

White Paper: An Old Argument

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How are people persuaded to say or do something another desires? Words, sounds, images and actions all have been used for such purposes. They operate in interconnected ways to shape social behavior, but they have distinct effects and elicit different responses. Arguably, words have more power, since they shape culture in ways that can persist over many generations, through creation of complex narratives. This view has a long history. In Genesis, God *speaks* to bring the entire universe into existence: order flows from the Word of God, reinforced in further prophetic revelations meant to order human relations. Political speech constantly evolves to influence culturally specific emotional responses to achieve desired ends, to good or ill. Images and music are married with words to intensify the emotional appeal, likewise with culturally coded systems and tropes. Who can communicate, on what topics, and with what tone has consequently been highly contested in both public and private spheres throughout history. Peer review, moderation of forums, editorial control, chiding by parents, teachers, supervisors or partners are all facets of control of such expression. Language itself has been characterized as the means by which people program others. It is at the core of how we establish the social relations among so highly social a species. But so are actions—the vocabulary is usually not as nuanced, except in some dance forms, but physical acts also clearly convey messages, either through the commitment of time and resources put into them, or the direct physical effects. The argument of the basic form “do what I say because otherwise you will be hurt (physically, socially, economically...)” encapsulates this connection between words and actions, and can be effective in coercing desired behavior if the speaker is perceived to have the power to carry out the threat. The statement in which instead a reward is promised falls into the same logical category, although the aims can expand to establishing parameters for a collaborative activity.

The question we address here is how to cope in a world where machines have been harnessed to influence people, and particularly, how we must be educated to function in an age of targeted advertising, deep fakes, pervasive surveillance, scraping of personal information, and bots that spread false narratives. The answer we propose is a return to the study of rhetoric, expanded to consider how arguments are also delivered via non-verbal media. We observe that fake images are not a 21st century invention: representations of saints in art were never intended to actually depict the real faces of their subjects, and are constructed to draw the eye to certain features and symbols in order to convey a message on the nature of their sainthood. They use a symbolic religious vocabulary that would be understood by contemporaries. Cartoons have long been used in political pamphlets and religious tracts. Advertising images regularly use poses, lighting, and edits to elicit responses of excitement (sexual and otherwise) to associate them with the product being pushed. These also use cultural tropes and tricks of image composition. These can be readily discerned after they have been pointed out in a few examples. We do not need to determine whether a supposed photograph or movie clip is

computer-generated, altered, or actually true. What we need to ask in all these cases and those involving only words are what message is being conveyed, for what purpose, and by who? We deal with these in turn, after a brief diversion into classic analysis of arguments.

Logic can be classified as either deductive or inductive. Deductive arguments take the form of asserting that if some premises are true, it logically follows that some conclusion must then always be true. Classical forms include the syllogism and the dilemma. Other classical forms are the logical fallacies: arguments which do not prove the conclusion, but rather use various forms of misdirection to persuade the reader. For example, “The Earth is flat because Dr. Nefarious says it is round and Dr. Nefarious is a liar,” is an ad hominem attack. Just because Dr. Nefarious sometimes lies does not mean he always does. This type of argument is common in political ads. We must judge whether the Earth is round based on evidence unconnected to the supposed reliability of particular individuals/groups, but rather based on the preponderance of evidence. A converse logical fallacy is the appeal to authority: “The Earth is flat because Dr. Nefarious said so, and he is an expert.” This one is more subtle. Experts are more usually right on topics within their domain of expertise than non-experts, but they are sometimes wrong. We must again look to the preponderance of evidence. This leads us to the inductive argument: “The scientific consensus, based on accumulated evidence, is that the Earth is nearly spherical.” Here we are making a probabilistic statement, one that is factually true. It does not assert that the Earth is round, only that it is highly probable that it is. Inductive arguments have traditionally been problematic in philosophy because until the invention of probability it was hard to be precise in the claims. Since the general public is still not well educated in probability, in spite of its centrality to so many issues in modern society, slippery treatments of inductive arguments continue to be a favored tool of people attempting to deceive. Note for example that the two logical fallacies we examined fall into this category. The character of Dr. Nefarious *does* have some bearing on the probability of his statements being true, but the conclusion reached goes beyond the actual evidence presented. The rule for judging the conclusion is invariant: do the stated (and unstated) premises logically support the conclusion, and are the premises true?

Examining the logical structure of an argument and the factual basis of the premises can be a powerful tool for understanding and evaluating a message. But perhaps more important for non-technical arguments is looking into what emotions the message is meant to evoke. Political messages often embed symbols that denote some identity (e.g., flags/landmarks for national identification, guns or religious symbols for group identification, etc.). How the speaker(s) are dressed, their supposed authority for the message they convey, the tone of the music and/or voiceover, the lighting of the main items highlighted, the type of background and the arc of the narrative are generally not subtle in hammering home one or two main points (this policy/person is great or an abomination). Such messages typically amount to mere assertions of what emotions we should feel, with at best a caricature of a logical argument. We need to ask how *precisely* will wonderful things/disaster unfold as implied? Such convincing details are almost invariably lacking. How or whether the images are doctored is not a factor in deciding on the truth of the argument: there is not much information except perhaps about what the

creator of the content believes motivates the people who view it. Deep fakes just update the Stalinist mainstay of air-brushing photographs to the next level, and for the same purpose: to exploit credulity in visual or audio representations to advance a lie or distortion. In another example, ads for cars or beer typically imply that the consumer will experience a happier lifestyle, with little attention to distinguishing features of the product from others in the family. The *association* of particular good feelings with the product is the whole point.

Having dealt with what message is being conveyed, we turn to why. When not explicitly revealed, the answer lies in the content. A message promoting good feelings about a product is meant to sell it. A message promoting good or bad feelings about a politician or political opinion is meant to sell that position, and very often, gain a material benefit for the group that paid for the ad. What about a social media post or meme? Content again reveals the agenda. Cute pet videos and much other content is meant merely to amuse, and a great deal of other content is designed to present a curated version of people's lives to acquaintances. But if it is political or linked to products, however cleverly constructed, it should be treated with the same critical regard as paid advertising, since it is meant to persuade the consumer to act in some way. The message reveals the reason.

We now deal with who. In long-form media a sequence of formal arguments can be examined, and other sources consulted to validate premises. But this is work! Obviously, we cannot do this for every news article, talk radio show or podcast. This is where reputation of the venue or author comes in. If a news organization, does it practice journalistic standards such as fact-checking and validating revelations from multiple sources? Do they ever apologize when caught in a mistake? Are diverging opinions represented in its editorial staff or regular contributors? If a technical society, are there high standards for peer review? If yes, then targeted analysis by the consumer may suffice for pieces where premises or conclusions seem tenuously connected. Unusual claims demand unusually strong evidence. But particular vigilance it turns out is also required for conclusions that confirm our biases, as we accept them more easily than those that challenge deeply held opinions. A critical attitude is thus appropriate most of the time, even if we must save time by favoring sources that we have found in the past to be trustworthy. Everyone has an agenda, and this is true no less for technical articles than for pieces in popular media. Three questions are always appropriate: what was the author's purpose in writing the article, what are the main conclusions, and do you agree with them? The author's affiliation or funding source can shade which facts or use cases are emphasized. While faking of data is relatively rare, poor statistical analysis, experiment design, or problem framing are fairly common—the conditions under which the conclusions are true may be rare. When one plans to cite a paper in research, a heightened level of scrutiny is needed, especially when getting into a new technical area.

Roughly three thousand years ago, Homer wrote the epithet, "Rumor, faster than winged Hermes" and added that Discord was Rumor's constant companion. We have passed rumors and gossip in all the intervening years and no doubt well before; social media adds bots to the sources producing and amplifying such material, while advertising and a

dizzying array of paid professionals advance focus-group tested messages. Critical examination based on content was required in Homer's day, and is needed even more now. The difference is that in the Classical era of western civilization, rhetoric (the study of argument) was a core part of the education of the small minority lucky enough to receive formal instruction (i.e., the ruling class). Today the broad citizenry has need of the same, so that decisions are made with their considered judgment, instead of by the few who pay to influence them. Perhaps one day "truth bots" will be developed to deconstruct logical and emotional elements of messages, with links to fact-checking utilities. Perhaps there will be better regulatory oversight. They may help stem some of the flood of misinformation, but there will still be propaganda, and the same tools that can identify it can also make it more subtle. The reality is that the ability to deconstruct messages is a useful life skill for research and interactions with other people in daily life, in addition to assisting in dealing with media. These are all social goods. Therefore, it should be one of the primary objectives of education.

Q.E.D.?