Flow Charts for Critical Thinking

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Those of us who approach critical thinking as a thinly veiled course in informal logic are concerned with issues such as the strength of arguments (understood in terms of truth-preserving or truth-indicating relations), the adequacy of explanations, and the truth or probable truth (correspondence to the world) of statements. If our goal is to empower students with a set of skills that will allow them to evaluate any piece of discourse, I believe this goal can be achieved if students ask a series of questions. What follows is a set of flowcharts that will walk a student through this evaluation process. I believe this might be a useful tool in our several approaches (e.g., informal logic, rhetoric) to teaching critical thinking.

I consider the arrangement of the charts fairly natural. Insofar as we are fundamentally concerned with the evaluation of arguments, it is reasonable to begin with questions regarding arguments. The early questions are very general, followed by more specific questions regarding deductive and inductive arguments, followed by questions regarding the truth or falsehood of the premises. Answers to some questions direct students to other charts. Of course, in some circumstances, students might want to use some of the later charts independently. For example, if one's concern is whether to accept Professor Smith's testimony regarding events in the American Revolution, one might want to go directly to the questions concerning testimony in Chart #5.

A flowchart approach to critical thinking is, by its nature, quite rigid: it is a highly structured decision-procedure. Each question is answered affirmatively or negatively. Answers lead either to evaluative conclusions or to additional questions. In principle this should result in uniform evaluations of arguments. In practice, of course, not all students will give the same answers to each of the questions. And some questions-questions regarding what constitutes a "significant number" of shortcomings in an inductive argument, for example-are questions for which there often is no obviously correct answer. So, students should be prepared to defend their answers to the questions. While the evaluative structure is rigid, in practice there is ample room for reasoned dsagreement.

The flowcharts provide a structured summary of issues discussed in a critical thinking course. While I should like to say that the flowcharts account for at least some of the improvement my students exemplify by the end of the course, I have

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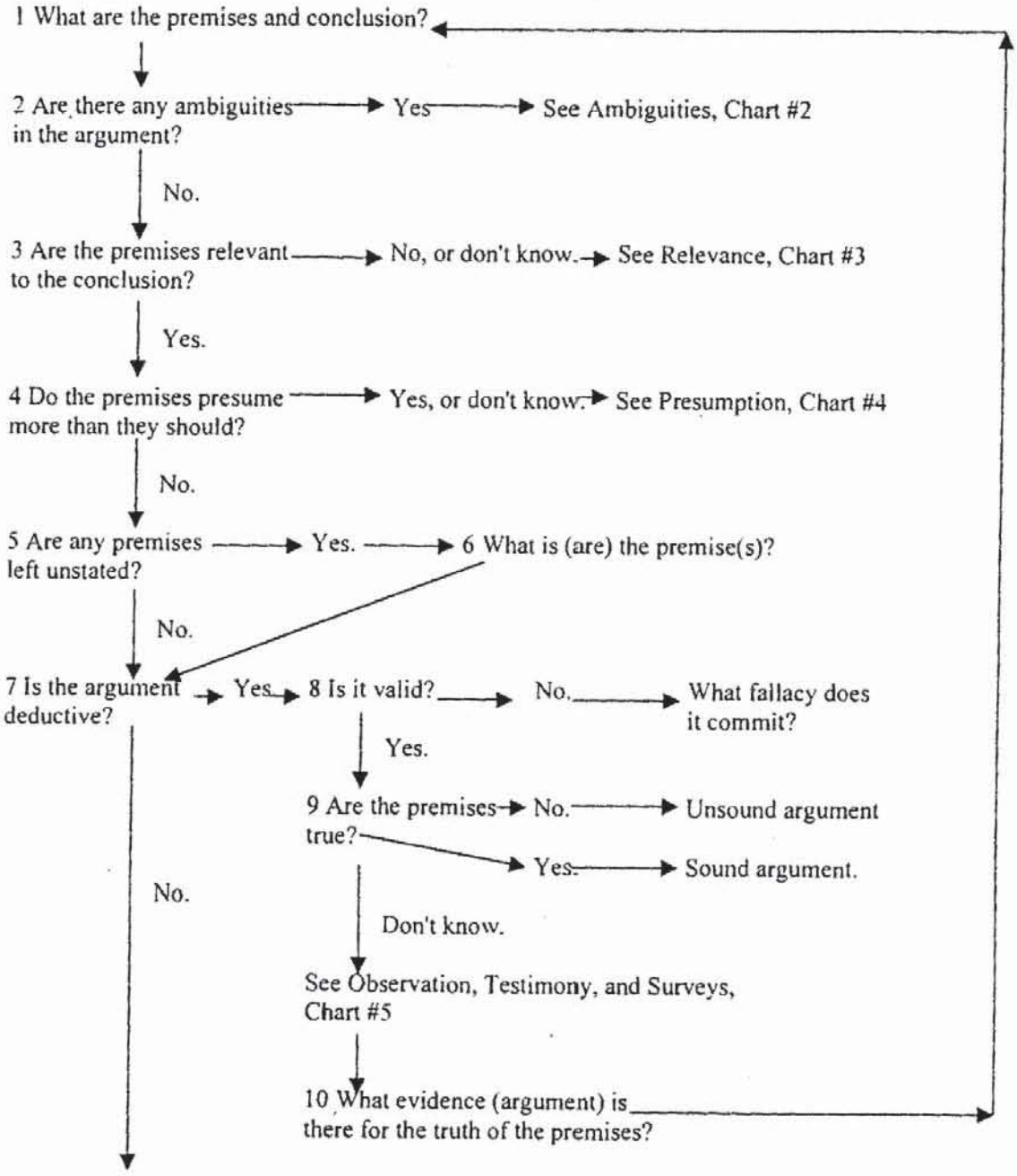
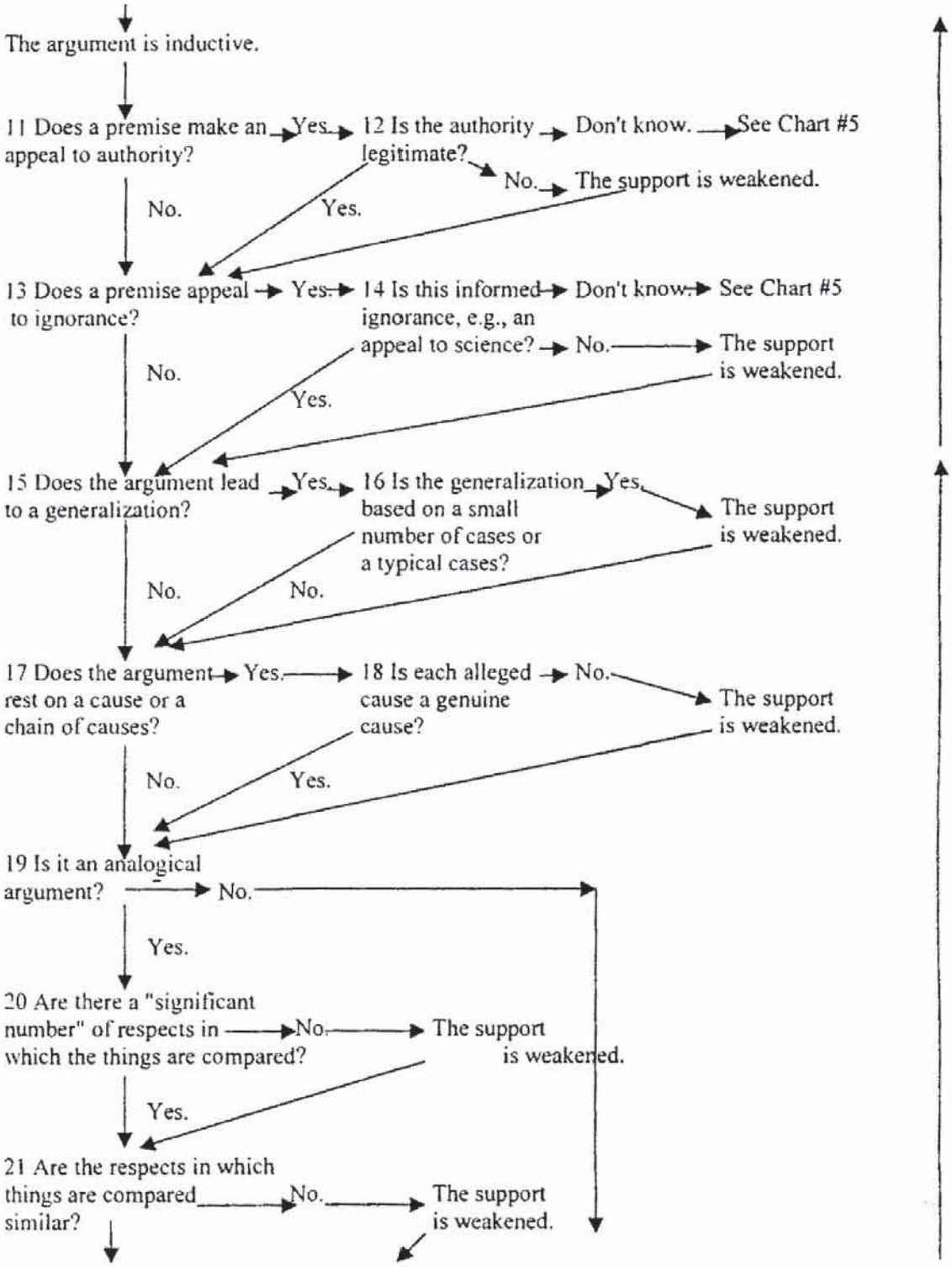
been unable to find a testing procedure to determine that the charts themselves account for the improvement. I hope you will find the flowcharts useful.

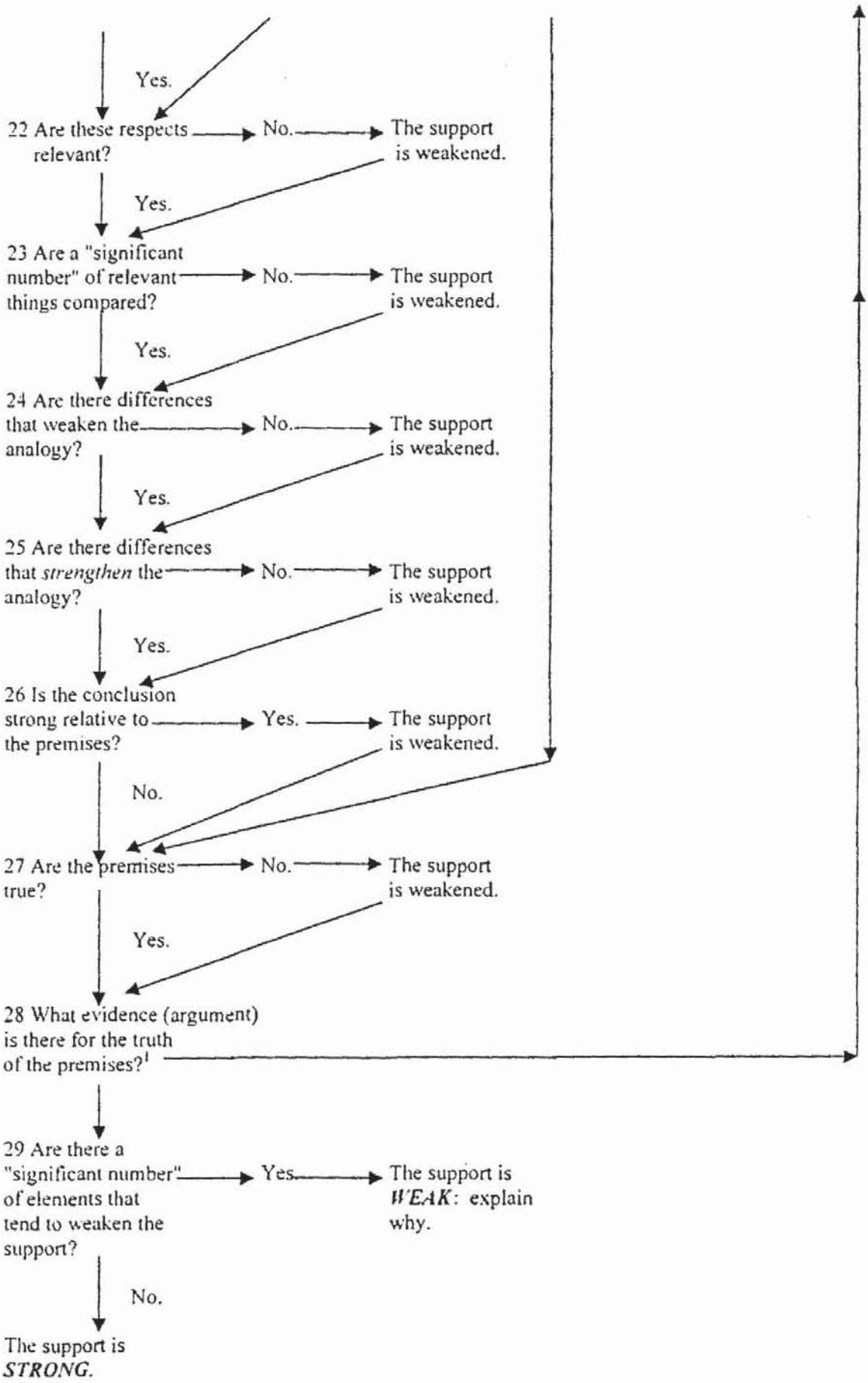
Chart #1

Preliminary Questions

Assuming there is an argument:

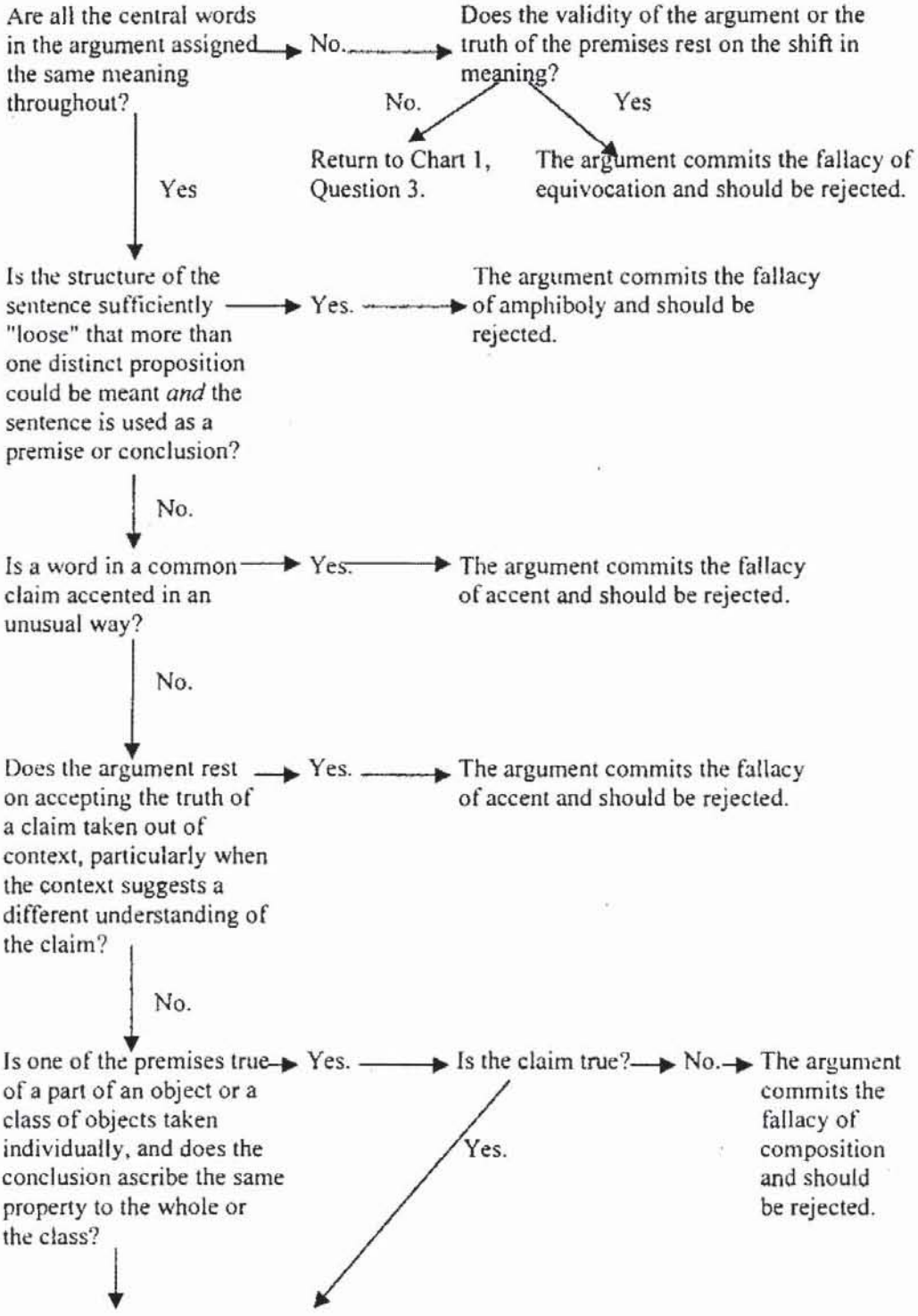



The argument is inductive.
11 Does a premise make an appeal to authority?
Yes.
12 Is the authority legitimate?
Don't know.
See Chart #5
No.
The support is weakened.
No.
Yes.
13 Does a premise appeal to ignorance?
Yes.
14 Is this informed ignorance, e.g., an appeal to science?
Don't know.
See Chart #5
No.
The support is weakened.
No.
Yes.
15 Does the argument lead to a generalization?
Yes.
16 Is the generalization based on a small number of cases or a typical cases?
Yes.
The support is weakened.
No.
No.
17 Does the argument rest on a cause or a chain of causes?
Yes.
18 Is each alleged cause a genuine cause?
No.
The support is weakened.
No.
Yes.
19 Is it an analogical argument?
No.
Yes.
20 Are there a "significant number" of respects in which the things are compared?
No.
The support is weakened.
Yes.
21 Are the respects in which things are compared similar?
No.
The support is weakened.



[1] In some cases, by answering the previous questions you have examined the evidence for the truth of the premises.

Chart #2
Ambiguities in Arguments



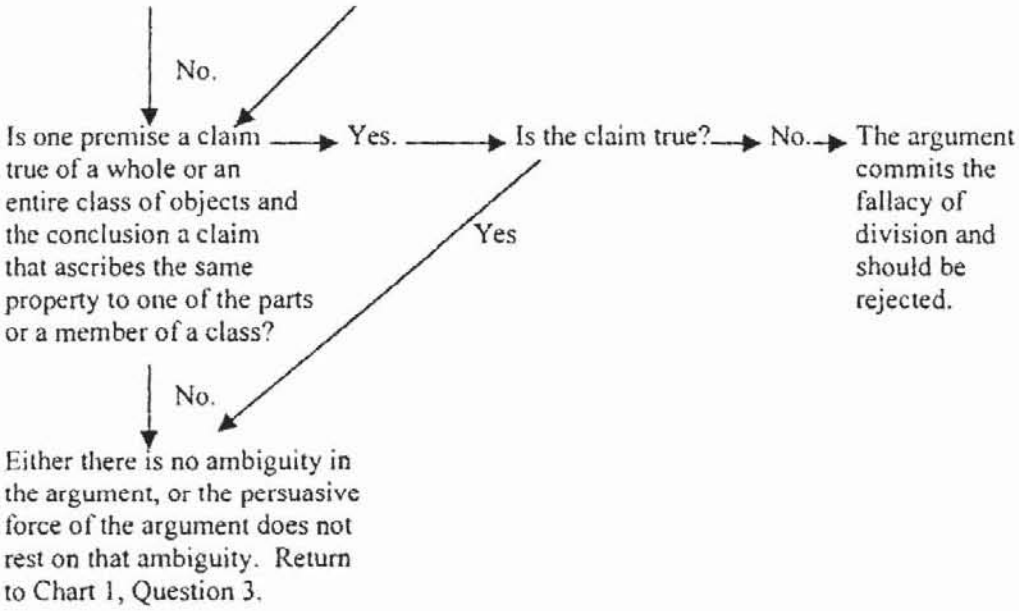
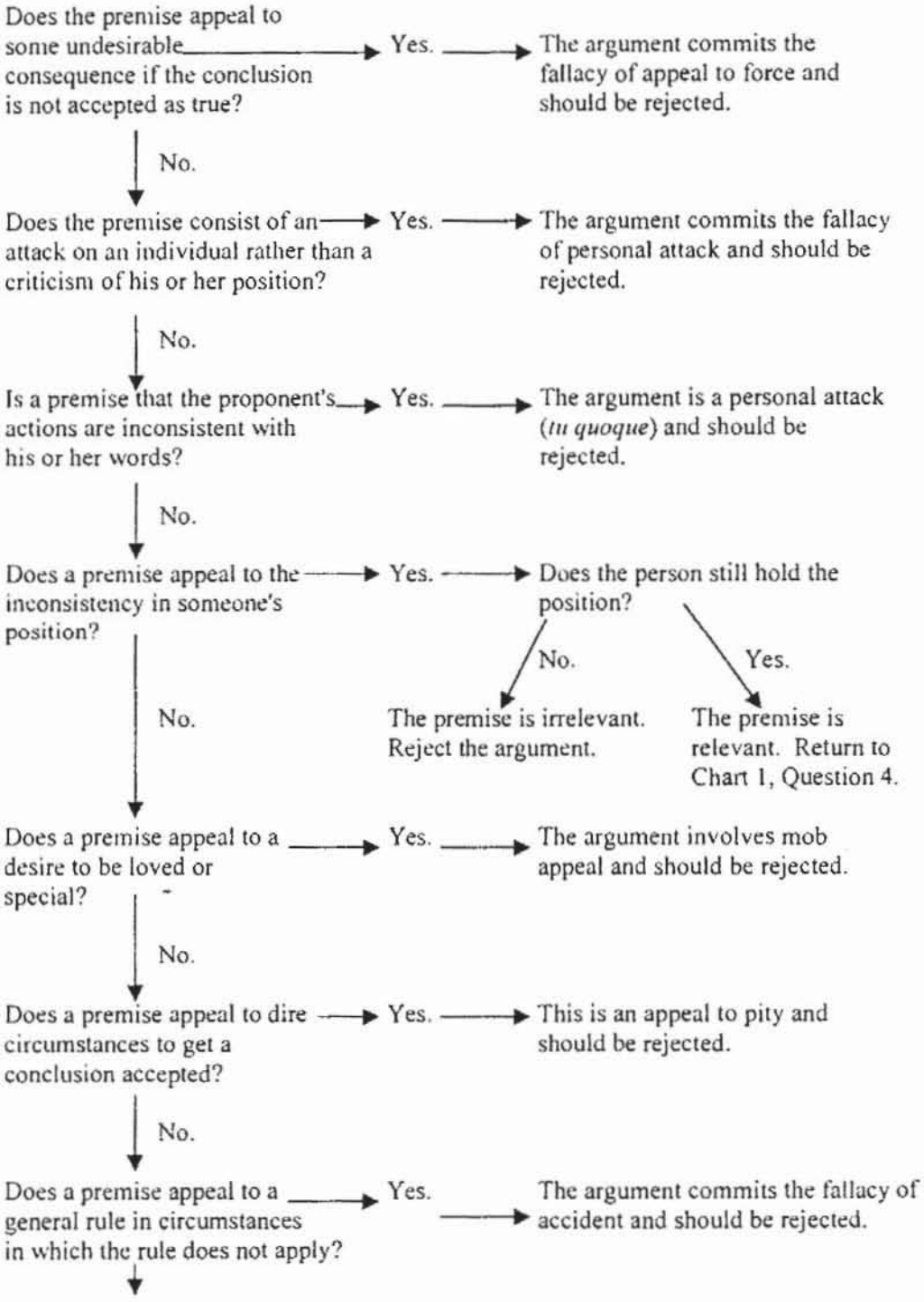

No.
Is one premise a claim true of a whole or an entire class of objects and the conclusion a claim that ascribes the same property to one of the parts or a member of a class?
Yes.
Is the claim true?
No.
The argument commits the fallacy of division and should be rejected.
Yes
No.
Either there is no ambiguity in the argument, or the persuasive force of the argument does not rest on that ambiguity. Return to Chart 1, Question 3.

Chart #3
Relevance



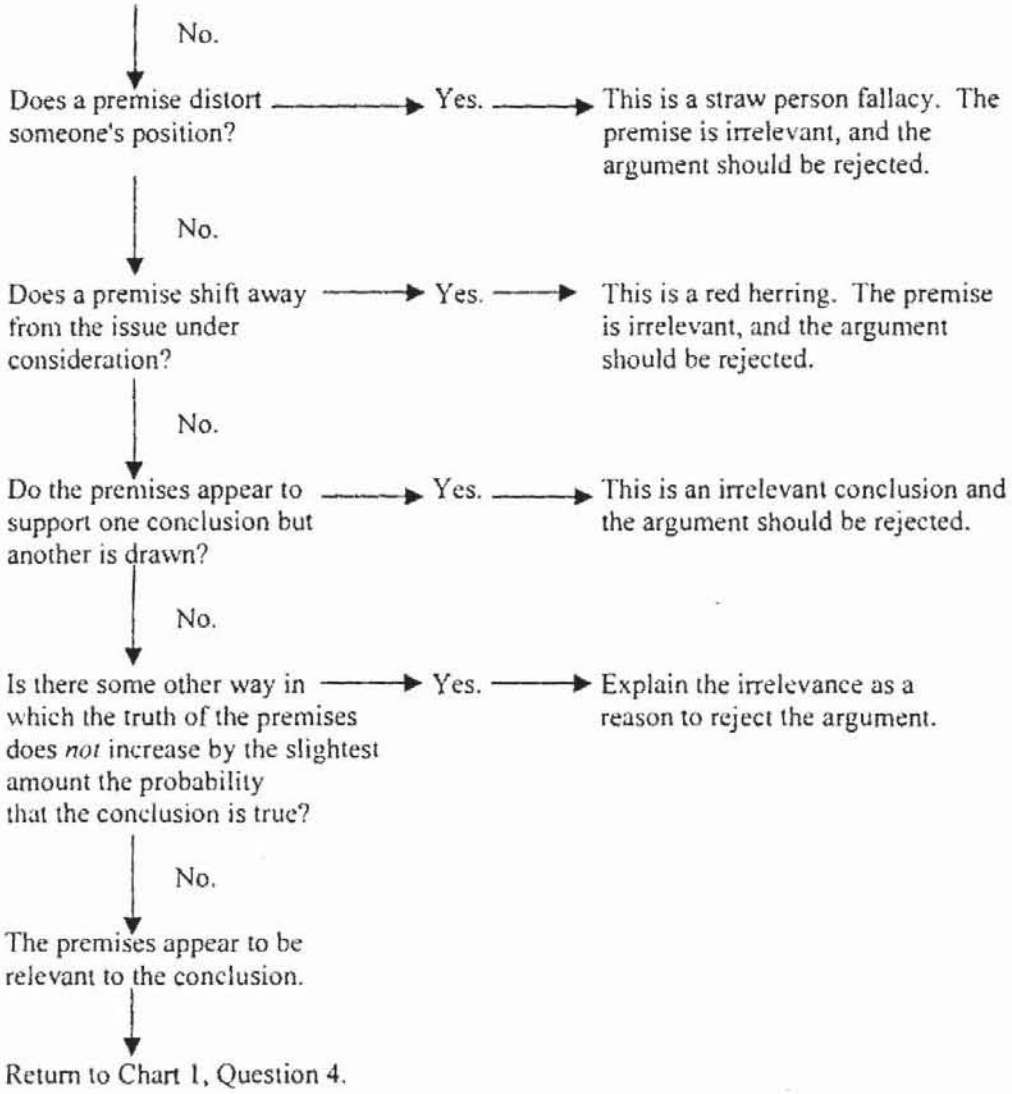

No.
Does a premise distort someone's position?
Yes.
This is a straw person fallacy. The premise is irrelevant, and the argument should be rejected.
No.
Does a premise shift away from the issue under consideration?
Yes.
This is a red herring. The premise is irrelevant, and the argument should be rejected.
No.
Do the premises appear to support one conclusion but another is drawn?
Yes.
This is an irrelevant conclusion and the argument should be rejected.
No.
Is there some other way in which the truth of the premises does *not* increase by the slightest amount the probability that the conclusion is true?
Yes.
Explain the irrelevance as a reason to reject the argument.
No.
The premises appear to be relevant to the conclusion.
Return to Chart 1, Question 4.

Chart #4
Presumption

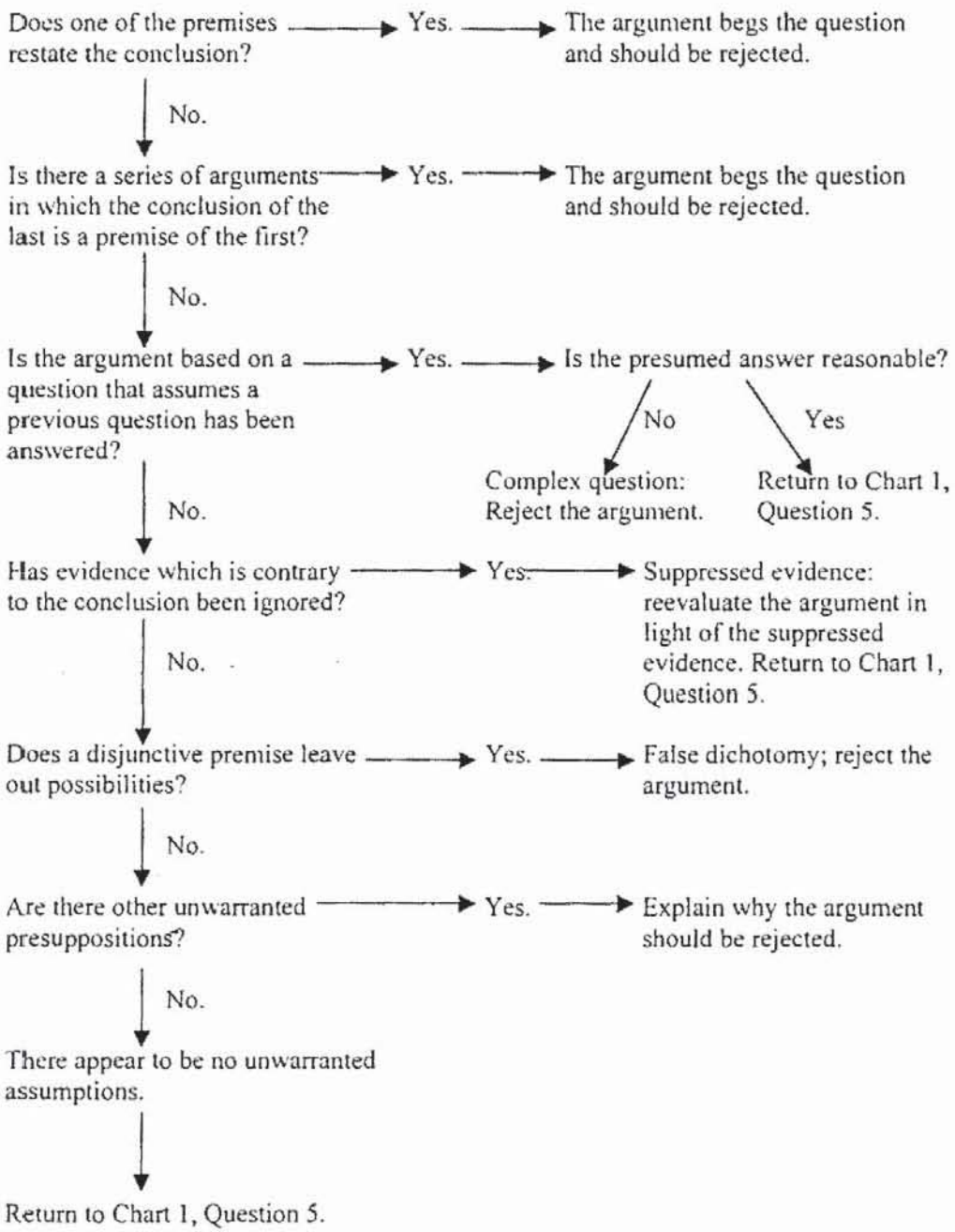
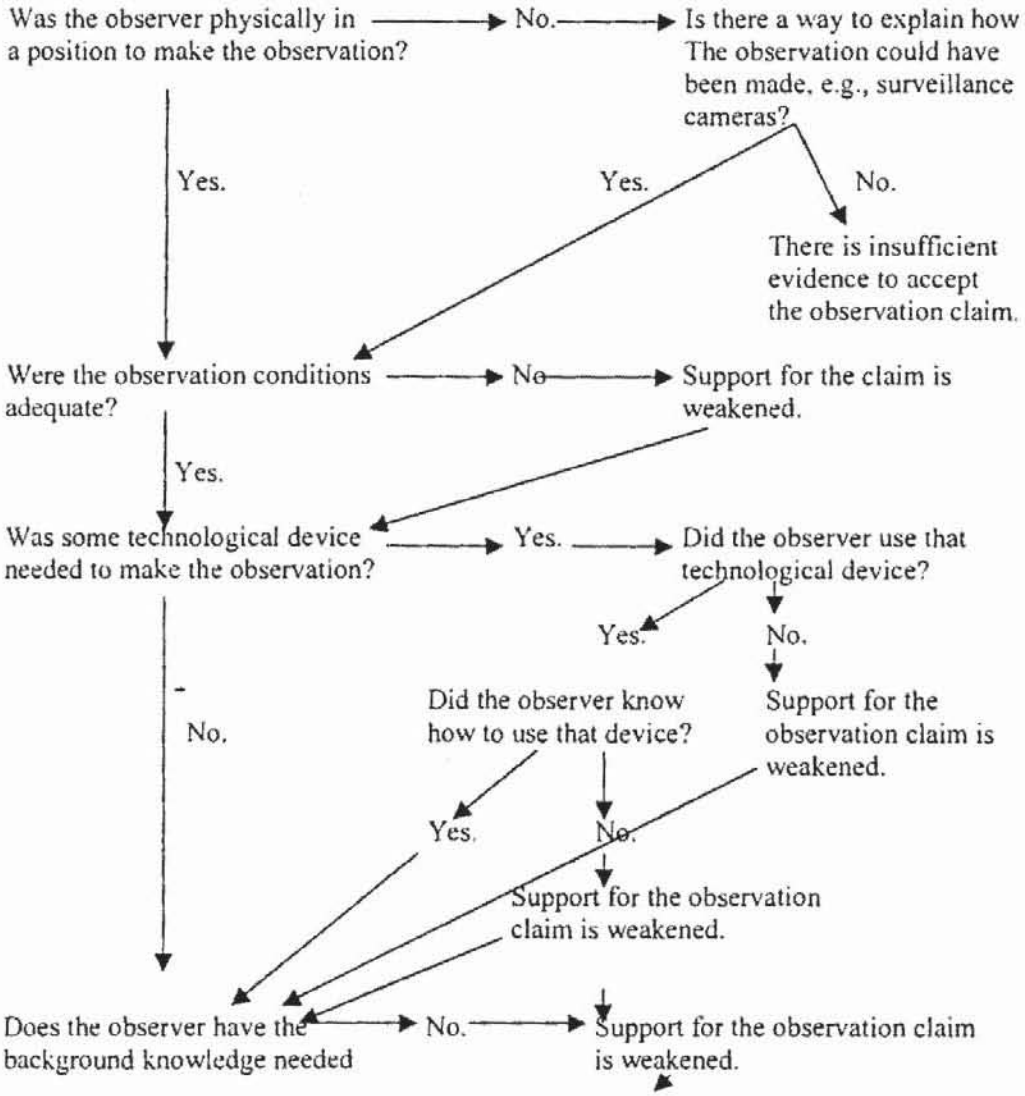
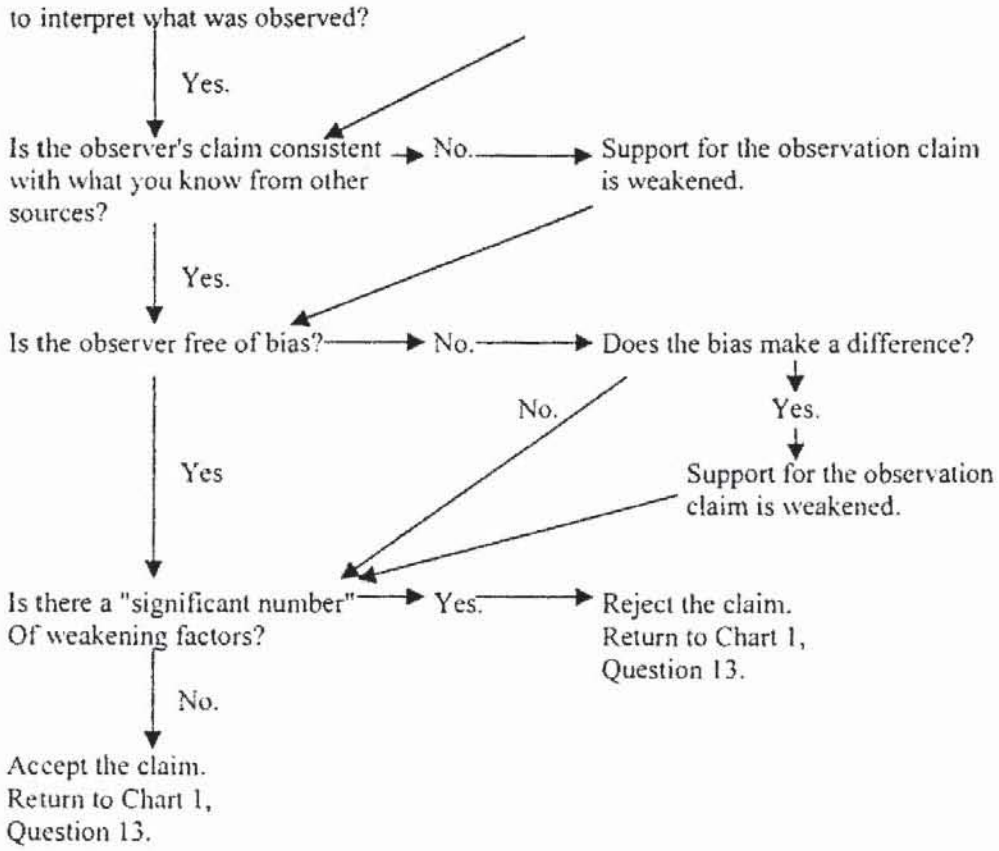


Chart #5
Observation, Testimony, and Surveys

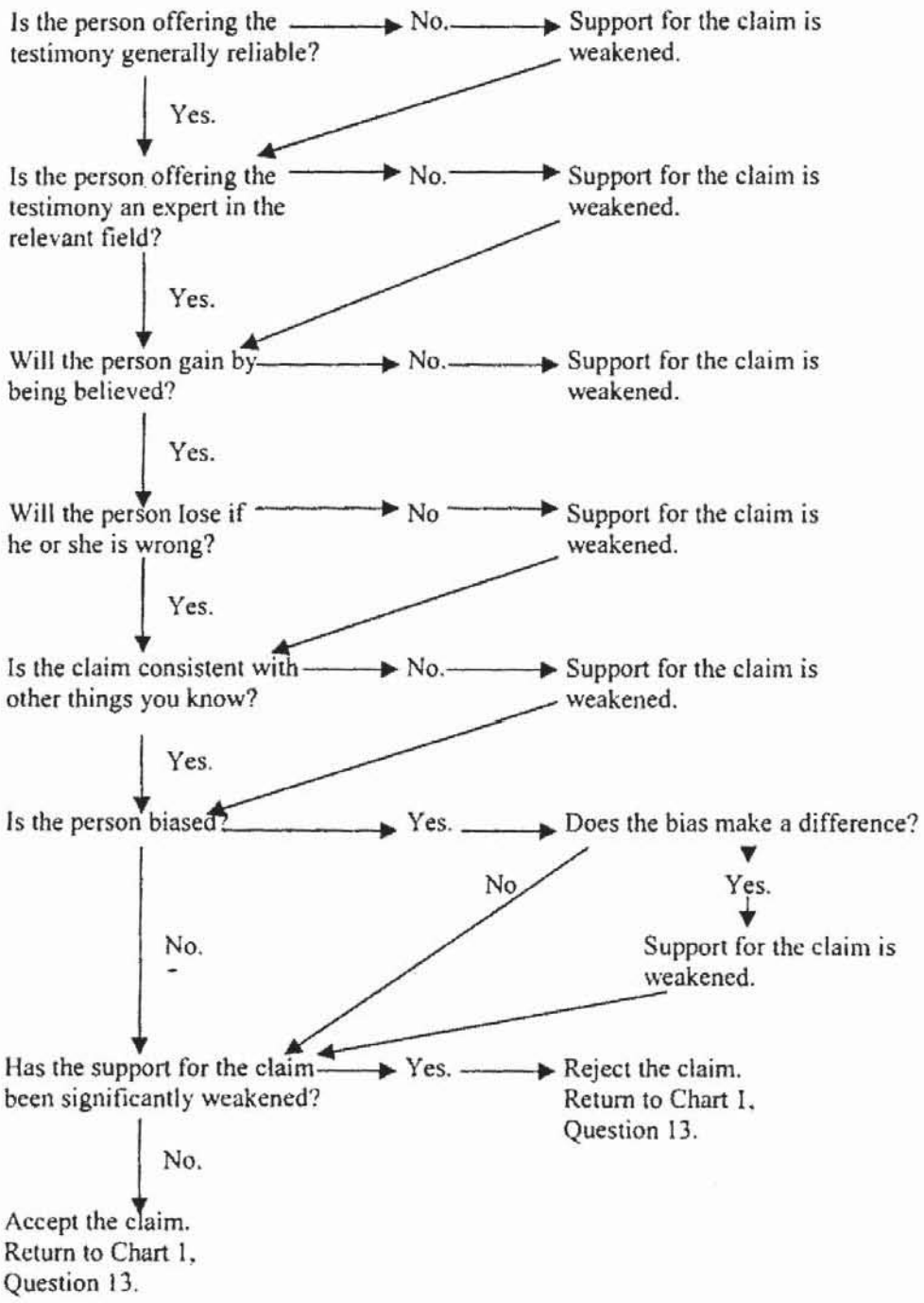
Testimony comes in many forms. There are observation claims—and the processes of observation—which require evaluation. There are authoritative testimonies. There are surveys. In each case, to evaluate the claims made you, in effect, engage in inductive reasoning. The questions on these charts provide a guide for evaluating claims of each sort. Like all cases of inductive reasoning, however, answering these questions will *not* provide conclusive reasons for your evaluation.

Observation

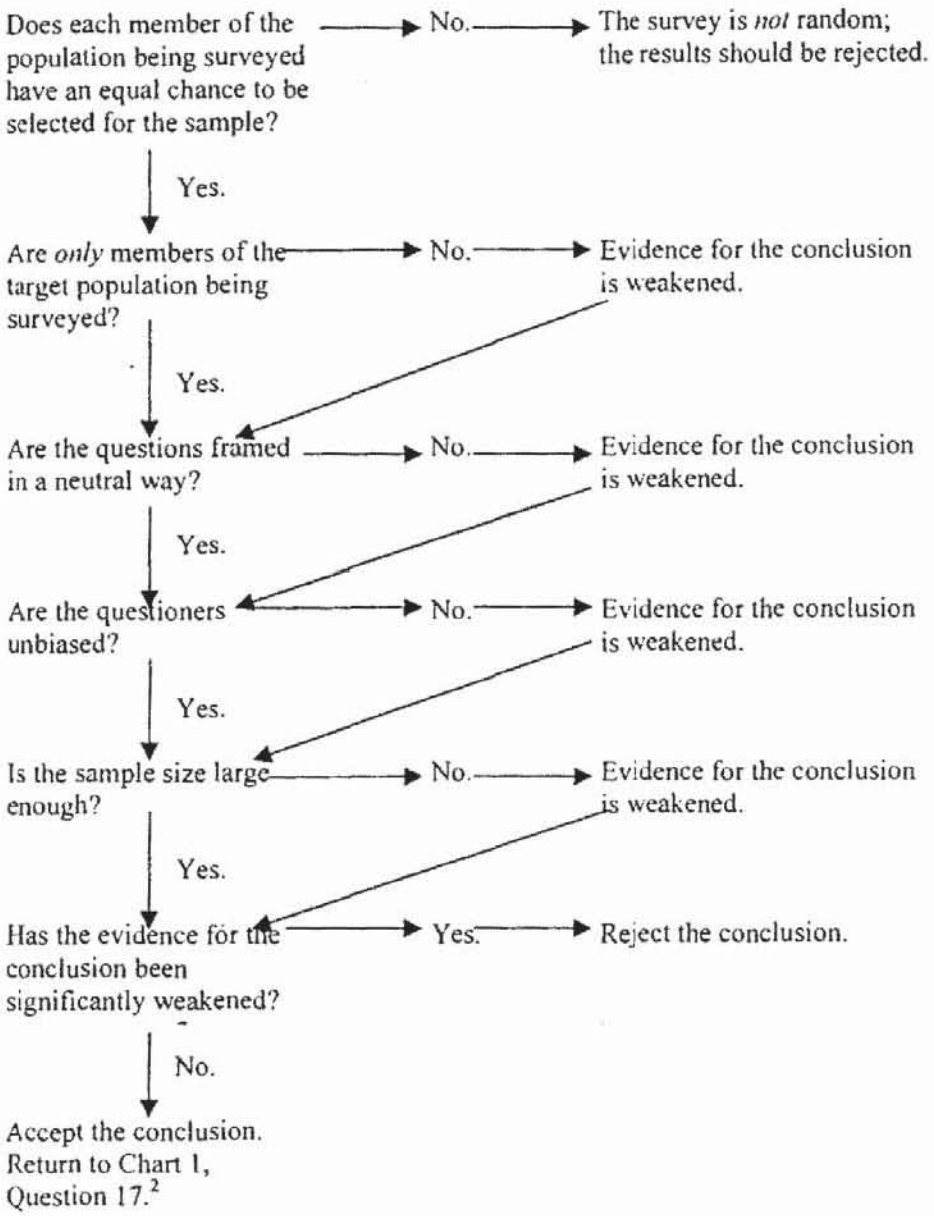



to interpret what was observed?
Yes.
Is the observer's claim consistent with what you know from other sources?
No.
Support for the observation claim is weakened.
Yes.
Is the observer free of bias?
No.
Does the bias make a difference?
No.
Yes.
Yes
Support for the observation claim is weakened.
Is there a "significant number" Of weakening factors?
Yes.
Reject the claim. Return to Chart 1, Question 13.
No.
Accept the claim. Return to Chart 1, Question 13.

Testimonial Evidence



Surveys



[2] I wish to thank Claude Gratton for his very helpful comments on an earlier version of this paper.