

article

IGNORATIO ELENCHI: The Red Herring Fallacy

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It is a longstanding presumption of the tradition of logic that several major informal fallacies essentially involve failure of topical appropriateness or relevance. The ad baculum, the ad populum, and the ad misericordiam each involve an emotional appeal.¹ But there need be nothing wrong with appeals to emotion as such, nor need an appeal to emotion even involve argument, let alone fallacious argument. Indeed, many an emotional appeal is deceitful as a complete abandonment of argument covered up by the distraction of a naked appeal to emotion. What can be fallacious in emotional appeals however, where there is argument, is that the proposition that appeals to emotion turns out to be, in some important sense, irrelevant to the conclusion to be argued for. Thus if an advertiser tries to communicate the idea that his product is popular, there may be nothing fallacious in that. But if popularity is a premiss for the conclusion that his product is a good buy, or technically or nutritionally sound, an ad populum may be in the offing. Reason: popularity is not an appropriate or relevant basis for establishing technical performance or nutritional adequacy of a product. One has simply strayed off topic altogether.

The ad hominem is another case in point. Personal characteristics or circumstantial factors may often fail to be argumentatively connected in any serious way to the conclusion at issue. Perhaps it's true that our physician who cites evidence of the dangers of smoking cannot herself give up the habit. Yet to dwell on this interesting circumstantial inconsistency may commit an irrelevant appeal by masking the fact that the evidence cited by the physician is reasonable and good evidence, not to be overlooked.² Similarly, ad verecundiam³ may dwell on an appeal to the sayso of some glamorous "expert" in lieu of evaluating serious evidence for or against some proposition.

The term ignoratio elenchi (misconception of refutation)⁴ is often used, following in the Aristotelian tradition, to refer to failure of relevance in argument. But as Hamblin

comments, until we have some firm idea of what is meant by "relevance" in this context, just calling failure of relevance a fallacy is not any help.⁵ And indeed, historically the ignoratio elenchi has tended to become a rag-bag category to cover any argument where the author is uncertain why it is fallacious.

What has happened is that the ad populum, ad hominem, and other major fallacies, have stayed in the textbooks, but with the lame explanation that they are somehow failures of an argument to be relevant. The problem is that until we know what "relevant" means, we have no clear guidelines for showing clearly what really is fallacious about these arguments that so strongly seem to go wrong by being off topic.

Formal logic does not seem to be any help in resolving the problem. It is well known that classical logic has theorems like $p \supset (q \supset p)$ and $\sim p \supset (p \supset q)$, which suggests that classical logic is simply neutral on the issue of whether p and q are in any way topically related to each other. The classical material 'If . . . then' or \supset , only assures us that $p \supset q$ never takes us from a true p to a false q , never mind whether p and q are connected in any way.

The branch of formal logic called relevance logic is specifically designed to deal with "fallacies of relevance" like the two classical tautologies above. But the problem with it is that although it offers a variety of formal logics based on the idea of relevance, somehow--at least so far--it has not provided us with a clear basic idea of what "relevance" means in one or more of these formal logics. We need a concept of relevance that can be applied to fallacies like the ad baculum and ad verecundiam so that we can see specifically how these arguments are, at least sometimes, dramatic failures of a proposition to be relevant to a given argument or conclusion. "Relevant", that is, in a sense which shows us why such arguments can correctly be said to be fallacious. The problem is that the philosophical task of showing the relevance of relevance logics to the major fallacies of relevance remains unsolved, or perhaps even unaddressed. It is by no means clear that "relevance" in the technical sense of relevance logic is the same concept of relevance that is meant when we say that the ad misericordiam is a fallacy of relevance. Part of the problem, as we will see, is that quite a variety of notions of the connections between the antecedent and consequent of a conditional proposition could be involved.

"Relevance" could mean all kinds of things, but let us go back to the basic idea so often expressed that a proposition p is connected to (relevant to, related to) another proposition q , if p and q share meaning content.

Suppose we begin with the idea that an argument or discourse is about a set of topics, T . Of course, with many arguments, the set of topics that the argument can comprise is not firmly agreed on by the participants at the outset. But to work towards what we want to analyse, let us adopt the model of an argument, after Hamblin, as an interchange between participants. An argument, by these lights is then a sort of interchange or discourse between arguers, a back

and forth sequence of moves and countermoves. For a given discourse, let us make the assumption that the participants can establish a set of topics that comprises the legitimate subject of that discourse. Given an overall set of topics for a given series of interchanges, we can then look at any particular argument that is part of that series, and evaluate whether or not it is "off topic".

Following a suggestion made by David Lewis, we take every proposition p, q, r, \dots , in the discourse we are concerned with, and assign it its subject-matter, called p, q, r, \dots , which is in each case a subset of T_6 . Then we can say that p is related to q if there is subject-matter overlap between p and q . For example if 'Bananas are yellow' contains the subject-matters 'bananas' and 'yellow', and 'Bananas are nutritious' contains the subject-matters 'bananas' and 'nutritious', then the two propositions are related. They both contain the topic 'bananas' in their subject-matters. This is a clear and simple idea of "relevance", or relatedness as we prefer to call it, that provides a beginning point for exploring fallacies like those we have mentioned.

Clearly 'p is related to q' in the sense of overlapping subject-matters is a relation that is reflexive and symmetrical, but not transitive. The following example will show why transitivity fails. 'Bananas are yellow' is related to 'There are two bananas on my desk'. And the second proposition is related to '2+2=4'. But 'Bananas are yellow' is not related to '2+2=4'.

Here at any rate is one clear conception of relatedness of propositions--that of subject-matter overlap⁷--that offers a place to begin in analyzing fallacies of relevance.

A typical example of irrelevance in argument is given by Johnson and Blair (1977, p. 54), where then-Senator Paul Martin took exception to the slur contained in Arthur Hailey's Wheels that Windsor is as grimy and ugly as Detroit. Martin responded:

When I read this I was incensed . . . Those of us who live there know that [Windsor] is not a grimy city. It is a city that has one of the best flower parks in Canada. It is a city of fine schools, hard-working and tolerant people.

In critically analyzing this argument, Johnson and Blair point out that Martin's initial point about the flower park does tell against Hailey's appraisal. But instead of continuing to build his case for the beauty of Windsor, the Senator changed the subject, by effecting a quick transition to other topics: the hard-working and tolerant characteristics of the people of Windsor. This shift is a red herring or ignoratio elenchi move in the argument, as Johnson and Blair point out.

The thrust of the argument runs something like this, if we break it down into distinct premisses.

Premiss 1: Windsor has one of the best flower parks in Canada.

Premiss 2: Windsor has fine schools.

Premiss 3: Windsor has hard-working, tolerant citizens.

Conclusion: Windsor is not a grimy city.

Now the question is: how could what is fallacious about this argument be shown to be an incorrect argument in a relatedness modeling? The evidently insuperable initial problem is this: the fact is that there is subject-matter overlap between every premiss and the conclusion of the argument. Therefore, if ignoratio elenchi is failure of subject-matter overlap, then the above argument is definitely not an ignoratio elenchi at all!

What I think this shows is that subject-matter overlap between premisses and conclusion does not constitute a sufficient condition of correct argument. Perhaps another illustration will make this point more clearly. The thirteenth century logician William of Sherwood cites the two arguments below as incorrect. They are cited as instances of Ignorance Regarding Refutation (Ignoratio Elenchi)--see the translation of Kretzmann (1966, p. 156). (1) Socrates is naturally pious, but he is not absolutely pious; therefore he is both pious and not pious. (2) Socrates is running at time a (currit in a) and he is not running at time b; therefore he is both running and not running. Now notice that in both these arguments there is subject-matter overlap between premisses and conclusion, yet both arguments are clearly incorrect. Indeed, both are sophistical or fallacious arguments from premisses that are possibly true to a conclusion that can't be true.

So subject-matter overlap is not enough to rule out fallaciousness. To be a correct argument meeting reasonable standards that will avoid ignoratio elenchi, not only must there be subject-matter overlap but also the argument must not allow us to go from true premisses to a false conclusion. Hence the relatedness conditional, $p \rightarrow q$, must incorporate both requirements that (1) it is not the case that p is true and q is false, and (2) p is related to q .

In short, the reason why Senator Martin's argument fails is not failure of subject-matter overlap, but by virtue of the fact that the second two premisses simply fail to imply the conclusion, either deductively or inductively. It is neither impossible nor improbable that a grimy city might have hard-working and tolerant citizens.

Still, one might persist, isn't the red herring really explained by the evident presumption that 'has hard-working tolerant citizens' as a property of some city x , fails to have subject-matter overlap with 'is not a grimy city' for any x . The suggestion is that the following argument fails by reason of lack of subject-matter overlap, where x is any city.

Premiss 1: For all x , x has fine schools.

Premiss 2: For all x , x has hard-working, tolerant citizens.

Conclusion: For all x , x is not a grimy city.

And to be sure, this argument does fail to have significant subject-matter overlap, and is a bad argument.

So perhaps there is a second explanation of what is fallacious about Senator Martin's argument. It is, by these lights, really a true red herring after all and not merely a failure of implication not specifically due to subject-matter disjointedness. Still, even if this second analysis is acceptable, our general point remains that subject-matter connectedness by itself is not enough to assure correctness of an argument, as the examples from William of Sherwood show. For we cannot analogously reconstruct the William's arguments as failures of subject matter overlap. For example the reconstruction of (1) as follows remains incorrect: for some individual x , x is naturally pious but x is not absolutely pious; therefore x is both pious and not pious. This argument is incorrect, but it still has subject-matter overlap between its premisses and conclusion. Therefore generally we must conclude that ignorance of refutation involves more than just failure of subject-matter overlap. Topics are involved essentially, but they are not the whole story about ignoratio elenchi.

As can be seen by the examples cited above from William of Sherwood, the traditional Aristotelian fallacy of ignorance of refutation was not restricted merely to instances of failure of subject-matter overlap. Indeed, the Aristotelian tradition of the "topics", so influential in medieval logic, distinguished numerous different kinds of connections or "topics" that could relate the premisses and conclusion of a correct argument. Boethius followed Cicero's conception of a topic as sedes argumenti (a seat of argument), and described it as "that from which a fitting argument may be drawn for a proposed question" (De Differentiis Topicis). For these earlier authorities, a topic functions primarily as a way of finding new arguments, but for later writers like Abelard and Ockham the topic became the inferential basis of a conditional proposition.

Abelard claims that the topics show the inferential force (vis inferentiae) of all conditionals. According to Bird (1960) Abelard uses the topic as an "inference-warrant" that can accommodate formal as well as non-formal inferences. An example of Abelard's is that 'If it is man, it is animal' is a correct (good and necessary) inference whereas 'If it is stone, it is animal' is not, because the second lacks the relation of the Topical Difference of Species.

However, it is clear that genus-species was not the only topical relation recognized by the medievals, and in fact the diversity of the dialectical topics subdivided the kinds of correct conditionals they recognized into many classifications. For example we find in Peter of Spain an enumeration of some twenty-one topics including part-whole relations, attributions of place and time, causation, similarity, authority, adverbial modification, and so forth. What is common to them is that a topic is always a relation that warrants an inference.

This tradition of the topics suggests that the application of formal theories of the conditional to the wide varieties of failure of correct inference that are involved in many informal fallacies and practical argu-

ments is no simple matter. It appears to involve many different kinds of relations that link the antecedent to the consequent in conditionals. Subject-matter overlap is one such relation that helps to clarify one sense of "failure of relevance" central to understanding the modern conceptions of the ad populum, ad hominem and related fallacies. Clearly however, other kinds of relatedness relations are involved as well, if the many different varieties of conditional used in practical arguments are to be studied.

Let us turn to seeing how a general theory of relatedness could be formulated to accommodate the above requirements and still allow for a good deal of flexibility in application to specific arguments. We will see that it can be done by modifying the usual propositional calculus and requiring the relatedness of antecedent and consequent in order for a conditional to obtain. Could such a formal approach be useful?

Many of those who are drawn to informal logic see it as a subject that shows pedagogical promise in teaching students how to handle the practicalities of evaluation of argumentation in pragmatic situations like the consumer marketplace. Because they see it as a practical discipline they are skeptical that formal logic can be meaningfully applicable to realistic argumentation. After all, doesn't formal logic rest on a propositional calculus that certifies as valid argument forms schemata like $\sim p \supset (p \supset q)$? How could a logic that allows conditionals to obtain between ostensibly unrelated proposition be applicable to fallacies like the ad populum or ad hominem?

Yet on the other hand, if formal guidelines on what constitutes correct versus incorrect forms of argument are not available, how could practical logic of the informal sort ever offer clear and precise guidelines for evaluating arguments?

Perhaps the dilemma can be ameliorated by clarifying more precisely what is meant by "formal logic" in this context. True, classical PC is not a model of argument that suits the fallacies of subject-matter relatedness, but perhaps other formal approaches that deviate from classical logic in order to capture the relevant sense of propositional connectedness could be more useful.

One formal approach that shows great promise in studying fallacies associated with failure of subject-matter overlap is the relatedness logic of Epstein (1979). In relatedness logic, the conditional $p \rightarrow q$ is defined as incorporating the classical requirement that it not be the case that p is true and q false with the additional requirement that p be related to q . $\mathcal{R}(p, q)$ is read as 'p is related to q', a relation that is reflexive and non-transitive. It may be symmetrical or not, as you wish, but if relatedness is interpreted as meaning 'subject-matter overlap of p with q ' then clearly it is also a symmetrical relation. Negation is defined in the classical way. Conjunction and disjunction may be defined either as classical or as requiring relatedness, as you wish. However, it is proposed in Walton (1979) that for purposes of subject-matter relatedness, it is natural to think of disjunction as requiring

relatedness, but to think of conjunction as classical, i.e. not requiring relatedness. The final building block that yields a formal logic of relatedness is to show how the complex formulas are related to the simple formulas. The key ruling is this: p is related to $q \rightarrow r$ if, and only if, p is related to q or p is related to r . This ruling seems reasonable for subject-matter relatedness because it is natural to say that 'Socrates is snub-nosed' is related to 'If Socrates sprints then some man is running' because the simple proposition is related to one of the propositions in the conditional, namely the antecedent.

Given the requirements set out above, what forms of inferences come out valid or invalid? The usual truth-table decision procedure enables us to determine tautologies. Consider modus ponens.

p	q	$R(p,q)$	$p \rightarrow q$	$(p \rightarrow q) \rightarrow q$	$p \rightarrow [(p \rightarrow q) \rightarrow q]$
T	T	T	T	T	T
T	T	F	F	T	T
T	F	T	F	T	T
T	F	F	F	T	T
F	T	T	T	T	T
F	T	F	F	T	T
F	F	T	T	F	T
F	F	F	F	T	T

As you can see, the truth-tables are similar to classical logic except that we must take relatedness into account, in addition to the truth-values of the propositions.

As an example of a classical tautology that fails in relatedness logic, consider $[(p \wedge q) \rightarrow r] \rightarrow [(p \rightarrow r) \vee (q \rightarrow r)]$. This schema can fail as follows. Let q be true and r false, then the $q \rightarrow r$ in the consequent is false. Let p be unrelated to r , then $p \rightarrow r$ in the consequent is false. Hence, on this interpretation the consequent is false. But assume p is false. Then $p \wedge q$ in the antecedent is false, hence $(p \wedge q) \rightarrow r$ must be true, assuming that q is related to r , an assumption that is consistent with the assignments given to the consequent. In short, there is a consistent assignment of truth-values and relatedness relations that makes the antecedent of the schema in question come out true and the consequent come out false. Hence the schema fails to be a tautology. In general, truth-tables always enable us to tell whether an argument is correct or not in relatedness logic.

To see how rejection of the schema above applies to practical arguments, consider a syllogism like this: All men are mortal (p), Socrates is a man (q), therefore Socrates is mortal (r). It is true that $(p \wedge q) \rightarrow r$ applies, but it is false that $(p \rightarrow r) \vee (q \rightarrow r)$ applies. Hence it is "paradoxical" indeed that $[(p \wedge q) \supset r] \supset [(p \supset r) \vee (q \supset r)]$ is a tautology in classical PC. More usual "paradoxes" cited are $\sim p \supset (p \supset q)$ and $q \supset (p \supset q)$, but these too fail to be relatedness tautologies. In short, related-

ness logic turns out to be a subsystem of classical PC. All relatedness tautologies are classical tautologies, but there are some classical tautologies that fail in relatedness logic.

We can summarize our findings as follows. Many traditional major informal fallacies can be and often are categorized as involving a failure of propositions to be related to each other. Particularly, what seems to be uppermost in mind is failure of subject-matter overlap. But the traditional study of the logic of the topics suggests that there can be many different kinds of relatedness involved in studying sophismata that reflect fallacies important to practical reasoning by conditionals. However, we can focus on subject-matter overlap as one particularly central and clearly definable species of relatedness.

If we are to construct a general theory of conditionals based on relatedness that is useful in studying the underlying fallacy of ignoratio elenchi that is common to fallacies that go wrong by failure of relatedness, we must be clear that subject-matter connectedness is not by itself sufficient to assure correctness of an argument. In addition, we must require that a correct argument does not go from true premises to a false conclusion.

Ignoratio elenchi, whether it be characterized as failure of subject-matter overlap in conditionals, or as failure of any kind of relatedness, is a general kind of fallacy that helps to explain, at least partly, what has often thought to be fallacious about arguments like the ad populum or ad hominem. But it is only part of the story of these other fallacies, and specific studies of these various individual fallacies help to bring out other important aspects of them.

Notes

- ¹See Walton (1980).
- ²See Woods and Walton (1977).
- ³See Woods and Walton (1974).
- ⁴But sometimes also translated as "ignorance of refutation".
- ⁵Actually, as Hamblin indicates, and as will be pointed out below, the Aristotelian conception of ignoratio elenchi may be somewhat different from inferences that many modern writers might tend to classify as fallacies of relevance.
- ⁶See also Epstein (1979, p. 156 f.).
- ⁷Another notion of related is that of spatio-temporal adjacency in an act-sequence. $R(p,q)$ in this context has this meaning: what makes p true can affect what makes q true.
- ⁸Other classical tautologies that obtain in relatedness logic are modus tollens, contradiction, disjunctive syllogism, and reductio ad absurdum, i.e., $(p \rightarrow q) \rightarrow [(p \rightarrow \sim q) \rightarrow \sim p]$.
- ⁹Some other principles that fail are exportation, hypothetical syllogism and addition.

i.e. $p \rightarrow (p \vee q)$. It is clear that relatedness logic is different from relevance logic --see Walton (1979).

References

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arguments be established on the grounds of the intentions of the person putting forward the argument. Arguments, he says, are people's arguments; they are put forward in order to convince other people. People may intend either that their arguments provide conclusive reasons for what they are trying to demonstrate, or that they provide less than conclusive reasons. In the first case, an arguer's intentions establish his argument as deductive. In the second case, they make it inductive. A desirable consequence of this approach is that it provides for both good and bad arguments in each category. Most of the time, Fohr thinks, we are able to tell what an arguer's intentions are, or were. If we cannot, we must judge the argument "both ways".

This proposal does not strike me as very satisfactory. I am surprised that Fohr, who says that he cannot accept "purportedly valid" as a definition of 'deductive argument', can rest content with an appeal to intention here. I have the following difficulties with his proposal:

1. Either there will be evidence for the arguer's intentions regarding conclusiveness in the wording of his argument, or there will not. In the first case, intentions and "purported validity" or "involving a claim to validity" (Copi) will amount to much the same thing. There are numerous examples, as Fohr admits, where wording is not helpful. After all, conclusiveness in the sense of logical entailment is a philosopher's concept, and even such English words as "must", "therefore", and "shows conclusively" will not provide a reliable basis for inferring that the arguer is claiming conclusiveness in the sense that the premises are supposed to logically entail the conclusion. If, on the other hand, we seek to avoid these difficulties with wording--making the author's sayso and that alone the criterion for determining his intention--we will find ourselves unable to apply the distinction to many cases where authors are dead or absent. This is absurd if the inductive/deductive distinction is supposed to be a fundamental tool in the assessment of argument. We can, of course, look at the indeterminate arguments "both ways", as Fohr suggests; but the more often we do this, the more often we are bound to wonder why all of logic should have been erected around this fuzzy distinction in the first place.

2. If we really take Fohr seriously on the over-riding importance of intention, then we will have to accept the peculiar consequence that there are inductive arguments which are deductively valid, and deductive arguments which are inductively strong. For instance, suppose someone argues:

1. Either Lévesque will be defeated at the next election, or he will win and call another referendum.
2. Since Quebecers are fond of Lévesque, he will not be defeated at the next election.
3. Thus, there will in all likelihood be another referendum.

This argument is deductively valid, but the conclusion contains the tentative expression "in all likelihood". If the arguer is a

responses

More on Deductive and Inductive Arguments

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The existence of confusing material in textbooks has not been enough to convince Samuel Fohr that the distinction between inductive and deductive arguments should be relinquished. (See "The Deductive-Inductive Distinction", Informal Logic Newsletter, ii.2.) Fohr proposes, following a definition in Olson's Meaning and Argument, that the distinction between deductive and inductive