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Anecdotal Reasoning

Louis F. Groarke
York University

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Author: Louis Groarke

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1. Introduction

In this presentation, I want to argue that anecdotal reasoning is not inherently vicious. The widespread condemnation of anecdotal reasoning one finds in the informal logic literature is based on an analysis of inductive generalizations which is ultimately flawed. As Aristotle explains, induction, is a form of insight, not simply a case of mechanical enumeration. As such, it is a more complex argument form than is often recognized. The following is only intended as an introductory account of the issue.

2. Hasty Generalization

The argument form I want to examine is usually referred to, in the pedagogical literature as "hasty generalization" (Morris, 43; Toulmin, 151-155, 173; Kelly, 266-267; Groarke, Tindale, Fisher, 219; Conway, Munson, 129). Authors also call this allegedly fallacious reasoning strategy: "hasty inductive generalization"(Govier, 344), "appeal to anecdotal evidence" (Moore, Parker, 396-97), "glittering generality" (Woods, Walton, 65), the fallacy of "insufficient sample" (Damer, 109-110), the "fallacy of insufficient statistics" (Salmon, 56), the "fallacy of generalization from too few cases" (Fearnside, Holther, 13), or, in a reference to traditional categories, "*secundum quid* (Hamblin, 28-29, 46-47; Woods, Walton, 65).

On the standard explanation, hasty generalization is a matter of "jumping to conclusions" (Groarke, Tindale, Fisher, 219). We commit a hasty generalization, when we "generalize too quickly, on the basis of insufficient evidence" (Kelly, p. 266). This results in a sweeping claim which has been drawn "from too small a sample" (Damer, p. 109). As Govier explains, every-day generalizations are often "based on an exceedingly small number sample of cases—sometimes only one or two. A person rather carelessly assumes that the case or cases that have come to her attention are more than just episodes or isolated events; she [mistakenly] assumes, without sufficient warrant, that they indicate a general tendency or trend" (Govier, 344).

Engels offers the following example of hasty generalization: "The welfare program is totally unnecessary. Why, I know a guy who runs a very lucrative gambling operation and who drives his new Cadillac downtown every week to collect is welfare check" (Engels, 43-44). This appeal to anecdote is a conspicuous example of biased reasoning. The speaker assumes, on the basis of single exceptional example, that everyone on welfare is cheating the system. Obviously, one cannot make a valid generalization about all the people on welfare on the basis of a single atypical instance. So clearly, this is a mistake in reasoning.

Contemporary textbook authors often use examples of racist argument or social stereotyping to make the same point. Kelly typically warns, " A single bad experience while traveling can prejudice our view of an entire city or country. Most of us have stereotypes about ethnic groups, professions, or people from different regions of the country based on our exposure to a few individuals. Even a judgement about the character or personality of a particular individual is a generalization drawn from our observation of that individual on specific occasions" (Kelly,

266). If, however, racist stereotyping is logically problematic, I will argue that so-called "hasty generalization" is not always a fallacious argument strategy.

3. Two-Mistakes-in-One

Contemporary authors sometimes distinguish between two kinds of hasty generalization. Toulmin writes that "we commit fallacies of hasty generalization when we: (1) draw a general conclusion from too few specific instances...or, alternatively, when we (2) draw a general conclusion from atypical examples" (Toulmin, 151). But these do not seem to be separate mistakes. If the burden of proof is on authors to demonstrate that they have provided a correct instance of reasoning, then one mistake entails the other. Consider.

Suppose I commit mistake (1): I investigate "too few instances" of something (Toulmin, 173). If I investigate *too few* instances, then I cannot know whether the particular instances I investigate are typical or typical. This leaves open the possibility that these instances are atypical. This is why this reasoning strategy is considered to be fallacious. If I look at too few instances, then I cannot know if I am investigating atypical instances, and if I am basing my conclusions on atypical examples, I will be lead to false conclusions. So mistake (1) presupposes, in some strong sense, the possibility of mistake (2).

Suppose, however, I commit mistake (2): I investigate "exceptional rather than typical cases of something" (Toulmin, 173). A minimally rational individual would not base sweeping conclusions about a whole class of entities on the basis of atypical instances. If I am confusing atypical and typical cases, this can only be because I have not looked at *enough* cases to realize that the cases I am investigating are atypical. So mistake (2) presupposes mistake (1). When a reasoner generalizes from atypical cases, this is because of inadequate evidence. We may in hindsight ascertain the atypical nature of examples studied, but this is only because we have studied further examples that the original reasoner did not, for one reason or another, consult.

If contemporary authors distinguish between reasoning from too few examples and reasoning from atypical examples, Woods and Walton, in a discussion of sampling methods, draw an analogous distinction between the fallacy of "insufficient statistics" and the fallacy of "biased statistics" (Woods, Walton, 66). This is a useful statistical distinction between the number of cases studied and the method employed for selecting them. Nonetheless, one could argue that these statistical problems are inter-related. When we study two few cases, this may result in a sample made up of atypical cases. And when we use a biased selection procedure, this is due to a lack of familiarity with the object and population under the study. If researchers were familiar with *enough* examples, they could presumably devise an accurate sampling method. Although there may be cases that are so complex that the practical matter of sample-selection is problematic (the necessary knowledge just isn't available), they need not detain us here.

For simplicity sake, consider the fallacy of hasty generalization to be the practice of reasoning from very few cases to some kind of inductive generalization. This may, of course, involve generalizing from only one or two examples. I mean to show that many cases of so-called hasty generalization are clearly not fallacious.

4. Anecdotal Evidence

Reasoning from anecdotal evidence is usually classified as a form of hasty generalization. In its literary meaning, the term anecdote refers to "a short, entertaining account of some happening, usually personal or biographical" (*Websters*). We are interested in the logical status of arguments based on such personal evidence. Define anecdotal reasoning as reasoning from particular experience.

Anecdotal reasoning is not necessarily unsystematic but it is not, in any strict sense, statistical. Naturalists may study the animal kingdom in a highly systematic way, but their investigations revolve around personal experience. Again the literary historian may base a systematic account of history on the personal experience of diverse historical figures. These might count as unusually cogent forms of anecdotal reasoning. But such reasoning is generally overlooked in the informal logic literature.

In a discussion of hasty generalization, Moore and Parker cite a statistical rule of thumb: "anecdotes prove nothing" (Moore, Parker, 396). As they explain: "An anecdote that shows one or two Xs have feature f proves only that one or two Xs have feature f." It "doesn't prove anything about Xs in general" (Moore, Parker, 396-97). This is the standard view. But the kinds of examples invoked in support of this generalization are cases of special pleading. They have been carefully selected so as to support a partisan hypothesis. There are cases of reasoning from one or two examples that are clearly cogent.

Begin with a silly, but useful example. Suppose I encounter a circle. That is, I have one particular experience with a circle. Perhaps I see the shape in a picture in the newspaper. I inspect the shape and come to the conclusion: the circumference of every circle is curvilinear. Clearly, this is a true conclusion. If, however, the conclusion is true, I have inferred it from a careful consideration from a single example. I might tell my buddies at the beach, "Hey, I saw this circle," and drawing a crude shape in the sand, I might tell them: "See, it was something like this; the sides are all curvilinear." And they might be lead, correctly, to accept the true conclusion that all circles have sides that are curvilinear.

Again, suppose I see one adult elephant. I conclude that adult elephants have trunks, elongated, pliable snouts that they can fold, pick up things with, spray water through. I don't just randomly guess that all adult elephants have trunks; I carefully observe the creature and apply perhaps some ideas about biology and species differentiation to my observation. This is an accurate, if hasty, generalization. And clearly, it can be inferred on the basis of one example.

Imagine some extraterrestrial being who has been hearing people talk about elephants. The space-man is confused. He is not quite sure what to make of it. Then he sees an elephant: "Oh I get it; it has a trunk!" There is some sort of reasoning process going on here and it is not clear that it is, of necessity, fallacious.

Finally, suppose I meet a Roman Catholic and on the basis of our conversation conclude that Roman Catholics believe the Pope is the head of the Church. This is surely a true conclusion, even if it is based on a single case of anecdotal evidence. A liberal Catholic might be less than enthusiastic about this belief. And one might quibble about what exactly "being head of the Church" means. But that is a philosophical problem for theologians to work through. Surely, it is highly sensible to assert that a distinguishing feature of Roman Catholicism is the fact that its adherents accept the Pope as its leader. People who do not accept the Pope as head of the

Church may share other beliefs with Catholics, but there is some important way in which they deviate from Catholic doctrine.

These kinds of examples, which are limitless, suggest that what is wrong with so-called hasty generalizations is not that their hasty nature. It is that the process of induction has, in some way that needs to be specified, gone awry. But generalizing from even a single example is not necessarily fallacious.

5. An Essential Connection?

Moore and Parker concede that one can generalize from a few examples if the class being studied "is known to be very homogenous" (Moore, Parker, 397). But this is not very helpful. Roman Catholics as a group are not, except in the specified sense, very homogenous. Some are short, some are tall; some are rich, some are poor; some are educated, some are illiterate; some are left-wing, some are right-wing; some are sinful, some are pious, and so on. They share similar beliefs about certain things, but otherwise they are not conspicuously the same. If we look at only one example, how can we know that they are homogenous in the specified sense?

Engel explains that hasty generalizations may be incorrect "because there is no essential connection between [the specified case] and the generalization it is called to support" (Engels, 43). This notion of an *essential* connection seems more promising. A curvilinear circumference is an essential aspect of being a circle. Having a trunk is an essential aspect of being an elephant. And accepting the Pope as the head of the Church is an essential aspect of what it means to be a Catholic. Of course, the essential nature of something might be disfigured. But an examination of an essentially disfigured object might still yield a correct generalization.

Suppose I encounter two elephants: one with a trunk and one whose trunk has been cut off. Obviously, it would be a mistake to conclude that elephants, in general, may lack trunks. But there is something wrong with the second elephant. It is an elephant that has been disfigured. Suppose I observe more closely and see a wide swath of scar tissue. Even here, a minute physical examination might lead to the right conclusion: "This elephant has been in an accident; adult elephants, it turns out, have trunks!" In this way, a rational investigator who investigates anomalous cases might be able to discern an essential connection between a property and an object.

Note that to isolate or identify essential features of a thing is not necessarily to make claims about its metaphysical essence. There is an essential connection between being a circle and possessing a curvilinear circumference but this is not to say that it is the essence of a circle to have a curvilinear circumference. Ovals and ellipses also have curvilinear circumferences. So a curvilinear circumference cannot, by itself, be the unique, distinguishing feature of circles in particular. The points on the circumference of a circle are all equidistant from the central point. This is the essential feature of a circle. If we hope to identify the essence of a particular circle, we would have to refer to this characteristic. To refer to its curvilinear circumference would not be enough.

Correct hasty generalizations may isolate essential features of an entire class. But they might also uncover essential features that do not apply to every member of a class. Suppose an inner-city child were to crack open an egg for breakfast and find a half-developed chick inside. The child might reason: "So that's what eggs are for. Some of them contain baby chickens!"

This is a valid generalization, even though it does not apply to all members of the specified class. If some eggs contain baby chickens, it does not follow that all do. Still, the child correctly infers that some (i.e. more than one) chicken eggs possess the property of housing baby chickens. This is an essential feature of chicken eggs in that it has something important to do with what chicken eggs, in the most fundamental sense, are.

6. Aristotle

How can we make sense of hasty generalizations that appear to involve some non-fallacious reasoning process? In such a preliminary treatment, we can only gesture at an answer. But Aristotle suggests a solution. Consider his notion of induction (*epag• gé*).

Reason is, for Aristotle, more than a linguistic faculty. As Louis Bourgey notes, Aristotle believes that human perception is often penetrated or accompanied by an act of understanding that "enables us to grasp the universal" (Bourgey, 107-108; Aristotle, 88a13). That is, the act of perceiving and the act of understanding may be somehow tied together so that "states of knowledge are... [developed] from sense perception" (Aristotle, 100a10). Human beings are able "to retain the sense perception in the soul" and, over time, to systemize them in some orderly and insightful way. "So from perception there comes memory ... and from memory ... experience ... And from experience, or from the whole universal that has come to rest in the soul ... there comes a principle of skill and of understanding" (Aristotle, 100a5-8). In this way, induction is able to engender systematic knowledge and scientific understanding.

If, however, Aristotle refers to inductive generalizations that arise from repeated acts of observation, he also suggests that it is possible to elicit the universal from a single act of seeing. Suppose we were suddenly endowed with supersensitive eyesight and could see pores in a glass windowpane. We would suddenly understand why glass is transparent. Aristotle comments, "[if] we saw the glass to be perforated and the light coming through, it would also be clear why ... it is thus in very case" (Aristotle, 88a15). If then our observation is penetrating enough, we will be able to grasp the universal through the examination of a single case without needing other examples. So Aristotle himself accepts the possibility of *correct* hasty generalization. We can reason from one example to a universal case, this because correct induction does not depend so much on the multiplication of examples but on the thoroughness and competence of *rational* observation.

7. Proof and Insight

The difference between the modern and the Aristotelian account is perhaps a difference between a demand for empirical proof and an epistemological account of intellectual insight. The strict empiricist, who only accepted direct observation as foolproof evidence, would have to consult every circle to see if it were curvilinear, every elephant to see that it had a trunk, every Catholic to see that if they accepted the Pope as the head of the Church. But this enumerative method of proof would be entirely mechanical. And it could never be fully obtained. There would always be circles, elephants and Catholics left over, that one could not consult. It is not surprising then that a prevalent skepticism about induction can be traced back to Hume's radical empiricism.

But Aristotle's view is different. He conceives of inductive generalizations, not as an attempt to secure mechanical proof, but as a striving after (universal) knowledge. We can have insight into the fact that something is the case, even when we cannot physically examine each and every instance of something. For Aristotle, good reasoning is not so much the mechanical collection of facts as the creative stroke of insight which lies bare the essence of the matter.

More historical accounts of logic capture this creative side of induction more readily. John Venn, in logic textbook written in the 19th Century, explains that induction begins with "a stroke of insight or creative genius." Venn continues, "In really original inductions this step may be one of the highest degree of difficulty. Indeed, except in the trite examples of the textbooks...this requirement can scarcely ever be entirely evaded" (Venn, 351). Robinson, in a textbook written in 1927, also emphasizes the mental leap that must accompany induction. In his words "mere experience, mere enumeration, mere observation of the data...is not enough. The mind must see as well as the eye" (Robinson, 211).

In the modern social science view, the emphasis is on the scientific collection of data Aristotle reminds us that knowledge depends, more fundamentally, on the discernment of the knower. A capable knower can, in a single instance, come to an understanding that escapes the dunce. Faced with very little evidence, the wise person knows; faced with a plethora of evidence, the dullard does not know. Understood in this way, philosophy, which involves the cultivation of intellectual judgement or discernment, becomes the key to successful intellectual endeavor.

Modern texts indiscriminately condemn the practice of hasty generalization. I have argued, all too briefly, that the hastiness of a generalization is not, in itself vicious. Seen from Aristotle's perspective, a *correct* hasty generalization is a sign of intelligence, of insight, of critical capacity. The person who has an aptitude for math gets the professor's point with a single example. It is the less gifted who must strive mechanically over example-after-example. Insight depends not just on the wealth of evidence but on the quickness of the knower. So hastiness is, in the proper context, something to be admired, not something to abhorred.

Seen from an Aristotelian perspective, modern statistical science may study accidental properties in vast populations with a rigor that moves beyond the scope of the unaided human intellect. In these specific circumstances, statistics be a necessary aid to scientific investigation. Statistical analysis requires adequate numbers of samples. It may be peculiarly prey to the so-called fallacy of hasty generalization. But this is a specialized realm of inquiry. In every-day reasoning, one cannot condemn, a priori, all instances of hasty generalization.

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