

Let's Not Argue About This!
A Review of Nickerson's
Argumentation: The Art of Persuasion

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“Let's not argue about this” is a phrase that most readers of this review have heard; and if they are parents, will have uttered. It reveals a common (mis)understanding of what an argument is: alternating assertions escalating in volume with hands clenched or finger pointing. Let's argue about this; with (as we are scientists) recourse to data. The data all come from an amazing book by Ray Nickerson. It is amazing—as many of his books are—because of its thorough and balanced evaluation of the many conceptions and reflections in the literature on just what an argument is, and what it does and cannot do. As the book's subtitle indicates, argumentation is very different from vulgar “arguments”, which seldom persuade and have little art.

For Nickerson, an argument is, in broad strokes, an “effort to modify beliefs or behavior”. Of course, many efforts to modify beliefs or behavior are not arguments, ranging from conditioning and priming to Ring Lardner's “‘Shut up!’ , he explained”. Nickerson writes about proper arguments, more civil than Lardner's, usually executed verbally, rather than physically. Even so, when a man with a gun says: “Your money or your life!”, it is not hard to reconstruct the coercion in the form of a conditional argument, if you can think logically while struggling to dislodge your wallet (and perhaps hoping that it is an exclusive OR that he meant). This book shows us that many—many more than you would have thought—verbal interactions may be cast as arguments. These range over a large territory, from simple syllogisms to arguments with oneself, to courtroom presentations, to presidential debates, to geometry, to Galileo's *Dialogue*, with 17 arguments and 29 counter-arguments, to the *Origin of Species*, which Darwin

characterized as “one long argument”. How do we ever begin to parse the kinds and character of arguments?

The typical argument is a set of claims (premises) that are intended to support another claim (a conclusion). Among many of the questions that Nickerson raises about arguments are their classification, purposes, role of logic, relation to reasoning, fallacies, strategies, evaluation, persuasiveness, and how to teach argumentation. Perhaps the most important of these is purpose: Is it to understand more clearly; to generate consensus; or simply to win, as in courtrooms and debates. If argumentation is not equivalent to reasoning, they are closely related, a view that many authors, including Nickerson, shares. With caveats, of course, so common in the analyses of both argumentation and reasoning.

There are many typologies of arguments, but the “oldest and most durable” of them is the distinction between deductive and inductive arguments. Deductive arguments draw out the implications of their premises. They go from the general to the particular, they add no new information (although their conclusions may well be novel to the observer), and their validity is readily checked via governing rules. “Readily” however is seldom “easy”, except in the simplest cases. A prototypical set of deductions may be found in Euclid’s *Elements*. Inductive arguments go, uncertainly, from the particular to the general. Most scientific argumentation is a variety of induction, as are inferential statistical analyses. Yet there are no formal ways of proving validity of inductive arguments; they are “informal reasoning”. Even in the case of valid deductive arguments uncertainty arises concerning the *truth* of the conclusion, which depends not only on a valid form, but also on the truth of the premises; and how do we ascertain the truth of those? Presumably by induction. “All men are mortal” is certainly true, but one arrived at by induction; as is “All swans are white”. What of Euclid’s parallel postulate? His conclusions are certainly

valid, but General Relativity gives us concern over their truth (correspondence with the real things of which it is averred). The premise “Given an unbiased coin, ...” is good for computing probabilities; but applied to real objects how do we ascertain that something is unbiased? Our evaluation of inductive arguments can go no farther than “We’ [the pundits] are persuaded [or not]”. To complicate matters, not only are premises typically established by induction, it is often difficult to decide whether an argument is deductive, inductive, both, or possibly neither.

Nickerson enriches his text with many exemplary quotes and allusions. Consider the arguments of the Constitutional Convention in 1787, which **delt** with questions such as: the structure of the government and the distribution of its functions; the number of executives; how to determine the influence of each of the states: their area, population (are slaves counted?); states’ rights; how to obtain funding; and so on. A common kind of premise was the “prefactual conditional”: “*If we adopt your recommendation, sir, the consequences shall be dire!*”. The arguments were continued for another year in the Federalist Papers with the purpose of obtaining ratification. Later noteworthy extended arguments include the 21 hours of debate between Abraham Lincoln and Stephen Douglas, and the arguments of John Quincy Adams defending the slaves who seized control of their transport ship Amistad. Arguments are central to our legislative and jurisprudential systems, making clear the importance for us as psychologists to further our understanding of them. [That sentence is an argument. Did it persuade you? How do we classify it?]

Another form of argument is the *reductio ad absurdum*. My logic instructor expounded, with obvious esteem, this example provided by Galileo: Assume that heavier bodies fall faster than lighter ones. Tie a smaller rock to a larger one. The smaller one should retard the fall of the larger, and slow their descent. But together they are heavier than the large rock, so together

should fall more quickly. This is a contradiction, so your premise must be false. (Are there scientific truths to be had in psychology by similar acts of pure logic?) Galileo was not only an experimental and theoretical physicist of the highest order; he was also a brilliant logician and rhetorician. His *Dialogue* contains 17 main arguments in favor of his arguments, and 29 critiques of counterarguments.

For over a millennium, schoolboys were required to study the epitome of formal deductive systems, Aristotle's system of syllogisms. All serious students studied Aristotle; You are a serious student; Therefore you studied Aristotle. Four simple rules of thumb can identify all the invalid syllogisms among the 256 that are possible; yet those are evolved empirical rules, and there is no convincing theoretical treatment of why they work. Or even why syllogisms should work. Relief from this beautiful but largely inapplicable system came with George Boole's symbolic logic. The problem shifted from "How to reduce an argument to a syllogism" to "To what extent do the premises reduce the uncertainty of the conclusion", an endeavor facilitated by information theory and causal graphs.

One form of induction abundant in science is among the least studied, C. S. Peirce's *abduction*: Reasoning from observations to a hypothesis that, if true, would explain the observations. General Relativity (GR) is a hypothesis that predicts the shift in perihelion of Mercury and gravitational lensing; both were found; we therefore celebrate GR with ticker-tape parades. Abduction is found in all branches of science; but is informal, uncertain, and places no constraints on the type of hypotheses that may be proffered. Accepting the premise/ hypothesis/ antecedent because claim/conclusion/prediction is true is committing the fallacy of affirming the consequent. Science affirms the consequent; Affirming the consequent is a fallacy; Therefore,

Science is a fallacy. [Oh? *Just* what is wrong with that argument? If anything? Hey, this is hard work!]

There are, as you would imagine, a bestiary of argument species: There are *conducive* arguments: converging but not necessarily related premises that add to—or subtract from—the weight of evidence. These are often found in courts of law and were systematized by Ben Franklin in his everyman's *Prudential Calculus*. There are *probative* arguments, based on a kind of fuzzy logic. There is *analogical reasoning*, which is ubiquitous in science. In 1980 Roediger listed three dozen metaphors in the scientific literature for memory, from Plato's wax tablet to Pribram's hologram. By induction, I am sure the list has grown. The cachet of such models can be dangerous. In my field of interval timing, an internal clock consisting of pacemaker and accumulator is the regnant metaphor. This is curious, as it cannot deliver Weber's Law (it is too accurate at long intervals), which should falsify it via *modus tollens*. Psychologists have been talented at finding workarounds—*protective belts* of assumptions in Lakatos's terminology—to preserve the model; one of them by simply adding Weber variability to the accumulator.

The great theories of science have been based on *postulational* reasoning, in which clearly formulated parsimonious postulates (often arrived at through abduction, based on contemplation of low-level laws) leads to explicit, falsifiable predictions. Newton used the method in his analysis of light, based on his elegant prismatic experiments; Darwin used the method based on his vast biological knowledge and on Malthus; Maxwell used the method based on Faraday's laws; Einstein used the method in GR to make sense of the equivalence of inertial and gravitational mass. The General Model of subatomic particles is such a system. While arduous to achieve, it "is the ideal to which every scientific branch ... consciously or

unconsciously aspires” Keyser (1926, as quoted by Nickerson, p. 57). Can we aspire to that, in our very messy field? Can we achieve it?

If the point of arguments is to persuade others, does it matter if they are valid, or their conclusions true? (Difficult aspirations, as Nickerson’s exhaustive analyses shows). To academics, certainly, as those are some of their criteria for assent; we would love for all winning arguments to at least be approximately sound—valid and true. But most arguments are not made for experts, but for the unwashed; close reading of arguments is not in their ambit. “If the form of the argument is valid, and the premises true, the conclusions are true”. Right. Evaluate that! Explicate it at the pub. Or at the bar, where logic is an important but small part of legal success.

What is it that makes an argument persuasive? Many factors, depending on argument type, purpose, actors, prior assumptions and so on, with the so ons occupying all of Chapter 4. Even the simplest of invalid arguments may be persuasive: If John is in Europe, he is in Paris. John is not in Europe; therefore, he is not in Paris. Can you identify what common fallacy the syllogism embodies? Can you identify a geographical consideration that would belie the conclusion? Real, extended arguments introduce many more suasive factors, not least of which is the fact that where we start may have multiplicative effects on the conclusions we reach. An interrogator who believes a suspect to be guilty may ask questions that affirm that suspicion and avoid ones that would infirm it, and differentially weight the information received. This is a confirmation bias. If you must be interrogated chose an interrogator who believes you to be innocent! (You can hire one. They call themselves “lawyers”).

To accept or reject an argument, whether deductive or inductive, one must decide how plausible the premises are. Analysis of plausibility occupies Chapter 5, but analysis of the plausibility of arguments requires a lifetime of education and judiciousness. And local

knowledge. How do you evaluate the plausibility of the claim: “If Dick was at the party, Kate wasn’t anywhere near?” If you didn’t know that they recently had a vitriolic divorce, you couldn’t say. Is there anything that will organize the plethora of considerations in this chapter? Nickerson examines at length Rescher’s *Plausibility Theory*, a kind of probabilistic calculus in a domain where classic probability theory cannot be applied. Nickerson calls Rescher’s work “influential ...wide ranging and thought-provoking”. More plausible than some versions of modal logic, fuzzy logic, or probability theory? Perhaps; but Nickerson is awaiting more developments before endorsing.

Fallacies are, like pornography was, to Justice Potter Stewart, easier to name than to define. Definition is so difficult that many of the experts Nickerson cites in Chapter 6 would just as soon do away with the term. Fallacies go back to Aristotle who identified 13 types of them; and forward to a more recent author who listed 147. (It is possible that modern times are more fallacious? Is there a Moore’s law of morons yet to be announced? Would such a law be a fallacy? If so, make that 148). All agree that fallacies consist of false reasoning; but there are many ways to achieve that. Some authors think the most ubiquitous fallacy is *equivocation*, in which a term or phrase shifts meaning: No car is better than a Tesla; My car is better than no car; Therefore, my car is better than a Tesla. The problem with the concept is that sometimes fallacies are not fallacious. Consider *argumentum ad verecundiam* (Most fallacies are given Latin names. This should impress with the longevity of human fallibility. And also of the importance of the fallacy that it be so obscurely named; which of course is, if it did impress you, is another fallacy you just made.) Anyhow, we see such “argument from authority” when movie stars endorse medicines and sports stars endorse retirement plans. We see argument from authority when I get vaccinated because Anthony Fauci endorses it; I mask because the Center for Disease Control advises

it; and I wear Air Jordans on court because Michael Jordan does too. How about *argumentum ad hominem*? Shooting down an argument because of the questionable character of its proponent. We see that in today's cancel culture, where not only the perp, but his or her work, is disparaged because of the auteur's opprobrious behavior. Fallacy? "You believe anything he says?" is a lazy kind of argument analysis; but sometimes it is the right one. Sometimes not. *Post hoc ergo propter hoc*. Easy, right, all our lives we have all taught that correlation does not imply causation. David Hume didn't teach that; he taught the heuristics of causal analyses, and those included proximity in space and time, temporal precedence, and constancy of conjunction. And so it goes. Ain't no black or white rules, no Royal Road to truth. As one author quoted by Nickerson emphasized: "*there is no theory of fallacy whatsoever*". And how could there be? This chapter, like all of them, abounds with fascinating observations, such as Galileo's most basic of fallacies (affirming the consequent) in explaining how the phases of the moons of Venus gave evidence for the heliocentric theory. Kepler called him on it! (If you get caught in that particular fallacy, you can claim "Hey, what's good enough for Galileo is good enough for me!" I won't give you the Latin for that.)

There are of course other ways to go wrong, such as biases and misconceptions. Consider the *truth bias*. In a long battery of questions, you are asked "True or False?: 'Paris is more populous than Chicago'"; later on in the battery you are asked to judge "Chicago is more populous than Paris". Whoever judged the first *true*, should judge the second *false*. The *truth bias* is the fact that a substantial number of subjects will rate them both true. Observers are biased to judge statements true. This had led to charges that humans are gullible. Humans are often gullible. But they may also be Bayesians. Consider that most statements that we encounter are likely to be true. The priors for *true* should be greater than the priors for *false*. Nickerson

being Nickerson, he lists a plethora of other biases: *survivorship bias* (losers don't show up), *the fault with fault trees* (underestimating the probability of unlisted faults), *wishful thinking* (there's got to be a heaven because it is too awful to think that I will just die), *citation bias* (folly is more newsworthy than reason), *the fundamental attribution error* (he did it because he is an untrustworthy bastard; I did it because circumstances compelled me to), *retrospection bias* (how could it have come out any differently, after all?), *explanation bias* (reverse retrospection bias: Having explained the likely outcome, my estimate of its probability goes up. (Having just done so, I judge it to be a common bias)). Then there are the egocentric biases: *false consensus* (I did it, so everybody does it), its converse *I'm special* (Won't happen/doesn't apply to me), *hindsight bias* (see retrospection bias, and add "and I knew it all along"), *confirmation bias* (you should know that one; Francis Bacon did). Nickerson doesn't just list effects; he reports the key recent research (well, there *are* Aristotle and Bacon; but theirs were just observations, not real laboratory experiments), and analyses of why and what they mean.

If the biases are so bad and so many, why do they persist; why do we as species persist? (Consider the Lemming, and the argument from the authority of their leader. Or, consider the Myth of the Lemming, and the authority of Walt Disney. Many levels here). Back to us. Nickerson notes the many scholars who argue that biases and "fallacies" are often functional outside the laboratory. He concludes "it is not clear that they cause us enough trouble to motivate us to correct them...there is some chance, however, that reasoning problems that fail to cause us much grief as individuals can, in the aggregate, be problematic for the well-being of humankind" (p. 262). Like, perhaps, "I don't feel that much hotter"?

But wait, wait! That's not all! Chapter 8 reviews "other flaws and foibles", including oversimplification, false dichotomies, vividness, framing, failures of omission, sunk costs,

opportunity costs, the myth of objectivity, and so on. All of these chapters involve mistakes. But things get worse than that; I know it will be hard for you to believe, but some people bend arguments to trick us! Mad times! Nickerson “borrow[s] the word *stratagem* from Arthur Schopenhauer” for those ploys (I wonder just how he plans to return it?). He analyzes many of these, and reprints a couple lists of such “dishonest tricks” in appendices. I shall not mention any, lest I further lower your esteem for humankind, and you rush for the nearest cliff.

What can be done? Thank goodness, the last chapter is titled *Improving Argumentation*. That is the good news. He is in the consensus that much good reasoning is good argumentation (typically with oneself) so improving one will improve the other. He bullets two dozen items that a person should know or understand if they desire to be competent in argumentation. Most seem straightforward, even unarguable (e.g., the difference between logical validity and empirical truth; the limitations of argument by analogy; the difference between explanation and rationalization). Others will take some work (e.g., how to apply various debiasing techniques; how to design tests of hypotheses; how to judge the persuasiveness of an argument). Still others are easy to understand, not so easy to get people to do (e.g., the ability to take a perspective that is different than one’s own; the importance of motivation to sound reasoning; recognizing that changing one’s mind in response to evidence is no sin). Nonetheless, these are all items that could be covered in a one or two semester course. What kind of course? The data show that the best structure for such a class is collaborative learning, where small groups (around 4 students) have a chance to practice the items and critique one another’s performances.

There are many slips between the cups of wisdom embodied in those items, and the lips putting them into action. Putting them into action on one’s *own* thoughts and behavior is, furthermore, often too hard for many individuals to swallow. “There is little doubt that it is easier

to teach people to win disputes than to be self-critical” (p. 341). His conclusion on the efficacy of teaching fallacies echoes his conclusions on other attempts to improve argumentation in other ways: “The safest conclusion that can be drawn from the research that has been done is the unhelpful one that sometimes it works and sometimes it does not” (p. 333). The issues are so important though [Nickerson shows good self-control by not exemplifying their importance with allusions to the current nature of public discourse], that the successes are worth pursuing--With the caveat that the ability to reason well requires a long-term commitment to years of study and practice. Although that seems daunting, it is no different than the mastery of any skill.

Nickerson ends with grandfatherly advice (Thomas Jefferson’s) that echoes the title of this review. Jefferson tells his grandson about two classes of people—naive young students not understanding the complexities of their field, and “ill-tempered and rude men, who have taken up a passion for politics. From both ...keep aloof, as you would from the infected subjects of yellow-fever or pestilence. ... Be a listener only, keep within yourself. ... In the fevered state of our country, no good can ever result from any attempt to set one of these fiery zealots to rights, either in fact or principle. They are determined as to the facts they will believe...Get by them, therefore, as you would an angry bull”. *Plus ça change!* So, let’s not argue about this: clenched fists and pointing fingers are not arguments, they are threats; they are an *argumentum ad baculum* fallacy only if you fall for them. So, avoid them: Don’t “contest a road with a bull”. Search out instead other classes of people who, like the founders of this country, labored to solve difficult problems through arguments in the highest sense of the term. Nickerson’s sense. Who labored to set a groundwork that would keep us together as a nation, a labor every bit as essential today as it was then. And turn to *Argumentation: The Art of Persuasion* for a better understanding of the character and nuances of arguments; scientific, political, and personal.