMPLES OF ARGUMENT

A. \_\_\_\_\_

The course we have been following in the Korean War is calculated to avoid an all-out war. Our experience in Greece and Berlin shows that it is the most effective course of action we can follow.

B. \_\_\_\_\_

The Soviet Union now has the capacity to destroy us in the tactical weapons field, with nuclear weapons. It should be pointed out, as it was by Hanson W. Baldwin, military editor of the New York Times, in The Great Arms Race, 1959, "The Soviet armed forces, capable ten years ago of fighting only a war with conventional non-nuclear arms, has developed a powerful nuclear capability without weakening its conventional capacity. Today Moscow can fight an unlimited as well as a limited nuclear or a non-nuclear war."

C. \_\_\_\_\_

The United States consistently has supported and will continue to support the movement of peoples toward self-government and national independence. Since the late nineteenth century, when we ourselves first became responsible for territories in the Pacific, we have fostered national independence and the growth of free democratic institutions. We cite our record in regard to Philippine independence. Our recent participation through the United Nations in the Dutch-Indonesian settlement is a more recent example of this policy

D. \_\_\_\_\_

Why has the Soviet Union not extended its power to the English Channel since the close of World War II? A few may argue that the failure is evidence that the rulers in the Kremlin have no desire to spread their doctrine. In the light of recent history any such assumption appears not only improbable but highly dangerous. Others may think the failure reflects the inability of the Communist Party in France, Italy, and the Low Countries to pull off another such revolution of the Czechoslovakian type. But probably the one deterrent to direct military aggression has been and is today, the overwhelming destructive power of the United States strategic air force armed with the atomic bomb. If Russia tomorrow should move its troops toward the Atlantic Ocean, European territory would be conquered, but the Russian Industrial centers would be destroyed from the air. That would be a bad swap from any point of view.

(SAMPLE TEST, PAGE 2)

EXAMPLES OF ARGUMENT

E. \_\_\_\_\_

This is, we often hear, a Christian country; as the message of Christ calls us to good will, to the love of our neighbor, to the renunciation of the goods of this world, to humility, and to the forgiveness, not the slaughter, of our enemies. To say that we must kill Communists because they are atheists and we are Christians is a strange distortion of Christianity.

F. \_\_\_\_\_

We contend that Congress is not representative of the people. If policy is to be made by a majority of the people, then the Congressional majority cannot be equated with the majority of the people. Let's look at some statistics. Two-fifths of the population elect three-fifths of the representatives to the House, and the majority of the senators are elected by only nineteen percent of the population.

G. \_\_\_\_\_

Question: You think that government X is not a police state?

Answer: The idea of a police state is something which would make it completely impossible to have a free election, so the fact that the elections of 1958 and 1960 were found by the United Nations to be fair and free should make it certain that there is no police state in that country.

H. ....

Recognition of Communist China would harm our relations in Asia simply because we will be retreating once more in the face of a Communist bluff. We have said we are going to defend Formosa against Communist Chinese attack; now if we abandon the island of Formosa, the effect on the Asians, I am sure, would be quite startling. Further, would it be wise for this country, at this time especially, to recognize this government when they continue to violate international law? We consider then that the effect on the Asians would be to decrease our prestige in Asia.

I. \_\_\_\_\_

The best time to meet the threat of war is in the beginning. It is easier to put out a fire in the beginning when it is small than after it has become a roaring blaze.

(SAMPLE TEST, PAGE 3)

EXAMPLES OF ARGUMENT

J. \_\_\_\_\_

In the seven months period that followed the outbreak of the Korean crisis, prices and inflation so rose in this country that the government lost 4 billion dollars in defense expenditures alone, and the consumer public lost some 20 billion dollars because of the inroads that inflation made upon our economy. Thus, the results of inflation were harmful and detrimental during that period.

K. \_\_\_\_\_

Inflation is harmful and detrimental to the economy. In the seven months period that followed the outbreak of the Korean crisis, prices and inflation so rose in this country that the government lost 4 billion dollars in defense expenditures alone, and the consumer public lost some 20 billion dollars.

L. \_\_\_\_\_

Previous to 1950 Soviet Communism had spread by subversion and internal revolution, not by military aggression. The aggression of the North Koreans show us that the dwellers on the Kremlin are willing to use military means to gain their objective.

## **APPENDIX B**

## STATISTICAL SUMMARY

In the research for this thesis at least 250 samples of argument were identified and analyzed. The frequency of occurrence of each of the nine modes of reasoning will give some indication of its importance in rhetorical reasoning. The three most commonly used modes are reasoning from example, from criteria, and from testimony. Fourth in order of frequency is argument from definition. In the second table, which summarizes the occurrence of the arguments in academic debates, the arguments from example, from testimony, and from cause increase in frequency, while the other modes decrease in usage.

In evaluating the tabulation, three biasing factors should be noted. First, some types of content may require some modes more than others. For example, academic debate, legal discourse, and medical reports may use certain modes of reasoning more often than other types of discourse. Since 114 of the sample arguments are from academic debates, this will strongly affect the totals. Therefore, these have been also tabulated separately, so the function of reasoning in this particular type of discourse can be noted. A second type of bias may result from the overlapping of two modes of reasoning in a single argument. For example, an argument may utilize both argument from cause and argument from criteria. Usually these have been classified in both categories, but occasionally the argument has been placed in the class of the dominant mode of reasoning. A third bias may result from the fact that in analyzing the various modes of reasoning, I have occasionally searched out additional examples for purposes of analysis, particularly in argument from definition and argument from circumstantial evidence.

## SUMMARY

<u>Mode</u>	<u>Frequency</u>	<u>Percent of Total</u>
Argument from example	64	26%
Argument from criteria	51	20%
Argument from definition	18	7%
Argument from sign	13	5%
Argument from cause	25	10%
Argument from circumstantial evidence	14	6%
Argument from comparison	8	3%
Argument from analogy	5	2%
Argument from testimony	45	18%
Unclassified	7	3%
<hr/>		
<b>TOTAL</b>	<b>250</b>	<b>100%</b>

## SUMMARY OF ARGUMENTS TAKEN FROM ACADEMIC DEBATES

<u>Mode</u>	<u>Frequency</u>	<u>Percent of Total</u>
Argument from example	34	30%
Argument from criteria	19	17%
Argument from definition	3	2%
Argument from sign	3	2%
Argument from cause	16	14%
Argument from circumstantial evidence	1	1%
Argument from comparison	1	1%
Argument from analogy	0	0%
Argument from testimony	37	32%
<hr/> TOTALS	114	99%

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VITA

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