

On First Authorship

I had an upsetting experience a few years ago in gathering data and preparing a manuscript. At first, everything was going fine: I was working as a research assistant, and my professor and the rest of the research team were nicely in synch. As we laid out everyone's responsibilities for the experiment, it was decided that I would be primary author and the professor last author. As we ended our data collection and proceeded to analyze it, my professor hired another faculty member in our department, a statistician, and asked the statistician to look at the paper. The statistician did and made some recommendations that were easily incorporated. Some months then went by, but my professor did not submit it. When I asked him why, he said that the statistician had decided to rewrite it. The real surprise came some weeks later when my professor told me that the paper was finished, but that the statistician had put so much time on it that she had convinced him that she should be first author.

I was quite upset but I respected the professor and went along. My question is, "Can one rewrite a paper with data that is not your own and claim first authorship?" I was the agreed upon first author, so technically it was my call to decide if someone should be listed as an author or just acknowledged. But as a graduate student, what clout did I have against a faculty member? The politics of the department seemed to trash the initial agreement about the order of authorship. And I would say that that was unethical, wouldn't you?

Expert Opinion

This scenario presents a good example of what happens when promises are not kept, loyalties shift, and "lab politics" go contrary to what justice or professionalism would recommend. Let us begin by sorting out some key issues and problems:

(1) How binding was the decision, made at the initial planning of the manuscript, that the research assistant would be first author? Assuming the PI ultimately has the power to override such determinations, under what conditions might the ordering of authors be legitimately changed? Have the conditions or criteria under which overriding might occur been promulgated, discussed, and accepted by everyone in the lab? Have they been justly arrived at? All of this seems very important as it bears on the credibility of the research assistant's saying, "I was the agreed upon first author, so technically it was my call to decide if someone should be listed as an author or just acknowledged."

(2) The newly hired statistician looks over the paper and makes some recommendations that are "easily incorporated." Why didn't the issue end there with the paper being submitted, now perhaps with the statistician's name somewhere down on the author list? Why didn't the PI move the paper forward by returning it to the research assistant with a "good to go" decision and with the research assistant as first author as originally planned?

(3) Issue #1 comes home to roost when after some months, the research assistant learns that the statistician has decided to “rewrite” the paper. This is obviously a crucial moment in the trajectory of this scenario as it raises the question of who “owns” the manuscript in terms of the authority to control its form and content and assign first authorship.

(4) Investigators must make a “significant intellectual contribution” to the manuscript to qualify as authors.¹ Can the sheer amount of time and effort that one contributes to a manuscript, even though he or she had nothing to do with the project’s experimental design or data collection, promote one to first author? Clearly, the statistician made an intellectual contribution, but was it sufficient enough to justify altering the order of authorship from the original understanding?

We believe this case scenario illustrates a number of leadership failures on the PI’s part. First of all, any PI should realize that the order of authorship on a publication is not something to be taken lightly, such that once that order is established or understood, only very serious factors should be allowed to intervene to change it. Good leadership would require that this understanding be formally and firmly established, recognized, and insisted upon in the lab by all relevant personnel. In its absence, such as when a reordering of the authorship list occurs without explanation, it is easy to see how an atmosphere of mistrust and animosity can develop.

Given the significance of the order of authors and the inevitability of statistical input and effort on many papers, one would like to see an explicit, formal understanding among lab personnel on how statistical contributions will be understood per the ordering of authorship. We believe that questions like “Can the sheer amount of time and effort that one contributes to a manuscript, even though he or she had nothing to do with the project’s experimental design or collection of data, promote one to first author?” should be formally decided in advance and in a principled manner. We suggest that the answer usually (although perhaps not always) be “NO.” Now, there might be cases where a statistical reworking of the data might entail considerable changes in the entire manuscript, perhaps even extending to the reworking of the experimental design or to the re-representation of the data. But if the investigators had done what they are supposed to do—which is to have selected a sound statistical approach to the data as part of the research plan before data collection begins—these cases should be minimal.

Still, one can’t always predict how the data will turn out (and, thus, how the paper will be written). While our recommending an authorship discussion at the beginning of the project is certainly useful, it is also critical that the decisions made at that meeting are regularly revisited and revised as necessary, using the information and experience gathered from the research. A good analogy is to obtaining informed consent in clinical research. It should be an ongoing process, not a one-time binding event.

But suppose something like this happened: The statistical processing of the data was early decided upon and unproblematically executed. But when the new statistician came on board, he or she brought along a very different methodological approach that

triggered all the fuss. If so, once the statistician became aware of how much work would be required in rewriting the manuscript, why didn't he or she request a meeting with the PI and the research assistant to explain the situation? At that point, the PI could have negotiated or simply decided whether to accept or reject the statistician's position and/or revisit the question on how authorship would be decided. Alternatively, it is sometimes the case that studies are done and large amounts of data are collected. In such instances, there can be many ways in which the data can be analyzed and discussed, resulting in multiple papers with different first authors. If that were the situation in this case, a more appropriate response on the PI's part might be to have the research assistant submit the original paper as first author and have the statistician submit a second paper as first author. At least that kind of open, thoughtful, and democratic decision making would have been much more preferable to the tacit agreement that developed between the PI and the statistician that the manuscript could only be rewritten with the statistician as first author. Given the facts as related here, it can only seem that the PI thoughtlessly dishonored the initial authorship agreement in favor of lab politics—where the statistician's faculty status resulted in a preferential decision over the lowly research assistant.

Summary: This scenario resulted from the following failures:

1. The failure to honor or at least revisit the original understanding of the authorship order when complications arose.
2. The failure to discuss reasons for delaying submission of the manuscript, which surely was uncomfortable to the research assistant.
3. The failure to communicate openly about the statistician's concerns and anticipation of effort and how that might affect the authorship ordering.
4. The failure, on both the PI's and the statistician's parts, to extend equal respect to the research assistant as a valued member of the laboratory.

If these failures had not occurred, it seems unlikely that the difficult question of whether or not “the sheer amount of time and effort that one contributes to a manuscript, even though he or she had nothing to do with the project's experimental design or data collection, (could) promote one to first author” would have needed to be considered.