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# WHEN GOOD ARGUMENTS GO BAD: AN ACTIVITY FOR LEARNING ABOUT FALLACIES IN REASONING

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## INTRODUCTION

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Not long ago, one of the authors overheard two students complaining about a long stretch of frosty weather. "So much for global warming!" one of them said, and it was hard to blame him. Indeed, for the most part, critical thinking does not come naturally. Moreover, learning to recognize hasty generalizations (like the one committed here) and other fallacies that masquerade as cogent arguments requires practice and hard work. Fortunately, an array of college courses—including public speaking, logic, debate, argumentation, critical thinking, writing, rhetoric, and others—include a unit on informal fallacies. That said, teachers have bemoaned the fact that traditional, lecture-based approaches to teaching fallacies can be boring (e.g., Mountainguy, 2010). Others have endorsed an active learning approach, which engages students through interactions with each other, addresses different learning styles, and creates a sense of community in the classroom (Seiter, Peebles, & Sanders, 2018). With that in mind, this "toolbox" entry presents an exercise that encourages active student engagement in creating and spotting informal fallacies.

## BACKGROUND

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The activity assumes that students have already been introduced to informal fallacies either through a textbook chapter or class lecture-discussion. For introductory students, it helps to explain that, practically speaking, fallacies are flawed arguments that interfere with critical thinking, often by making unwarranted inferential leaps. To avoid them, students must be able to identify them.

For more advanced students, you might note that a variety of theories and models have been proposed to explain how informal fallacies operate. Most modern texts eschew what Hamblin (1970) called the "standard treatment," which views fallacies as invalid arguments. This approach treats fallacies as deductive errors. Not all fallacies, however, involve logical errors. Instead, informal reasoning, relies on inferential leaps or probabalistic reasoning, not deductive reasoning.

Douglas Walton's (1995) "pragmatic view" examines fallacies within a dialogical context. In this approach, fallacies involve conversational moves that appear to advance dialogue, but impede it instead. Fallacies that impede dialogue may be deceptive (all the "ad" fallacies, such as *ad populum*, *ad hominem*, *ad vericundium*) or may entail errors in reasoning (faulty analogy, faulty sign, hasty generalization).

Finally, the pragma-dialectic school views fallacies as distortions that violate conversational rules for arguing (van Eemeren & Grootendorst, 1992). That is, fallacies impede the resolution of disagreements. Fallacies can be understood and classified as violations of one or more normative rules. Rule violations threaten the resolution of differences and are, therefore, "incorrect moves."

Fallacies, like all arguments, may be field specific or field invariant. This exercise focuses on field invariant fallacies, that is, generic fallacies found in all fields and in everyday walks of life.

## TOOLBOX ACTIVITY: WHEN GOOD ASSIGNMENTS GO BAD

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### PREPARATION

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To prepare, develop a list of the most egregious fallacies. We find that 10 to 12 work well. Although there are too many to include here, some of the more common fallacies that you might choose from include:

1. **FAULTY CAUSE:** (*post hoc ergo propter hoc*) mistakes correlation or association for causation by assuming that because one thing follows another it was caused by the other. Example: A black cat crossed Babbs' path yesterday and, sure enough, she was involved in an automobile accident later that same afternoon.
2. **SWEEPING GENERALIZATION:** (*dicto simpliciter*) assumes that what is true of the whole will also be true of the part, or that what is true in most instances will be true in all instances. Example: Muffin must be rich or have rich parents, because she belongs to ZXQ, and ZXQ is the richest sorority on campus.
3. **HASTY GENERALIZATION:** bases an inference on too small a sample or on an unrepresentative sample. Often, a single example or instance is used as the basis for a broader generalization. Example: Movie stars are really rude. I asked Matthew McConaughey for his autograph in a restaurant in Westwood, and he told me to "get lost."
4. **FAULTY ANALOGY:** (can be literal or figurative) assumes that because two things, events, or situations are alike in some known respects, that they are alike in other unknown respects. Example: What's the big deal about colonists killing people in order to settle a new land? After all, you can't make an omelet without breaking a few eggs!
5. **APPEAL TO IGNORANCE:** (*argumentum ad ignorantiam*) attempts to use an opponent's inability to disprove a conclusion as proof of the validity of the conclusion, i.e. "You can't prove I'm wrong, so I must be right." Example: We can safely conclude that there is intelligent life elsewhere in the galaxy, because thus far no one has been able to prove that there is not.

6. **BIFURCATION:** (either-or, black or white, all or nothing fallacy) assumes that two categories are mutually exclusive and exhaustive, that is, something is either a member of one or the other, but not both or some third category. Example: Either you favor a ban on immigrants or you favor letting jihadists into the US.
7. **FALSE DILEMMA:** (a form of bifurcation) implies that one of two outcomes is inevitable, and both have negative consequences. Example: Either you buy a large car and watch it guzzle away your paycheck, or you buy a small car and take a greater risk of being injured or killed in the event of an accident.
8. **FAULTY SIGN:** (also includes argument from circumstance) wrongly assumes that one event or phenomenon is a reliable indicator or predictor of another event or phenomenon. Example: The Boswells must be out of town. There are newspapers in their driveway.
9. **DAMNING THE SOURCE:** (ad hominem, sometimes called the genetic fallacy) attempts to refute an argument by indicting the source of the argument, rather than the substance of the argument itself. Example: There is no reason to listen to the arguments of those who oppose school prayer, for they are the arguments of atheists.
10. **TU QUOQUE:** (look who's talking or two wrongs make a right) pointing to a similar wrong or error committed by another. Example: Gee, Mom and Dad, how can you tell me not to smoke weed when you both smoke cigarettes and drink alcohol?
11. **EQUIVOCATION:** allows a key word or term in an argument to shift its meaning during the course of the argument. The result is that the conclusion of the argument is not concerned with the same thing as the premise(s). Example: Only man is rational. No woman is a man. Therefore, no woman is rational.
12. **BEGGING THE QUESTION:** (*petitio principii*) entails making an argument, the conclusion of which is based on an unstated or unproven assumption. In question form, this fallacy is known as a COMPLEX QUESTION. Example: Have you stopped beating your dog?
13. **TAUTOLOGY:** (a sub-category of circular argument) defining terms or qualifying an argument in such a way that it would be impossible to disprove the argument. Often, the rationale for the argument is merely a restatement of the conclusion in different words. Example: Dave: "Why do you have a monkey's paw hanging from your rear-view mirror?" Lenny: "It keeps the Mole People who live below the earth away." Dave: "Mole People? What Mole people? There are no Mole People." Lenny: "I know, the monkey's paw is working."
14. **APPEAL TO AUTHORITY:** (*ipse dixit* also called *ad verecundiam* sometimes) attempts to justify an argument by citing a highly admired or well-known (but not necessarily qualified) figure who supports the conclusion being offered. Example: If it's good enough for (insert celebrity's name here), it's good enough for me.
15. **APPEAL TO TRADITION:** (don't rock the boat or *ad verecundiam*) based on the principle of "letting sleeping dogs lie". We should continue to do things as they have been done in the past. We shouldn't challenge time-honored customs or traditions. Example: Why do I mash grapes with my bare feet to make wine? Because my father made wine this way, and his father made wine this way.
16. **APPEAL TO THE CROWD:** (*ad populum* or playing to the gallery) refers to popular opinion or majority sentiment in order to provide support for a claim. Often the "common man" or "common sense"

provides the basis for the claim. Example: all I can say is that if living together is immoral, then I have plenty of company.

**17. STRAW MAN:** stating an opponent's argument in an extreme or exaggerated form, or attacking a weaker, irrelevant portion of an opponent's argument. Example: A mandatory seat belt law could never be enforced. You can't issue citations to dead people.

**18. SLIPPERY SLOPE:** (sometimes called a snowball argument or domino theory) suggests that if one step or action is taken it will invariably lead to similar steps or actions, the end results of which are negative or undesirable. A slippery slope always assumes a chain reaction of cause-effect events which result in some eventual dire outcome. Example: If I let one student interrupt my lecture with a question, then I'll have to let others and, before long, there won't be any time left for my lecture.

**19. APPEAL TO EXTREMES:** A fallacy very similar to slippery slope, which involves taking an argumentative claim or assertion to its extreme, even though the arguer does not advocate the extreme interpretation. The difference between the two fallacies is that appealing to extremes does not necessarily involve a sequence of causal connections. Example: Debtor to creditor: Hey, you've already repossessed my car and my television. Why don't you just draw a quart of blood or carve a pound of flesh from my heart too?

**20. HYPOTHESIS CONTRARY TO FACT:** This fallacy consists of offering a poorly supported claim about what might have happened in the past or future if circumstances or conditions were other than they actually were or are. The fallacy also involves treating hypothetical situations as if they were fact. Example: If Hitler had not invaded the Soviet Union and opened up two military fronts, the Nazis would have won World War II.

**21. NON SEQUITUR:** (literally means "does not follow") in a general sense any argument which fails to establish a connection between the premises and the conclusion may be called a non-sequitur. In practice, however, the label non-sequitur tends to be reserved for arguments in which irrelevant reasons are offered to support a claim. Example: Both crime victims had tattoos, so the perpetrator must have something against people with tattoos.

**22. RED HERRING:** attempting to hide a weakness in an argument by drawing attention away from the real issue. A red herring fallacy is thus a diversionary tactic or an attempt to confuse or fog the issue being debated. The name of the fallacy comes from the days of fox hunting, when a herring was dragged across the trail of a fox in order to throw the dogs off the scent. Example: accused by his wife of cheating at cards, Ned replies, "Nothing I do ever pleases you. I spent all last week repainting the bathroom, and then you said you didn't like the color."

**23. APPEAL TO CONSEQUENCE:** Cites the desirability or undesirability of the consequences of an argument as the proof that the argument is good or bad. An arguer who favors the outcome of an argument might assume the argument is a good one. An arguer who opposes the outcome of an argument might assume the argument is a bad one. Example: A student tells a professor, "I know my term paper deserves at least a 'C' because if I don't get a 'C' in your class I won't graduate."

**24. INCONSISTENCY:** advancing an argument that is self-contradictory, or that is based on mutually inconsistent premises. Example: A used car salesperson says, "Hey, you can't trust those other used car salespeople. They'll say anything to get you to buy a car from them."

The fallacies are then printed or written on index cards, including a brief description of each fallacy. Be sure to create enough cards so that each student receives two fallacies. Then, place the cards into envelopes for secrecy before distributing them to students. For example, one student might be assigned "faulty analogy" and "appeal to the crowd." That student would be given an envelope containing one card that says, "faulty analogy," with a brief explanation of the fallacy, and another card that says, "appeal to the crowd," accompanied by a short summary of the fallacy:

Faulty analogy: Making an unfair comparison ("apples vs. oranges") that assumes that if two things are alike in some respects, they are necessarily alike in other respects. Many faulty analogies are based on superficial or surface features of an analogy, rather than substantive or structural features of the analogy.

Appeal to the crowd (*ad populum*): Drawing on popular opinion or majority sentiment to support a claim ("Everyone is doing it," "Ask anybody"). This fallacy may also invoke the "average person," the "person on the street," or the "wisdom of the commons." Of course, the crowd may be mistaken. The crowd may also succumb to mob psychology.

Students can be assigned their fallacies the class meeting beforehand or on the day of the exercise. If more difficult or obscure fallacies are included (circular reasoning, hypothesis contrary to fact, appeal to ignorance), it may be wise to assign fallacies ahead of time. If fallacies are assigned the day of the exercise, students should be given 10-12 minutes of preparation time to develop their fallacious arguments.

## PROCEDURE

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To assist your students in developing their fallacies, ask them to identify some controversial topics that you can write on the board. By way of example, our students have identified gun control, capital punishment, and physician assisted suicide as controversial issues. Some classes may already share a common debate topic. Next, ask your students to consider these controversial topics while developing their fallacies. Specifically, their goal is to develop two fallacious arguments, one for each of their cards. Each argument should take no more than a minute to present to another student, pertain to a controversial topic, and include one of their assigned fallacies. *Importantly, explain to your students that they are purposely trying to commit a fallacy to see whether other students can identify it.* For example, as part of a pro-choice argument a student might say, "Just as a mother bird may push an egg from her nest, so that the remaining hatchlings might survive, a human mother, who has difficulty caring for the children she already has, may seek an abortion."

After explaining the assignment and offering examples, announce that it is time to spot fallacies. Ask students to pair off and to take turns being fallacy-users and fallacy-spotters. Specifically, while one partner presents a fallacy, the other partner tries to identify it. For instance, in the example above, the fallacy-spotter, if correct, should identify the fallacy as a *faulty analogy*. In addition, the fallacy-spotter should attempt to articulate why it is a fallacy. For example, the student might point out that this argument is faulty because birds do not have access to contraception, as humans do, and cannot put their chicks up for adoption after they hatch. More generally, animals sometimes eat their young, but that wouldn't authorize people to follow suit.

As another example, imagine that a fallacy-user offers the following argument about illegally downloading music by saying, "If music piracy is wrong, then everyone I know is wrong. Nobody pays for music anymore." In this case, if the fallacy-spotter is correct, he or she should identify the argument as an *appeal to the crowd*. Moreover, the student should note why it is a fallacy. For example, the student might point out that this argument is faulty because the fact that a practice is widespread doesn't make it right or legal.

To increase students' engagement, we have found that the exercise works best when it includes some type of scoring system to keep track of students' successful efforts. The simplest method is to award one point each to both the fallacy-user and the fallacy-spotter every time the fallacy-spotter identifies a fallacy correctly. As an alternative, students can work toward a larger goal. For example, Seiter, Gass, and Seiter (2018) presented an activity based on the video-game sensation Pokémon GO, in which students "capture" persuasion strategies by correctly identifying them. The same approach can be used in this activity by explaining to students that they are trying to "capture" as many fallacies as possible. As another alternative, students can play Bingo, checking fallacies off a card while trying to complete rows, columns, or black outs. Finally, for each correct guess, students can earn Xs or Os, which, in turn, can be used to play Tic-Tac-Toe at the end of or during the activity.

Instructors teaching this subject will probably notice that some fallacies are easier to create and identify than others. In our experience, for example, students are adept at figuring out that any insult ("only a moron would think gun control works") functions as an *ad hominem*, and any superstition ("a black cat crossed my path on the way to school, then I got an F on my test") can pass as a faulty causal inference. On the other hand, you will probably notice that other fallacies are more challenging, requiring students to make multiple guesses. As such, let students know that they are free to rephrase arguments, seek clarification, ask questions, and even request hints.

Each time a fallacy has been identified correctly and both partners have earned a point, the pair should then switch roles. The fallacy-user now becomes the fallacy-spotter. Otherwise, after three incorrect guesses, the pair should switch roles. When each partner has presented at least one fallacy, the pair can move on to the next fallacy *or* split up and seek new partners. To facilitate interaction, the instructor may want to impose a time limit of 5-7 minutes per pair, in case some partners simply cannot fathom one another's arguments.

Students should move around the classroom for about 30 minutes, seeking new partners with whom to exchange arguments. Their goal is to earn as many points as possible. At the end of the interaction period, determine who accumulated the most points, and offer a round of applause (or prizes) for the top 3-6 fallacy users and spotters.

## DEBRIEFING

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To debrief, begin by asking students what happened during their interactions. Were they ever frustrated? Why or not? Were any of the fallacies easier or more difficult to create or spot than others? If so, what made them this way? While posing such questions, help students recognize that the ability to identify a

fallacy often depends not only on the nature of the fallacy, but also on the creator's skill in constructing it and the spotter's skill in recognizing it. This makes the process dialogic in nature, an important point that is emphasized in pragmatic approaches to argument.

Next, to extend the learning process, ask students whether they were able to go beyond simply naming a fallacy to explaining what the error in reasoning was. For instance, the instructor might say, "An appeal to authority is fallacious only if an authority is being cited outside her/his field of expertise. Is Johnny Depp an expert when it comes to immigration policies?" Review the different rationales students came up with for why the arguments were fallacious and discuss, collectively, how effective the explanations were.

In addition, you might ask students to consider practical applications of this exercise. Have they ever encountered any of these fallacies in real life? If so, how did they respond? What is an effective, appropriate way to point out a fallacy to another person? Are some fallacies more or less egregious or more ethically suspect than others? For example, under what circumstances, if any, would an *ad hominem* argument or an *ad populum* argument be acceptable?

## CONCLUSION

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In our experience, this exercise is both popular and effective. Functionally, we've noticed that students are more engaged in it than during traditional lectures because actively developing and discussing fallacies requires more understanding than passively taking notes. Moreover, because the exercise is collaborative in nature, we've found that it contributes to building rapport in the class. That said, without proper facilitation, the exercise has the potential to frustrate students. As such, in addition to providing a solid foundation for understanding fallacies (see above), to enhance the activity's effectiveness, we've found that providing the class with examples of fallacies can be especially helpful. In addition, it's important to move around the classroom, observing students as they create and identify fallacies. For example, an instructor might note, "In a post-hoc fallacy, there is just one step, from the alleged cause to the alleged effect. With a slippery slope fallacy, however, there are a series of steps or a causal chain reaction."

Depending on class size, the same fallacy can be assigned to multiple students. In a very large class, a group can be assigned a fallacy. As an alternative, the activity also works in a trio; one student offers a fallacious argument, the other two try to identify it. A point goes to the fallacy user and the first student to correctly identify the fallacy. Then the trio rotates roles until everyone has been a fallacy-user once and a fallacy-spotter twice. Finally, to connect students' learning experience with their life outside the classroom and help them recognize fallacies elsewhere, you might consider including an additional assignment to follow the activity. Specifically, within a week of the exercise, ask students to identify a "real life" instance of their fallacies (i.e., from their social life, a news report, or elsewhere).

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