

RETHINKING THE FALLACY OF HASTY GENERALIZATION

A new approach is needed to the whole group of fallacies that come under the general umbrella of the fallacy of hasty generalization, including fallacies like *secundum quid* (neglecting qualifications to a generalization), accident, converse accident, and suppressed evidence. Sorting out the diversity of directions in the standard textbook treatments of this group of fallacies is expedited by taking two basic steps. The first step is to look back to Aristotle's original treatment of two distinct fallacies - hasty generalization and neglecting qualifications - and to draw some conclusions on how to classify these kinds of fallacies from his very clear analysis of both these central fallacies. The second step is to work out some foundational principles to address some questions that have not been discussed in any helpful way in logic, in connection with the analysis of fallacies. These questions are : (1) What is a generalization? (2) What different kinds of generalizations are there? (3) How are these types of generalizations used to take part in different kinds of inferences that are used in drawing conclusions to or from generalizations?

It is argued that in addition to universal generalizations and inductive generalizations, there is a third class of generalizations that are presumptive and defeasible. This claim is, of course, not new. It is widely accepted in computer science (Reiter, 1987), and has been advocated as a useful assumption in analyzing informal fallacies (Walton, 1996). But it needs to be worked out how this third class of generalization fits into the using of inferences of the kind associated with the fallacy of hasty generalization, an important fallacy that has not, so far, been much studied in any systematic way, and is still treated in a way that has not been researched by the logic textbooks, as indicated below.

Another aspect of hasty generalization that needs to be worked out is how the kind of argumentation associated with this fallacy can be used as a sophistical tactic to boost up the apparent acceptability of a conclusion drawn by a generalization through using the power of suggestion. This is often called the “seeming to be valid” aspect of a fallacy (Hamblin, 1970 ; Walton, 1995). This too is a largely unexplored aspect of the hasty generalization fallacy. Fortunately, some recent empirical research of Jacobs (1995) has presented a range of interesting cases from commercial advertising that throws some new light on how hasty generalization works as a sophistical tactic that conveys an appearance of plausibility. These and other cases studied below form a basis for a practical study of the hasty generalization fallacy. The analysis of the fallacy given is partly dialectical, meaning that it is based on a normative framework in which two parties reason together in a dialogue (Walton, 1995). But the analysis also depends on the kinds of reasoning used – in particular, on the kinds of generalizations used to infer conclusions.

1. The Standard Treatment

Hasty generalization would seem to be one of the most basic and important fallacies to warn students of logic about, and also one of the simplest to define and explain. But for reasons that appear to be based on the way logic has developed as a discipline, there are serious obstacles in the way of making any kind of sense of this fallacy at all. The initial problem is terminological, as has already been explained in some detail in (Walton, 1990). The logic textbooks are all over the map with overlapping definitions of this fallacy, variously calling it the fallacy of neglecting qualifications (*secundum quid*), the fallacy of accident (or converse accident), glittering generality, over-generalizing, faulty generalization, *de dicto simpliciter*, and many other comparable names as well. What we appear to have are many fallacies, and some things that should not properly be called fallacies, all overlapping. The result is less than helpful. Even to open your mouth to your students on the subject of this fallacy (or group of fallacies) is to have to hamstring yourself into a complex network of abstract and basic terminological disagreements that makes any attempt at clarification difficult in the extreme. One is even obliged to try to give some account of Aristotelian essentialism, if only to try to explain that the term "accident" is a relic of ancient views that do not really have to be mastered in order to make some useful sense of the fallacy of hasty generalization as a common kind of mistake of logical reasoning.

But the encrustation of ancient terminology is not the only problem. Making sense of this fallacy also involves using modern terminology that logicians are very familiar with as basic to their discipline, and that they can become very disputatious about, as soon as one tries to apply it to real cases of the kind that must be dealt with in the study of fallacies. It is necessary to try to frame, in a simple way that can be used for practical purposes, certain basic principles of deductive reasoning, inductive reasoning, and a third kind of reasoning (sometimes called presumptive, or abductive, although these two things may be the same, or may not) that seems to be different from deductive or inductive reasoning, but the existence of which is still disputable in logic.

One of the most widely used logic textbooks defines hasty generalization as a kind of inductive fallacy that has to do with reasoning from a sample to a larger population, of the kind that is common in statistical inferences. Hurley (1997, pp. 142-144) treats what he calls "hasty generalization (converse accident)" as "a fallacy that affects inductive generalizations" (p.142). An inductive generalization is defined (p.142) as "an argument that draws a conclusion about all members of a group from evidence that pertains to a

selected sample." The fallacy is said to occur when the sample is not "representative" of the group. Hurley gives the following example.

Case 1

After only one year the alternator went out in Mr. O'Grady's new Chevrolet. Mrs. Dodgson's Oldsmobile developed a transmission problem after six months. The obvious conclusion is that cars made by General Motors are just a pile of junk these days.

According to Hurley (1997, p.142) this fallacy occurs where either the selected sample is too small or is not representative of the group. This way of defining the fallacy of hasty generalization makes it an error of reasoning inductively from a selected population to a wider population. So conceived, it would appear to be a violation of requirements of good reasoning in the branch of statistics called sampling theory.

This account of the fallacy of hasty generalization would seem to make it into an inductive kind of fallacy of the kind that statisticians would warn about, but on consulting the catalogue of such statistical fallacies (Campbell, 1974), I was surprised not to find any such fallacy listed. A warning was given of using samples that are too small (p.142), but no fallacy of the kind defined by Hurley seemed to be prominent in Campbell's catalogue of flaws and fallacies in statistical reasoning. Campbell does warn (p. 140) about the overuse of the word 'representative' however, as a word "that is used more often in connection with real-world samples than the realities merit."

Another leading textbook, citing the notable account of the fallacy called *secundum quid* in Joseph (1916), portrays what is now called the fallacy of "converse accident" as the error of treating a statement that should be seen as subject to qualifications as if it were meant to be true "always and without qualification". Copi and Cohen (1994, p. 125) define the fallacy of converse accident as applying "a principle that is true of a particular case to the great run of cases". Copi and Cohen (p.126) cite the case of the owner of a "fish and chips" shop in England who defended the healthfulness of deep-fried food by citing a single instance.

Case 2

Take my son, Martyn. He's been eating fish and chips his whole

life, and he just had a cholesterol test, and his level is below the national average. What better proof could there be than a friar's son?

In case 2, the fallacy seems to be kind of hasty generalization as well. Copi and Cohen (p.125) describe it as "the fallacy we commit when we move too quickly to a generalization". But Copi and Cohen do not appear to see it as an inductive or sampling kind of error. They appear to see it more as a fallacy of moving too quickly to a generalization about all circumstances on the basis of a case that has particular circumstances that may not be typical. The fallacy here appears to be one of overlooking special circumstances indicating qualifications that may need to be attached to a generalization, or considered in matching a generalization to a specific case.

More details of how the various textbooks divide up and attempt to classify this group of fallacies is given in (Walton, 1990). But even citing the accounts of the two leading textbooks above indicates (at the risk of making a hasty generalization) two broad patterns. Some of them see it as an inductive fallacy, while others see it as relating to the handling of general rules that should be seen as having qualifications that make them subject to default, due to exceptions in special or particular cases. Interestingly, both kinds of fallacies can be located as having been recognized by Aristotle. He treats them as separate kinds of fallacies. And although his account of them does not correspond exactly to the trend of the modern treatments, one can see clearly from his account how two quite separate and distinct kinds of fallacies are involved.

2. Aristotle on Hasty Generalization and Neglecting Qualifications

Aristotle has two fallacies that could be, and frequently are, listed in textbooks under the heading of the fallacy of hasty generalization. One is a failure of the kind of reasoning that Aristotle calls induction. Chakrabarti (1995, p.68), citing the *Prior Analytics* (II.27.70a33), writes that Aristotle warns against the danger of hasty generalization when he tells us that if Pittacus is good, it does not necessarily follow that all other wise men are good. Of course, it would be naive to identify this kind of erroneous inference with the modern statistical fallacy of basing an inductive generalization on too small a sample. For Aristotle did not mean the same thing by 'induction' that we take the word to have in the modern statistical sense. According to Chakrabarti (1995, p.66), induction (*epagoge*),

which Aristotle often contrasted with deduction, is taken by Aristotle to be a process of ampliative reasoning which (usually) reasons from sentences describing particular instances to a general conclusion.

The other fallacy is the *secundum quid*, the second in Aristotle's list of fallacies not dependent on language given in *On Sophistical Refutations*. According to Aristotle's account (*On Sophistical Refutations* 166b38- 167a21), this fallacy arises from the way an expression can be used in one of two ways - absolutely, or in a certain respect. He offers the following example :

Case 3

If, for example, after securing an admission that the Ethiopian is black, one were to ask whether he is white in respect of his teeth, and then, if he be white in this respect, were to think that he had finished the interrogation and had proved dialectically that he was both black and not black.

The fallacy is to take the expression, 'The Ethiopian is black.' and to interpret it absolutely - that is, as saying that the Ethiopian is black in all respects. But in reality, while the Ethiopian is black in one respect (in respect of skin color), it would be an error to infer that he must be black in every respect. Thus it would be erroneous to draw the conclusion that he has black teeth. For when we say 'The Ethiopian is black.', we (normally) mean that he is black in a certain respect. In modern terms, it is easy to see how this fallacy could be called "over-simplification", or perhaps "over-generalization".

This fallacy is also perfectly familiar in the modern theory of default reasoning, or reasoning with rules that have exceptions, that has become such a familiar part of the scene in computer science. It fits the Tweety example that is typically used to show what is distinctive about default reasoning.

To the modern fallacy theorist, what is particularly fascinating about Aristotle's explanation of the Ethiopian case given above is that his treatment of it is explicitly dialectical. It is possible to reconstruct his analysis in the form of a dialogue :

Dialogue 1

Proponent : Is the Ethiopian black?

Respondent : Yes.

Proponent : Is he white in respect to his teeth?

Respondent : Yes.

Proponent : If something is white, must it follow that
it is not black?

Respondent : Well, yes, of course.

Proponent : So the Ethiopian, by your admission, is black and not
black.

The dialogue shows that while each of the respondent's replies, taken individually, seems to be quite reasonable and correct, taken as an ordered set (a dialectical sequence), they lead to contradiction. In Aristotelian dialectic, a set of opinions that seem individually plausible (that are endoxic or would be generally accepted) are shown to lead to a contradiction (or to other logical difficulties). See the account of *endoxa*, or generally accepted opinions in Aristotelian dialectic, given in Renon (1998).

The problem that is revealed is that one should be careful in accepting a statement to be clear whether the statement is meant to be true absolutely, in an unrestricted sense, or whether it is meant to be true only in a certain respect. To put it even more succinctly, the problem is one of realizing that qualifications should be attached to certain kinds of attributions, and that overlooking such qualifications can get you into logical difficulties. Hence the very appropriate name for the fallacy - neglect of qualifications. Or it could also be called the "in a certain respect" or *secundum quid* fallacy.

The *secundum quid* fallacy, in exactly the form Aristotle described it, was very clearly explained in one logic textbook, (Joseph, 1916, p. 589). But, as shown in detail in (Walton, 1990), its treatment in nearly all the other logic textbooks is mixed in with other fallacies and described and defined using ancient and unhelpful terminology, like "accident", "converse accident", and a melange of other terms. Most notably, the fallacy Aristotle called *secundum quid* is treated in many modern textbooks under the heading of hasty generalization, or related headings like glittering generality, converse accident, oversimplification and *de dicto simpliciter*, or these supposed fallacies are conflictingly

defined and mixed in together in a way that shows need for clarification and systematization.

To get some clarification as a basis for attempting any serious research on this group of fallacies, some justice needs to be done to Aristotle's account. It appears that he (at least roughly) started on a sound basis, by recognizing two distinct types of fallacies that come under the modern umbrella term of hasty generalization. But then, subsequent generations of logic textbooks and manuals went off in many different directions, some insightful, but many just copying others while making minor changes (Hamblin, 1970).

3. Particular and General

The inductive version of the fallacy of hasty generalization, for example of the kind described by Hurley above, seems to be an inference from particular instances, or even a single instance, to a conclusion taking the form of a generalization. As standardly treated, the *secundum quid* fallacy appears to be based on an inference from a generalization to a particular case. Consider the example given by Joseph (1916, p.589).

Case 4

Water boils at a temperature of 212 degrees Fahrenheit ; therefore
boiling water will be hot enough to cook an egg hard in five
minutes : but if we argue thus at an altitude of 5,000 feet we shall
be disappointed ; for the height, through the difference in the
pressure of the air, qualifies the truth of our general principle.

The fallacy of *secundum quid* cited here is supposedly the erroneous inference from the premise consisting in the generalization to the conclusion that what holds in general will hold in a particular case where the arguer is boiling the egg at altitude of 5,000 feet. The following inference also goes from a general premise to a conclusion that makes a recommendation about what to do in a particular situation.

Case 5

Most dogs are friendly and pose no threat to people who pet
them. Therefore, it would be safe to pet the little dog that is

approaching us now.

About this case Hurley (1997, p.163) comments : "If the arguer ignores the fact that the little dog is excited and foaming at the mouth (which suggests rabies), then the argument commits a suppressed evidence fallacy." Hurley (p.163) defines the fallacy of suppressed evidence as the drawing of a conclusion while ignoring "some important piece of evidence that outweighs the presented evidence and entails a very different conclusion." Is what Hurley describes a fallacy? It seems dubious to me, because, for one reason, the supposed new fallacy of suppressed evidence overlaps with the *secundum quid* fallacy in a confusing way. Ignoring new evidence that outweighs the present evidence in a case is certainly something that is wrong, or open to condemnation from a logical point of view. But I am not sure that it is a good idea to call this kind of failure a fallacy. It seems to me better to classify the erroneous inference in the case cited by Hurley as an instance of the *secundum quid* fallacy.

At any rate, what these cases would appear to indicate is that the *secundum quid* type of fallacy typically involves an inference from a generalization, used as the premise, to a conclusion that is about what to do or say in a particular situation that falls under the scope of this generalization. Copi and Cohen make much use of this apparent difference by distinguishing between the fallacy of accident and the fallacy of converse accident. Accident, they write (1994, p.125) is "the fallacy we commit when we move carelessly or too quickly *from* a generalization ; converse accident is the fallacy we commit when we move carelessly or too quickly *to* a generalization." (their italics). But why use the ancient doctrine-bound term 'accident' at all when describing these fallacies? And whatever terms we use, the directionality from general to particular or vice-versa, is not essential, as can be shown by the following case.

Case 6

A certain drug or food may be harmless in some circumstance.

Therefore, this drug or food is harmless in all circumstances.

Case 6, quoted from Copi and Cohen (1994, p.125), can rightly be classified as a type of *secundum quid* fallacy, because the basic failure is one of overlooking qualifications to a presumptive generalization. But both the premise and the conclusion are generalizations.

But the premise is a weak existential generalization using the word 'may'. The conclusion is a universal generalization using the word 'is' – a much stronger kind of claim. The fallacy resides in the neglect of qualifications when the argument moves without further support from the very weak generalization in the premise, which is subject to qualifications, to the absolute generalization in the conclusion, which ignores these qualifications.

But a closer look at case 6 in relation to cases 1 and 2 shows that there is ambiguity in these cases. In case 6, there is a movement from the less general to the more general of a kind that could rightly be called inductive. Also, in case 2, which was classified above as an inductive argument, there are elements of the *secundum quid*. The reason is that one fault of the argument could be that Martyn, the healthy eater of deep-fried fish and chips, is an exceptional individual whose cardio-vascular system just happens to be very free of harmful cholesterol. The difference between the generalization in case 1 and that of case 6 seems to be that, even though there is movement to the more general in both cases, in case 1 the movement is due to what happens in the subject term in the inference, whereas in case 6, it is due to what happens to that which is predicated of the subject term in the inference. The problem is then raised of how different levels of generality should be distinguished in these cases.

The other, more pertinent problem is whether generalizations have a systematically different status as to whether they appear as a premise or as a conclusion in an argument. There appear to be different kinds of faults involved in the two types of cases, even though they both involve the same basic kind of failure at root. When the generalization appears as a conclusion, the fault is that the premises do not entail, or support the conclusion strongly enough to make it plausible, and thus the underlying inference may be called fallacious for that reason. On the other hand, when a generalization appears as premise, that premise may be the conclusion of a previous generalizing argument, which is too weak to support that premise. So here the argument fails, but for a different reason. It is not the inference that is flawed but the failure to support the premise well enough to make the argument carry any weight.

To help classify such faults, it may be useful to distinguish between the kinds of faults that occur with generalizations-as-premises as compared to those that occur with generalizations-as-conclusions. With the *secundum quid*, the fallacy can occur either way, because the root cause is the failure to recognize and account for the exceptions to the rule that need to be taken into account. But the fallacy works in a somewhat different way when going to a generalization as conclusion, than when one is arguing from a generalization as premise. In case 5, the argument about the boiled egg goes from the general to the particular. In case 6, the argument about the drug or the food goes from the particular to the

general. In both kinds of cases, however, the root problem is that of overlooking the necessary qualifications to the generalization used in drawing the inference.

With respect to the other type of hasty generalization fallacy, that produced by generalizing from an inappropriate sample, the inference would always seem to go from a particular premise to a general conclusion. This feature is certainly evident in case 1, and also appears to be evident in case 2, where the singular case of Martyn is used as a premissary base for deriving the conclusion that deep-fried foods are healthy.

4. Three Types of Generalizations

As the basis for understanding how the fallacy of hasty generalization works, it is necessary to see that there can be different kinds of generalizations. Basically, there are three kinds of generalizations that need to be distinguished for the purpose of clarifying the fallacy of hasty generalization : (1) the universal (absolute) generalization, (2) the inductive (statistical type) generalization, and (3) the presumptive (defeasible) generalization.

As an illustration of the universal generalization, let's take the statement 'All birds fly'. If interpreted as a universal generalization, of the kind we familiarly treat in logic using the universal quantifier, this statement is falsified by a single counter-example. For instance, if one example of a bird that does not fly is found, then it follows that the universal generalization 'All birds fly' is false. Let's say we let the predicate letter F stand for the property of being a bird, and the predicate letter G stand for the property of being something that flies. Then the universal generalization 'All birds fly' may be represented as having the following logical form.

$$(GU) : (\forall x)(Fx \supset Gx)$$

How a universal generalization of the form (GU) can be used as a premise in deductively valid sorts of arguments, like syllogistic inferences, is something that is familiar to every logic student. For instance, the following is an example of a deductively valid inference.

$$(DI) : (\forall x)(Fx \supset Gx)$$

$$Fa$$

$$Ga$$

This inference is deductively valid in the sense that it is logically impossible for the premises to be true while the conclusion is false. For example, suppose that all birds fly and that Tweety is a bird. It follows (by valid deductive reasoning) that Tweety flies.

How inductive generalizations warrant inferences can be shown to be different, through the use of a comparable example. Suppose we have an inductive generalization, like 'Most birds fly', or '88 per cent of birds fly'. Coupled with the additional premise that Tweety is a bird, this type of generalization supports (by an inductively strong argument) the conclusion that Tweety flies. However, it is generally characteristic of this kind of inference that it is logically possible for both premises to be true even while the conclusion is false. But it is improbable (to a greater or lesser degree, measurable in statistical cases by a fraction between zero and one) for both premises to be true while the conclusion is false.

Philosophers, who are very familiar with making a careful sort of distinction between deductively valid and inductively strong inferences, may pick away at some of the details of how the distinction is made above. And to be sure, there are different schools of thought on how the distinction should exactly be made. But the account of it given above is a sufficiently clear and useful way of making the distinction, for our purpose of investigating the fallacy of hasty generalization. Things are relatively clear so far.

Now we must go on to define the third kind of generalization, one that is less familiar to many (but not all) philosophers, but that is very familiar in computer science (Reiter, 1987). An example of the presumptive kind of generalization would be the statement 'Birds fly', sometimes called a generic statement. Presumably, what it says is that birds generally fly, in the sense that if something is a bird, we would normally expect it to fly. This reasonable expectation is, however, subject to exceptions. So, for example, if Tweety is an ostrich or a penguin, or a bird with a broken wing, then Tweety does not fly. The presumptive generalization, like the inductive one, but unlike the deductive one, can be true (tenable), even in the face of the existence of a known counter-example. It is said to be defeasible in nature, meaning that if new information comes in, through our learning about exceptional cases, the comparable inference of the presumptive form may "default".

To get an idea of what the presumptive form of inference is like, consider the following example, called "the canonical example" by Reiter (1987, p. 149).

(PI) : Generally, birds fly.

Tweety is a bird.

Tweety flies.

This inference is structurally correct, from a point of the theory of presumptive inference. According to this theory, if the generalization of the first premise is treated as a presumptive statement, then it is implausible for both the premises to be true while the conclusion is false. Here we use the adjective 'plausible' to indicate the standard for structurally correct inferences of the presumptive type, following the language of Rescher (1976 ; 1977). A structurally correct plausible inference of this sort has the property that if the premises are true (acceptable), a weight of presumption is shifted towards acceptance of the conclusion as being (plausibly) true. Rescher's general rule for evaluating such inferences is that if the inference is structurally correct, and the plausibility value of each premise has already been determined, then the conclusion should be judged to be at least as plausible as the least plausible premise. This principle is called the *least plausible premise rule* , or Theophrastus' Rule (Renon, 1998, p. 112). I do not necessarily advocate this rule as the best one for all uses of plausible reasoning, but it does give the reader at least an idea of how presumptive reasoning can be evaluated by standards different from those we are more familiar with in deductive logic and in inductive and statistical reasoning.

As Reiter (1987, p. 149) shows, what is problematic about such inferences is defining precisely what is meant by “absence of information to the contrary”. In many cases of everyday reasoning, there is too much information to represent explicitly in the premises of the inference. In effect then, the inference has the form of an argument from ignorance that works on a principle of a shifting burden of proof. As long as a proposition has not been disproved, it may be taken to be true, or to hold, in a given case. Many examples of this sort of argumentation have been studied in (Krabbe, 1995) and (Walton, 1996). A deeper understanding of how an inference like (*PI*) should be evaluated is possible to achieve if we see it as being used in a context of dialogue between two arguers. The proponent puts forward the kind of general claim made in the first premise, and normally, the proponent would incur a burden of proof to back up the claim with evidence, if the claim is challenged by the respondent. In the absence of any known evidence that would challenge the claim, however, the inference goes ahead as tentatively acceptable. But if new information comes in, providing evidence against the claim, the situation is reversed. If the proponent fails to give the evidence required to prove the claim, then he must give up (retract) the claim. But in this case, the claim is presumptive in nature. It is a kind of generalization that occupies a ground, but only because it can be assumed to be true in a normal situation, where no contravening evidence, in the form of exceptions to the rule, are

known to exist. So the roles are reversed. If the respondent makes no objection to the presumption, the inference goes ahead. As long there is nothing special about Tweety indicating that he does not fly, then a collaborative respondent is obliged to go along with the inference with the conclusion that Tweety flies. So the burden of proof is reversed. The proponent does not have to prove his assertion, to get the respondent to accept it, at least provisionally. In order to defeat the inference from going forward in a dialogue, the respondent has to disprove it, or to cite special features of the case that show that the generalization does not cover it.

To proceed with our illustration, now let's introduce an additional premise to (PI) in the following inference, (*PID*).

(*PID*) : Generally, birds fly.

Tweety is a bird.

Tweety is a penguin.

Tweety flies.

In this case, the inference defaults, because of the information contained in the third premise. What is shown is that presumptive reasoning has the property of being non-monotonic, meaning that if additional premises are added to an argument that is structurally correct by the standards of presumptive reasoning, that argument can cease to be presumptively correct. A deductively valid inference is always monotonic. If an argument is deductively valid, then no matter how many new premises are added, it will always remain deductively valid. This reversal of the burden of proof is what is most deeply characteristic of presumptive reasoning from a defeasible generalization, as opposed to the deductive and inductive kinds of inference based on universal generalizations and inductive generalizations.

Inductive reasoning is also non-monotonic, like presumptive reasoning. A question subject to dispute among philosophers is whether presumptive reasoning is inherently different from inductive reasoning, representing a third type of reasoning in its own right, or whether it is a subspecies of inductive reasoning of some sort. Some would define it as a species of so-called "subjective probability". Many of us see presumptive reasoning as different form inductive reasoning, because it is more contextual in nature, and not so amenable to precise numerical quantification with respect to the degrees of support given

to a conclusion by a structurally correct argument. Presumptive generalizations are based on what can one expect or presume to be true in a given case, on the basis that the case is a normal type of case. If it becomes clear that the case is not normal in a certain respect (that it is exceptional), the generalization defaults. But it is typical of presumptive reasoning that when something is an exception may not be predictable. What really matters is not the degree of regularity, of the kind measured by statistical methods. What matters is whether the individual thing is typical or not, with respect to how it fits the rule or generalization.

5. Analysis of Cases

Cases 1 and 2 are relatively easy to deal with, because they represent kinds of inductive errors that violate requirements of sampling theory of a kind that are normally dealt with in textbooks on statistics. In case 1, the sample is too small to have much if any value as evidence to support the conclusion. Case 2 suffers from the same fault, but since the conclusion, that eating fries does not increase cholesterol, is highly implausible, the very weak argument posed by citing one instance is ludicrous. These are cases of making an inductive generalization based on one instance. They are very weak arguments, and would have no worth in statistics because the sample cited is too small to get any kind of statistically significant result. In a statistical survey, such arguments would be rejected as of no value, from a statistical viewpoint of data collection. There is not too much of a problem with these cases. They are bad arguments, from a statistical viewpoint, and from that viewpoint, they can be reasonably classified as inductive or statistical fallacies.

Case 4 is a little more difficult, but is also fairly straightforward, as involving a kind of fallacy. It involves the *secundum quid* type of fallacy, based on a presumptive type of generalization. In case 4, it is assumed that the proposition, 'Boiling water will cook an egg hard in five minutes.' expresses a generalization. It is also reasonable to assume from the context of the case that the generalization is not meant to apply to literally all cases where an egg is cooked in water. The generalization is presumably meant to apply under conditions of standard temperature and pressure. But that is not the end of the story. In applying this generalization to any case, a number of other presumptions might come into play. One must assume that the egg in question is not already boiled, that it is not an ostrich egg, but a normal sized chicken egg, and so forth. All these assumptions presume that the case in point is a normal one, of the kind that we are familiar with in relation to familiar everyday practices. In other words, it is not possible to make the generalization into a universal generalization by adding *ceteris paribus* clauses – by stipulating a list of

additional conditions needed to tighten up the generalization to make it absolutely true or false, without the need to add the qualifications “all other factors being held constant”.

Aristotle’s fallacy of the Ethiopian (case 3) involves a different kind of *secundum quid* fallacy that is more complicated. The source of the problem here centers on the proponent’s question, “If something is white, must it follow that it is not black?” The assumption placed before the respondent by this question is that the conditional can be expressed in an absolutistic form as a universal generalization of the following form : $(\forall x)(Wx \supset \neg Bx)$, where the predicates are ‘is white’ and ‘is black’ respectively. If the proponent had asserted this generalization, in its absolutistic form, as symbolized above using the universal quantifier, he would have been committing a sophistical tactics type of fallacy. The fallacy involves an ambiguity. Instead of asserting a presumptive generalization, of the kind that is meant to be open to exceptions, the proponent has put forward a universal generalization. Of course we expect that when the Ethiopian is described by using the word ‘black’, the color is attributed to his skin only, and not all his parts, including his teeth. So if the proponent had made such a move, he would have committed a type of *secundum quid* fallacy that turns on an ambiguity between two kinds of generalizations. But that is not what the proponent actually did in the dialogue, as portrayed above. He expressed the generalization in a question. So if any fallacy was committed here, it involved the collaboration of the proponent and the respondent. And that is in fact what happened. The respondent answered ‘yes’, and then the proponent took advantage of that reply to draw the inference that the respondent can be accused on inconsistency. What happens next we are not told. It could be, that by denying the implication drawn by the proponent, the respondent can clarify the situation and thereby reveal the potential fallacy.

What would seem to be evident from the above considerations is that there is a group of fallacies clustered around the various difficulties we have in reasoning to or from the three kinds of generalizations distinguished in section 4. But the basic problem in attempting to offer any coherent and well thought out program of classification and analysis of this group of fallacies is more theoretical than practical in nature. The basic problem is that there is little agreement (in the textbooks, but even more generally, in accepted logical theory), on how to precisely make the threefold distinction among the three kinds of generalizations, and how to analyze each of them. In particular, exactly how the inductive generalization is different from the presumptive type of generalization remains controversial, despite Rescher’ theory of plausible reasoning, and the abundance of recent literature in computer science on default reasoning.

But certainly a pattern has emerged. One type of hasty generalization fallacy is the inadequately supported kind of inductive inference from too small a sample (or it could

also be from an "unrepresentative" or improperly selected sample). Another is the fallacy of overlooking qualifications to a presumptive generalization. This latter could often be based on an inference from such a generalization to a specific case, in which special circumstances of the case are overlooked. Or it could be based on an inference from a specific case to a conclusion that states a generalization. The general pattern is the overlooking of qualifications that are necessary to the adequate management of reasoning on the basis of a presumptive generalization. The other type of hasty generalization fallacy is that of generalization from an inappropriate sample. This is a statistical version of the fallacy, and the most widely cited kind of case is one in which the sample is simply too small.

But now a third type of hasty generalization needs to be introduced. It is more subtle than the prior two types. The third member of this family of fallacies arises from confusions between the types of generalizations. For example, "absolutistic thinking", or treating a presumptive generalization as though it were an absolute (universally quantified) generalization, represents a common kind of deficiency of reasoned argumentation. The fallacy in this kind of case is often harder to diagnose, in a given case. It represents a certain style of thinking in which a defeasible is treated as though it were absolute. The attitude expressed by the arguer is that once she has propounded the general rule, or used it to draw conclusions, anyone who tries to cite any exceptions to the rule, exceptions which may arguably be legitimate, are simply shouted down or excluded from further consideration. This fallacy is often covered in textbooks under the heading of "absolutistic" or "black and white" thinking. Case 3 exhibits a profile of dialogue that is consistent with this third type of fallacy, to the extent that the problem is the proponent's way of treating the predicates 'black' and 'white' as holding absolutely, rather than as holding only in a certain respect. We see a glimpse of the third fallacy here. But the fallacy in this kind of case is a little more difficult to analyze, because it is dialectical in nature. It is what has been called a "sophistical tactic" type of fallacy, or sophism.

Two types of fallacies are distinguished in the theory of fallacy presented in (Walton, 1995), called the erroneous inference type and the sophistical tactic type. Erroneous inferences can be classified as monological, meaning that the context of dialogue is less crucial than the evaluation of the inference as a set of propositions. What is important here are the premises and the conclusion, and the nature of the inference link between these sets of propositions in the given case. What is crucial to the analysis of case of the sophistical tactic type of fallacy is the communicative dialogic maneuvering of inferences on two sides of a dialogue exchange. All the hasty generalization fallacies considered so far appear to fall into the erroneous inference category. Are there any cases that might fall under the

sophistical tactic type of fallacy? What one initially thinks of here are cases where a dogmatic or fanatical arguer tries to get her audience to think of an issue in absolute "black and white" fashion, while overlooking all kinds of qualifications that need to be made. But there is also another kind of case that might fit this type of fallacy as well. It is particularly interesting because it involves a deceptive shift from the one type of generalization to the other. This type of case has been extensively cited by Jacobs (1995), in his study of deceptive argumentation tactics allegedly used by advertisers, and it here we must turn to get some interesting examples to work with.

6. Sophistical Tactics in Advertising

What is brought out very well by Jacobs' analysis is that words like 'some', 'all', 'most', 'many', and so forth, have implicatures, when used in a context, that are not captured by logical quantifiers of the absolutistic type we are familiar with in logic. Here, for example, 'some' is translated as 'at least one', even though by implicature, it may be normally taken to indicate that two or more things are spoken of. The most subtle, and probably the most common and persuasive species of hasty generalization fallacy involve contextual implicatures which one expects to hold in a case, and which are exploited by a subtle shift from a more guarded claim to one that appears to be stronger than it really is (or than the proponent can be held to). Jacobs' case studies of advertisements are especially interesting with respect to the fallacy of hasty generalization insofar as they show how an upward shift in a generalization - as in the shift from 'many' to 'most' - can be suggested in a text of discourse by Gricean implicatures that may not be apparent to the uncritical reader. Jacobs' theory shows how a mechanism for the using of hasty generalization as a clever sophistical tactic is available. The fallacy, so conceived, is not just a blunder or error, but is also, in some cases, a sophistical tactic that can be used by one speech partner in a discourse to try to deceptively get the best of the other party through the power of suggestion arising from the collaborative maxims of conversation implicit in the discourse.

Jacobs (1995) has presented a pragmatic theory of the strategy used by the advertisers to deal with this tricky situation. According to Jacobs' theory, the advertisers use suggestion to invite the consumer to inflate the claim actually made, by a process of inference. One strategy (Jacobs, 1995, p. 581) is to invite the consumer to move from a statement with a quantifier like MANY/OFTEN to a statement with quantifiers like MOST/USUALLY. To illustrate this kind of strategy, Jacobs (p. 580) cites the following ad :

Case 7

Preparation H. Hemorrhoidal Suppositories. Helps shrink swelling of hemorrhoidal tissues . . . caused by inflammation and gives prompt temporary relief in many cases from pain and itching in tissues.

According to Jacobs' theory, even though, logically speaking, this ad only enables us to infer the conclusion 'Preparation H gives prompt temporary relief in more than one case.', nevertheless it prompts us by suggestion to draw the stronger conclusion, 'Preparation H gives prompt temporary relief in most cases'. Taken literally and directly, this kind of ad is "unlikely to convince an addressee that they should buy the product." (p.585). But, as has long been known in informal logic, so-called "weasel words", like "possibly" and "maybe" can be used to plant a suggestion without actually making a stronger claim that is suggested. According to Jacobs, the basis of such a suggestion can be that of Gricean implicature. According to Grice (1975), there are principles adhered to by both parties in a collaborative conversation, such that when one party puts forward a speech act, like making a statement in the conversation, the other will draw conclusions on how to interpret that speech act, in light of these conversational principles. For example, the Gricean Maxim of Quantity is, 'Be no more informative than is required.' According to Jacobs' interpretation (1995, p. 587) of this maxim or principle, it calls on an addressee to "amplify the informational content of what is said as much as is consistent with non-controversial knowledge and the purposes of the talk exchange." Jacobs (1995, p. 587) gives the following illustration of such an inference : "I broke a finger yesterday.", therefore, the finger is the speaker's. The actual statement made does not explicitly say that the finger is the speaker's, but the hearer is invited to draw that conclusion by implicature. This same kind of implicature is used, according to Jacobs' theory, to get readers of commercial ads to draw conclusions about the efficacy or value of a product that are not justified by the explicit wording of the claim made in the ad.

Some of the more interesting cases cited by Jacobs to support his theory are the following.

Case 8

One ad cited (p.580) uses the expression, "Beano helps prevent gas", from which we may infer that Beano relieves, or actually prevents gas.

Case 9

In another case, the ad used an expression of the form, "x enables outcome y", which may be taken to imply, according to Jacobs, that x produces outcome y (p. 581).

In still other cases, the inference moved from a statement of the form, 'No other x is better than y' to a statement of the form, 'x is better than any other y' (p.581).

Case 10

An example having this form uses the wording, "No other cleanser is formulated like PhisoDerm to clean combination skin." (p.580).

Twelve ads, in total, are cited, in support of the theory.

Jacobs' theory is interesting, because it does appear to show how something that looks very much like the fallacy of hasty generalization is being used as a sophisticated tactic by advertisers to promote their products in a persuasive way while leaving a back door of plausible deniability open. Here, it seems, we are seeing the fallacy of hasty generalization at work. And if the technique is deceptive, as used by the advertisers, its use would seem to constitute a sophisticated tactic of the kind that could be classified as a fallacy. But how supportable is Jacobs' theory? I think there is certainly some evidence in its favor. The word 'many' can be stretched by implicature to be read as suggesting something more like 'most', especially when an ad tends to be read quickly and in an uncritical frame of mind. But should the advertisers be held to be committing a fallacy if uncritical consumers read in 'most' for 'many' when they read the ad? After all, where would ads be if they couldn't use the power of suggestion? Wouldn't the ad be worse if it actually said 'most' if that claim was not really justified by what they know, or what anyone knows about the effectiveness of the product for the purpose indicated?

7. Conclusions

The cases cited by Jacobs are more subtle than the kinds of cases cited earlier from the logic textbooks, illustrating the three different species of fallacy of hasty generalization. For the inference in Jacobs' cases depends on suggestion, triggered by Gricean implicatures. Yet the cases cited by Jacobs are similar to, or seem to have partly the same kind of structure as these earlier cases in the following respect. The strategy used by the advertisers is to take a limited or qualified generalization as the stated premise, and then try to get the reader or audience to draw a conclusion that is stronger, more general, and less qualified and restricted. But the use of context and Gricean implicature to create the desired effect shows that the fallacy illustrated by Jacobs' cases (if they are fallacious), is a communicative maneuver that is dialogical (dialectical) in nature.

The pattern of argumentation revealed in dialogue 1 can be shown to be comparable to that used in many of the kinds of cases cited by Jacobs, like cases 7, 8, 9 and 10. In these latter cases the strategy is to try to inflate a claim by stating a weak presumptive kind of assertion but trying to suggest, and to get the reader or viewer to accept a stronger claim. For example, in case 7, the ad tries to get the reader to move from 'many' to 'most', according to Jacobs' analysis. In the Ethiopian case, the strategy seems to go in the same direction. The claim is only true in a qualified sense. The Ethiopian is black in a certain respect. But the sophistical tactic that occurs in the fallacious kind of case tries to get the respondent to accept the proposition as being true in absolute sense, as shown by the analysis of this case in section five, above. This profile of dialogue can be represented as follows.

Dialogue 2

Proponent : Is the Ethiopian black?

Respondent : Yes.

Proponent : If something is black, it must be black in all respects.

Respondent : Well, I suppose so, generally.

Proponent : So if the Ethiopian is black, then he is black in all respects.

Respondent : Well, I suppose so.

Proponent : Is he white with respect to his teeth?

Respondent : Yes.

Proponent : So the Ethiopian, by your own admission, is black in all respects, but white with respect to his teeth.

In this dialogue, we can see the tactic that the proponent is using. It is impossible for something to be black in (absolutely) all respects and white in one respect. So once, he has got the respondent to accept this proposition, he has won the game of showing that the respondent's commitments lead to a contradiction. The tactic is to try to get the respondent to accept the absolutistic generalization stated at the proponent's third move, and then use that absolutistic generalization to apply to a real case that requires an acknowledgement that the Ethiopian is only black in a certain respect. So both Aristotle's case and the Jacobs' cases involve a kind of movement in a sequence of argumentation that tries to gain acceptance for an absolutistic conclusion from a real situation that warrants only a weaker claim of a presumptive kind as premise. The fallacy, or the sophistical tactic involved, is one of trying to gain acceptance for a stronger type of generalization than is really warranted by the evidence in the case. There is a shift from a qualified generalization to a stronger form of generalization that is universal, or closer to universal than the evidence in the case warrants.

The problem in dialogue 2 is that the proponent tries to get the respondent to accept the conditional, 'If the Ethiopian is black, then the Ethiopian is black in all respects.', a hasty generalization. The generic statement, 'The Ethiopian is black.', means that the Ethiopian is black in a particular respect, and we understand that the statement refers to the black skin of the Ethiopian. So the generic statement is compatible with the truth of the statement that the Ethiopian is not black, in some respect other than his skin color.

The fallacy in case 5 arises because once the information comes to be known that the little dog is foaming at the mouth, it is apparent that this case is an exception to the rule that most dogs pose no threat to people who pet them. Once the premise 'The little dog approaching us now is foaming at the mouth.' is in the argument, the rule that most dogs pose no threat is defeated. The kind of inference in this case has the same form as (*PID*), the presumptive inference in which it is known that Tweety is a penguin. The problem here is a failure to react properly in the dialogue to the shifting of the burden of proof. Once the proponent accepts the premise that the little dog is foaming at the mouth, and the respondent

points that out, the proponent needs to retract the conclusion that this little dog is no threat. For the presumptive inference has failed, due to the information that the case in point is an exception to the rule. The proponent could continue the dialogue by giving some evidence that the foaming at the mouth in this case is not evidence of rabies. But because of the potential danger in the situation, the burden of proof for accepting such a claim should be high. The prudent action would be to forgo petting the little dog, or even to get away from the little dog as soon as possible.

What needs to be recognized is that there can be three kinds of generalizations used in argumentation, and there can be subtle shifts from the one type to the other in some cases, and ambiguity concerning which type of generalization should be meant. In this case then, it is the third type of hasty generalization fallacy that is indicated. The shift from the one type of generalization to the other can be an instance of this type of fallacy because the premise may be only a presumptive generalization, whereas the conclusion drawn or suggested may be an absolute (universal) one. The presumptive generalization should be seen as inherently defeasible in nature. So in a dialogue, this type of generalization, when put forward by a proponent, should be seen as open to critical questioning by the respondent, who should not be obliged to accept it unless the critical questions can be answered adequately. This type of generalization needs to be seen as a kind of proposition that can be tentatively accepted in a dialogue, but then later retracted, should new information come in that cites respects in which the generalization admits of exceptions. The sharpest form of the hasty generalization fallacy is committed when the dialogue in a given case is such that the proponent is trying to shut down appropriate critical questioning of a defeasible generalization by a respondent by trying to make the generalization appear to be of the universal (exceptionless) type.

Finally, we return to the question of how supportable Jacobs' theory really is. As noted above, if the techniques used by the advertisers are deceptive, and do inflate the generality of a claim, then their arguments would seem to fall under the hasty generalization fallacy. But I must confess that I have some sympathy for the advertisers. Commercial advertisers tread a fine line, because in the present legal situation it would be imprudent for them to claim a product will always work to bring about the outcome desired by the consumer who buys and uses that product. Reality being what it is, virtually any product is likely to fail, in some cases, to bring about the desired effect. Such a failure could be grounds for the consumer to bring suit against the advertiser. And in particular, in America there are laws against making false claims in advertising. So the advertiser is not likely to want to claim that the product works in *all* cases to bring about some designated outcome. On the other hand, if the advertisement doesn't project the message that the product will definitely work,

in bringing about the desired outcome, the consumer will not likely be persuaded to buy it. Also, advertising is competitive. A strong enough claim must be made so that the project will look to the consumer as though it is at least as effective as the products sold by the competitors. This situation puts the advertisers in a bind. It is prohibitively imprudent to claim that the product will bring about the hoped-for result in all instances of its use. But something pretty close to this claim needs to be communicated to the consumer if the product is to be successfully promoted.

In this situation, describing the ads as instances of the hasty generalization fallacy is a bit of a stretch. Presumably readers of a commercial ad are aware that they are reading advocacy speech – that is, a sales pitch. If they uncritically substitute ‘most’ for ‘many’ in drawing a conclusion about what the ad is telling them, then it may be them that is committing the fallacy, not the advertisers. But maybe what is most useful here is not laying blame, or imputing the committing of a fallacy. What is important is coming to realize, as a critical thinker, how the ad works by suggestion to boost up the power of the claim actually made.

Another thing we should not be too surprised to find is that real cases of the hasty generalization fallacy, of the kind used in business or law, or where significant money is at stake, are more sophisticated and tricky than cases used as simple illustrations in a logic textbook. The edges are not so clearly drawn, and much more suggestion and innuendo is involved, of a kind that is hard to pin down. The sophisticated tactic type of fallacy is a lot harder to pin down, because the evidence for it, as well as the mechanism of communication that is used, is contextual and dialectical. Instead of a simple move from a particular premise to an absolutely universal conclusion of the “for all x ” type, there is a much more subtle shift from a slight generalization to a somewhat more robust (but still not universal) one. In real cases, one must be prepared for a less obvious kind of move and a dialectical overlay that covers it and makes it plausible.

Further work on the fallacy of hasty generalization needs to look at cases that illustrate both kinds of uses of this fallacy - the erroneous inference use and the sophisticated tactic use. More case studies need to be collected, and attention needs to be paid to the context of use of the arguments, in relation to the Gricean maxims of conversation. More attention needs to be paid to the different types of generalizations that are involved. More attention needs to be paid to the role of presumptive generalizations that are used in inferences that are not like the kinds of deductive and inductive inferences we are so used to dealing with in logic.

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Abstract

This paper makes a case for a refined look at the so-called “fallacy of hasty generalization” by arguing that this expression is an umbrella term for two fallacies already distinguished by Aristotle. One is the fallacy of generalizing in an inappropriate way from a particular instance to a universal generalization containing a “for all *x*” quantification. The other is the *secundum quid* (“in a certain respect”) fallacy of moving to a conclusion that is supposed to be a universal generalization containing a “for all *x*” quantification while overlooking qualifications that have to be added to the more limited kind of generalization expressed in the premise. It is shown that these two fallacies relate to two different kinds of generalization.

The classification of fallacious generalizations is based on a new theory of generalization that distinguishes three kinds of generalizations – the universal

generalization of the “for all x” type, used in classical deductive logic, the inductive generalization, based on probability, and the presumptive generalization, which is defeasible, and allows for exceptions to a general rule. The resulting classification goes beyond a logic-oriented analysis by taking into account how a respondent may oppose a potentially fallacious generalizing move by falsifying it. Using a dialectical interpretation of premise-conclusion complexes, the paper outline a richer concept of generalizing argument moves embedded in a communicational reconstruction of the strategic uses of such moves in which two parties take part in an orderly dialectical exchange of viewpoints.