

## **245W: Anticipating and addressing counterarguments<sup>i</sup>**

Last week, I briefly mentioned that authors often address previous findings in the literature that demonstrate the opposite of the point they are trying to make. They do this because topics related to evolution tend to be contentious, so discussing both sides of an argument up front can make your point more compelling.

In order to use this strategy in your own writing, first try to find counterarguments that are already voiced and published, either within your sources or in articles that are written in response to the primary sources you are reading. The latter will typically have the word “response” or “comment” in their titles, e.g. Comment on “The latitudinal gradient in recent speciation and extinction rates of birds and mammals” (Seddon et al. 2008). Make notes of the reasoning that is being pointed out to you, so that you can build on it later.

Next, read through your own paper carefully and make sure you have your major points and supporting evidence clearly lined up, such as in your outline. Then try to come up with your own counterpoints by considering questions such as these (adapted from Hacker (2007)):

Could a reasonable person draw a different conclusion from the information you present?

Might a reader question any of your assumptions?

Could a reader offer an alternative explanation of this issue?

The first two questions are actually reflecting what potential flaws you might have in your argument. In the first case, imagine your reader going, “But doesn’t this mean A instead of B?” in response to your paper. If this seems possible, it means that your logic is not entirely sound. You may not be presenting enough information or you might be presenting what information you have ineffectively. You will have to go back and add more information from yours or other sources, or tweak the structure of your argument. In the second case, you probably need to do a better job at explaining the theoretical background of your thesis. In the third case, your reader might be saying “But this could also mean E rather than F.” after reading your paper, thereby presenting a true counterpoint.

Now, in order to address the counterpoints, consider the following tactics from Hacker (2007):

Explain why readers should consider a new perspective or question a piece of evidence

Qualify your position in light of contradictory evidence

Suggest a different interpretation of the counterevidence

For the first tactic, consider whether new theories or hypotheses been proposed recently, or have new techniques been developed that would allow more stringent hypothesis testing. Maybe your readers aren't aware of new developments and need to be informed. For the second tactic, evaluate whether some of your explanations rely on specific conditions, or are only applicable in certain systems. You may be able to qualify your specific case, thereby justifying your explanation. For the last tactic, see if you can interpret the counterevidence according to your own logic and see if it makes sense.

Let's look at an example of how this is accomplished in practice. The following is an excerpt from Tobias et al. (2008), with citations removed:

A second key issue raised by our data is that *tropical lineages tend not to bifurcate but to proliferate*. This makes sense because, as noted elsewhere, populations at low latitudes are typically sedentary and susceptible to subdivision by multiple barriers. By diverging concurrently, an ancestral *Hypocnemis* population generated six daughter species at a rate of 1.8 lineages per million years (Fig. 1). The sister-species method produced a low rate estimate of 0.2 lineages per million years for equatorial species, perhaps because it assumes that lineage splitting is sequential. Sequential splitting may approximate the situation at high latitudes, but it ignores the contribution of parallel speciation events in the tropics. Thus, methodological biases may in part explain why Weir and Schluter found lower diversification rates in tropical taxa, whereas analyses of net diversification rate produce the opposite result.

Next is an excerpt from Weir and Schluter (2008), a response to Tobias et al. (2008), again with citations removed:

Our method is most vulnerable to the assumption of a constant-rate birth-death process. Tobias *et al.*'s point that "tropical lineages tend not to bifurcate but to proliferate" is a special case of this more general rate problem. As we stated in, geological and climatic events likely concentrated speciation and extinction events in episodes. However, *we find little evidence to support that tropical lineages are more prone to such bursts than temperate lineages*. Indeed, it might be the case that the temperate zone has experienced the most recent series of bursts, namely in the Pleistocene. We also emphasized that *our rate estimates apply only to recent time periods*—that covered by the ages of most sister species. More even coverage of a longer temporal record (extending before 10 million years) would be needed to determine by how much our estimates based only on sister species would need to be revised.

The italicized portions indicate where each set of authors are addressing each others' criticisms. You can see some questioning of assumptions from both parties, and qualifying of positions. Through such response papers as well as standard research papers, researchers make it a point to strengthen their position as much as possible and you should be practicing those skills in your term paper.

## **References**

Hacker, D. 2007. *A Writer's Reference*, 6th edition. Bedford/St. Martin's

Tobias, J. A., J. M. Bates, S. J. Hackett, and N. Seddon. 2008. Comment on "The latitudinal gradient in recent speciation and extinction rates of birds and mammals". *Science* 319(5865):901.

Weir, J. T., and D. Schluter. 2008. Response to comment on "The latitudinal gradient in recent speciation and extinction rates of birds and mammals". *Science* 319(5865):901.

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