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A Comment on "Evaluating and Improving Argument-Centered Works in Marketing"

An article in a recent issue of this journal suggested that marketers adopt the tools of formal deductive logic to evaluate "argument-centered" works in marketing. In this comment, the authors argue that the criterion of deductive validity is inappropriate for evaluating such works and would require rejecting almost all principles central to advancing knowledge in general and marketing knowledge in particular.

SKIPPER and Hyman's (SH) article, "Evaluating and Improving Argument-Centered Works in Marketing" (1987), commendably draws attention to the "how to" of evaluating arguments, as well as to the question of the types of arguments required to support claims that purport to advance knowledge.¹ They propose theory-borrowing from philosophy: "... that the marketing community accept and frequently use well-established logical and philosophical tools to evaluate and improve argument-centered works in marketing" (p. 60). However, the "how-to" techniques they discuss are techniques that test for the feature of logical conclusiveness, whereas the need they discuss is that of evaluating the sort of informal arguments that cannot have the feature of being logically conclusive. As we explain, the error in the SH proposal is akin to using deductive logic to evaluate inductive reasoning.

¹We use the term "knowledge" here in its usual sense, rather than in the philosophical sense of "justified true belief."

Briefly stated, the problem is this: As SH point out, marketing scholars need means of evaluating what amount to nondeductive arguments—in their words, justifications of "[extensions of] claims to cases beyond the original evidence on which they are based" (p. 61). Any field that involves predictions or generalizations relies, wittingly or not, on such arguments. As we explain, such arguments are, by nature, logically inconclusive (i.e., even if all the premises are true, the conclusion could be false). Though SH correctly argue that the substantiation of "generalized claims" and the "extension of these claims to cases beyond the original evidence on which they are based" (p. 60) cannot be effected by arguments of the sort that guarantee the certainty of the conclusion, they contradict themselves in that the methods they propose to test substantiations of such claims are methods to test whether the certainty of the conclusion is guaranteed. Applied to logically inconclusive arguments, the proposed techniques can do no more than to reject the argument as deductively invalid and logically inconclusive. It is a mistake, then, to consider only such techniques; no discipline can afford the austerity of an approach that requires it to discard its valuable but logically inconclusive arguments.

The purpose of this comment is to show why it is...
inappropriate to apply techniques that are based on the notion of a logically conclusive argument to knowledge-extending arguments (i.e., arguments for claims that extend beyond the evidence on which they are based.) A related point is that, though knowledge-extending arguments cannot ever meet the criterion of being logically conclusive, we do (and, indeed, must) rely on them, and do (and must) distinguish between ones that we consider acceptable and ones that we do not. However, as we explain, it is the study of inductive, rather than deductive, inferences that applies to such knowledge-extending arguments. The points we make about argumentation and justification are by now basic, widely accepted ones in philosophy of science, but they are by no means trivial. In fact, it takes some reflection to realize their import.

**Putting the Tools of Deductive Logic in Perspective**

Skipper and Hyman first offer a typology of works in marketing. The distinction they make is between "argument-centered" and "proof-centered" works. Argument-centered works are defined as ones "in which the conclusion . . . , stated predominantly in a natural or nonformal language, seems to be drawn on the basis of evidence presented in the work. The earmark of such a work is that it contains nothing resembling a rigorous proof, yet the conclusion apparently 'stands to reason' or is 'intuitively obvious' given the premises" (p. 60). A "proof-centered" work is defined as one that "contains a conclusion argued in formal language and usually consists of either at least one fairly mathematically derived theorem from others, or mathematicized theorems applied to data samples with interesting results" (p. 61). They further state, "As a proof-centered work can confer on its conclusion no more certainty than is already contained in its premises, any foundation for the science of marketing must be sought in the argument-centered work" (p. 61).

But their typology, which classifies arguments according to whether they are stated informally or formally, does not make the distinctions that are relevant in identifying the kinds of arguments that are important for the advancement of knowledge. In stressing that a certain class of argumentation is necessary to advance knowledge, the important distinction is between a *conclusive* and an *inconclusive* argument. The reader may be more familiar with the distinction between deductive (conclusive) arguments and inductive arguments (ones that are logically inconclusive but in which the premises offer good evidence for the conclusion). For instance, (1) concluding that "consumers experience cognitive dissonance after purchasing an automobile" from the premises "consumers experience dissonance after making major purchases" and "automobiles are major purchases" is a deductive argument, but (2) concluding that "consumers experience dissonance after purchasing an automobile" from "studies based on random samples of consumers have shown that consumers experience dissonance after purchasing automobiles" is an inductive argument. A crucial difference is that in deductive arguments, if all the premises are true, the conclusion must be true. In inductive arguments, however, if all the premises are true, it is possible for the conclusion to be false; that is, the premises may lend support to, but do not guarantee, the conclusion.

It is by now a widely accepted point in philosophy of science that any activity that involves prediction or generalization, whether one calls it an art or a science, can be carried on only with the help of inductive inferences (Salmon 1979). The reason is that the conclusions of deductive arguments do not contain any more information than is already contained, even if only implicitly, in the premises (Salmon 1984). They may string together separate facts to produce a more organized or more general statement, or they may state what is implicitly stated in the premises in a way that strikes one as being surprising, but they can never lead one beyond the facts stated in the premises. Such arguments are called "non-ampliative." In contrast, inductive arguments are ampliative; the conclusion claims more than what is (even implicitly) stated in the premises. In capsule form, the difference is that inductive arguments are ampliative at the expense of being logically inconclusive, and deductive arguments are logically conclusive at the expense of being non-ampliative. Therefore, because the advancement of marketing knowledge requires making inferences that are more far-reaching than those that follow from deductive arguments, it is misguided to hold up the model of a conclusive argument as the ideal of argumentation.

The preceding distinction between inductive and deductive arguments seems to be the distinction SH were trying to capture with their typology, for they say that proof-centered works "guarantee the certainty of the conclusion" but "can confer on its conclusion no more certainty than is already contained in the premises" and that in argument-centered works, "the conclusion . . . seems to be drawn on the basis of evidence presented in the work" (p. 61). It seems that most, if not all, argument-centered works, as defined by SH, are inductive.

The thoughtful reader may suspect that any inductive argument can be recast into the form of a deductive argument and, strictly speaking, that is true. However, in the process a new premise must be added. The new premise might be an additional fact, a gen-

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2Here we are ignoring the possibility of synthetic a priori knowledge (see Salmon 1979 for a more detailed discussion).
eralization, or a statement that expresses an inductive principle. If the conclusion of the original argument is one that “goes beyond the original evidence,” though, it will not be possible to establish all the premises deductively. For example, the premise “consumers experience cognitive dissonance after making major purchases” in the deductive argument (1) cannot be justified deductively because it is a generalization to future experiences. Thus, for claims that “go beyond the original evidence,” this recasting involves the introduction of a premise that cannot be established deductively in exchange for an argument that is in deductive form. Hence the gain in certainty is illusory. Applied to “claims that go beyond original evidence,” SH’s “stepladder” approach (see p. 69) involves just such recasting. Their ideal is a deductive argument in which every premise is conclusively justified, that is, follows deductively from the available evidence (p. 64). But this ideal is inappropriate for claims that go beyond directly available evidence because it cannot, even in principle, be met (Salmon 1984). To reject every argument that cannot meet this demand is to reject every ampliative argument; any generalization from a sample to a larger population, any predictions about the future, and any claims made about variables that have not been measured directly would be rejected.

To gain some insight into what this ideal demands, we now consider what is involved in showing that an argument is deductively valid. To test for deductive validity (logical conclusiveness), SH propose use of the method of counterexample. To produce a counterexample to an argument, one describes a situation in which the conclusion of the argument is not true but in which all the premises are true. The situation need not be constrained by knowledge of the subject of interest or by plausibility. In SH’s words, “To demonstrate that an argument is invalid, one need only produce a single counterexample . . . [that] need not be drawn from reality . . . [it] may be factual, fantastic, or even bizarre, so long as it is noncontradictory” (p. 66). This method does test for deductive validity, but in doing so it rejects too much. For example, we can use this method to show that the premise added in the case described before (“findings based on data drawn from random samples hold for the populations from which the sample is drawn”), though one we appropriately rely upon, expresses a deductively invalid principle of inference. We need only imagine the (logically possible) situation in which a sample is chosen randomly and the people in the sample all experience dissonance after the purchase of an automobile even though the larger population does not. That such a situation can be imagined shows that the principle, “findings based on data from a random sample hold for the populations from which the sample is drawn,” is deductively invalid. In fact, any principle of inference that bases a claim about a population on data from a sample can be shown to be deductively invalid by the method of counterexample. The principle can be made as formal as one likes, complete with quantitative measures and mathematical theorems for explicating terms such as “random” and “sufficiently large,” but it cannot be made deductively valid. Yet, we would not consider the mere logical possibility of such implausible situations a serious objection. “Deductively invalid” (logically inconclusive), then, does not necessarily mean “not an acceptable argument” or “should be rejected.”

Revisiting Skipper and Hyman’s Treatment of an Argument From the Marketing Literature

In their article, SH use an example taken from the marketing literature (Hirschman 1985) to illustrate the methods they propose. Their treatment of the Hirschman article illustrates the two major points developed here: (1) that simply recasting an inductive argument into deductive form does not provide any stronger support for the conclusion and (2) the (in)appropriateness of rejecting an argument solely on the basis of a counterexample.

SH first set out what they take to be the premises offered in support of Hirschman’s central claim for the purpose of subjecting the argument to the test of deductive validity. They then use the method of counterexample to show that the justification offered for one of the premises (claim C2: “There are four acceptable scientific styles available for consumer research, though the style of the ‘analytical scientist’ currently dominates,” p. 67) is inconclusive. They suppose that C2 is false, that “due to some imaginary reason other scientific styles have no place in consumer research. The exact nature of this imaginary reason is irrelevant to the argument because any possibility we dream up will suffice. . . . All that is required is that [the reason] count as a ‘good reason were it to be true and not that it actually be true” (p. 67). They then examine the statements given in justification of claim C2 and show that it is logically possible (i.e., involves no logical contradiction) for the justificatory statements (P4 through P6) to be true under the supposition that C2 is false. On this basis, they conclude that the justification offered for C2 is an invalid argument.

Without taking a position on claim C2, we suggest

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3The method of counterexample was described in terms of premises and conclusions. Here the principle expresses an argument form with the premise, “Findings were based on data from a random sample,” and the conclusion, “These findings hold for the population as a whole.”
that the method of counterexample is not an appropriate basis for rejecting the justification of claim C2. The claim has to do with the acceptability of scientific styles in consumer research. As such, it is a claim that "goes beyond the original evidence," because it is a claim about how effective a style of research is in solving unsolved problems in consumer research. But what basis could one give for a scientific style being acceptable that is not subject to the same objection—that it is logically possible (imaginable) for that style to be inappropriate for solving a particular unsolved problem?

What one can say, using the method of counterexample, is that claim C2 does not follow from P4 through P6 deductively. What we take issue with is that SH take this to mean there is "lack of justification" for the claim. Using the method of counterexample as a basis for rejection would exclude any inductive justification whatsoever for claim C2. Though SH say, "There are inductive ways of establishing a general claim via a statistically based evaluation of a large number of examples" (p. 68), they seem either not to realize that their own methods would reject all such justifications (as demonstrated in the preceding section) or to arbitrarily hold some inductive justifications (because they are informal?) to deductive standards while granting others (because they are "statistically based") exemption from such standards. That is, they reject the evidence offered because it does not establish C2 deductively, yet they deviate from their own standard of deductive validity (p. 64) in suggesting the use of "a statistically based evaluation of a large number of examples" (p. 68). Of course, for justifying C2 there is no other option but to deviate from this standard. Because no evidence can establish C2 conclusively, no evidence will be able to pass the SH counterexample test. If the real question is "justification" for claim C2, it will not do to use deductive validity as a standard. What should be asked is whether, and to what degree, the premises offer support for the conclusion.

Skipper and Hyman suggest what they call the "stepladder" approach: to continue the analysis "until either the groundwork for a successful argument is developed or the conclusion is shown to be unsupported by any argument" (p. 69). The process they describe involves "improving" the argument by supplying new premises that would make the argument deductively valid, and then trying to establish all the premises deductively. But because conclusion C2 is a claim that "goes beyond available evidence," the only justification of C2 that would stand up to the method of counterexample would have to be a deduction from premises that could not all be established deductively from available evidence. Such a "stepladder" process would continue indefinitely until one just gives up trying to "improve" the argument and dismisses the conclusion as "unsupported by any argument." Because claims, both pro and con, about the topic addressed in the Hirschman article go beyond the available evidence, this process would result in rejecting all justifications for any general claim made about styles of research that are effective in solving unsolved problems in consumer research. Such are the limits of deductive logic: the range of what can be established deductively from one's available evidence often does not reach to the sorts of questions for which one is seeking answers.

**Nondeductive Justification**

Anyone involved in the advancement of knowledge—whether their methods are formal or informal, quantitative or qualitative—must use ampliative reasoning. However, no ampliative argument can be deductively valid. If deductive validity is not an appropriate criterion, what is the basis for judging whether a particular ampliative inference is warranted? In answering this question, our focus shifts to discerning the characteristics of ampliative arguments that a field considers acceptable.

In the study of ampliative inferences, the notion is that the premises should provide *inductive support for*, rather than *proof of*, the conclusion. As we state in our discussion of SH's treatment of the Hirschman article, the question of justification for C2, as with all ampliative arguments, is not whether C2 follows deductively from the statements offered in its support, but whether, and to what degree, those statements offer appropriate evidence in support of C2. To identify principles for judging what counts as appropriate evidence for inductive support of a claim, we must figure out what standards are involved or invoked in judging what counts as appropriate support for a claim in a particular field. Consider the example just mentioned: most marketing scholars would consider the kind of evidence cited by Hirschman (i.e., that a particular researcher is becoming respected in one's field and having work published) as providing appropriate inductive support for the claim that a particular researcher's style of research is acceptable. Such individuals might be relying on their own experience that people whose work has been published in the same or similar journals as work of the researcher in question have used research methods that they (the individuals critically evaluating the argument) consider acceptable. For such a fine of critical reasoning, the standard for inductive support might be that the conclusion is highly probable (used in conjunction with a particular interpretation of probability), given the evidence offered in its support. This is only one example, offered to provide an idea of the sort of principle that might
play the role of a standard for inductive support.

The task of identifying the standards a field uses to judge what counts as appropriate inductive evidence for a particular claim involves looking at practices in that field. The standards for what counts as acceptable inductive support may depend on the type of phenomena being studied (e.g., medical diagnoses, astronomy, weather prediction, psychology) because they often embody field-specific factual knowledge, or even presuppositions about the subject held by that particular scientific discipline (Dilman 1973; Salmon 1984), and are subject to change as that discipline evolves over time (Anderson 1986, 1988). In marketing, common examples of ampliative arguments are generalizations from samples, arguments based on similarity (analogies), and all causal arguments. Delineation of acceptable and nonacceptable ampliative inferences focuses on determining when a particular argument style is likely to lead to an acceptable inductive inference and when such inferences are likely to be fallacious. For instance, generalizations from samples typically are considered acceptable if the sample is sufficiently large and representative of the population from which it was drawn. Likewise, arguments based on similarity are acceptable when the features compared are relevant to the feature one wants to infer.

Thus, the evaluation of ampliative arguments often involves field-specific factual knowledge and/or presuppositions held about the subject (e.g., the implausibility of certain alternative explanations, or that causation does not go backward in time). The evaluation is rarely a matter of evaluating only the logical form of the argument. For example, in causal arguments, when ruling out alternative causal models, we often use plausibility considerations that are based on factual background knowledge or are presuppositions about causation held within our field. Considerable attention has been paid in philosophy of science to trying to capture the formal, logical aspects of good inductive reasoning, but few expect to define good inductive argumentation in terms of its formal and logical aspects alone.

It is important to understand that logic’s role, at bottom, is to capture the standards of acceptable reasoning. Hence, the tools of logic should not be accepted without careful consideration of the standard they are meant to capture. This is true even in the more straightforward case of deductive logic. For instance, as SH correctly state, classical logic—with its standard of logical conclusiveness—sanctions as acceptable some arguments in which the premises are not relevant to the conclusion and, in fact, sanctions as acceptable all arguments in which the premises contain a contradiction. Though SH do recognize that it “is very difficult for the nonphilosopher to become comfortable with this” (p. 63), they think nonphilosophers must learn to shake their initial reaction of feeling uncomfortable with calling such arguments acceptable. We think, however, that if the “analytical techniques of the logician” ask one to become comfortable with calling such arguments acceptable just because they fit “the logician’s” notion of validity, it is only fitting that one object to including those arguments among those one considers acceptable. It might be that the logical method has not totally captured the standards of acceptable argumentation that it set out to capture, or does not express the standard used in that discipline.

Indeed, even in fields as “pure” as logic, such objections have led to the development of more useful logics and methods. For instance, in relevance logic, the notion of logical entailment involves the requirement that the premises be relevant to the conclusion and does not allow that anything follows from a contradiction. It has led to a method for dealing more reasonably with datasets that contain contradictory statements (Belnap 1975). Similarly, much of mathematics cannot be expressed very naturally in terms of classical logic. As a result, logics have been developed especially for specific areas of mathematics to enable mathematicians to express basic concepts of those areas more naturally (Barwise 1985). As these examples illustrate, even in the evaluation of deductive arguments, classical logic is often not the last word.

Philosophy and philosophy of science do offer some techniques and insights that could profitably be brought into discussions on evaluating arguments in marketing works; this is true whether the discussions are about formal and quantitative methods or about informal and qualitative ones. Our main point is that it is the study of inductive, rather than solely deductive, inferences that applies in the evaluation of ampliative (knowledge-extending) arguments.

REFERENCES


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