EDITORIAL

Writing an effective response to a manuscript review

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Abstract: An author's response to referees' comments is a key component of the peer review process that affects whether a manuscript is accepted or rejected, the speed at which a manuscript moves through the review process, the workload of editors and referees, and the quality and clarity of published science. However, guidance on how to write a response to manuscript reviews is lacking from the instructions for authors of most journals and from science writing manuals. I offer some recommendations for authors, referees, and journals that can be implemented easily to improve the response to reviews and, thereby, enhance the publishing and reviewing process for authors, referees, and editors.

Key words: peer review, response to reviews, revisions, publishing

Effective revision of a manuscript in response to referees' comments has 4 important outcomes for science publishing. First, the quality of the response to reviews affects whether a manuscript is accepted or rejected. Second, a well-organized and concise response to reviews increases the speed at which a manuscript moves through the review process. Third, efficient responses to reviews are needed to help journals manage the growing demands on the network of volunteers who edit and review manuscripts for publication. Fourth, revisions based on referees' comments improve the quality and clarity of the science for future readers—the 'referees' authors hope will cite their work!

Most science writing manuals contain little or no information about how to respond to reviews (Karban and Huntzinger 2006, McMillan 2012, Schimel 2012, but see Day 1998 and Heard 2016). Instructions for Authors of many journals also contain surprisingly little information. As an associate editor, I have read organized and well-crafted responses to manuscript reviews. However, I also have seen disorganized responses, weak arguments, and inexplicable stubbornness that affected the fate and quality of the manuscript, and the length of time the manuscript was in review. Others have noted problems with how authors reply to reviews (Samet 1999, Williams 2004), but more effort by authors and better guidance from journals is needed. My goal is to make recommendations for both authors and journals that should improve responses to referees' comments and enhance the reviewing process for authors, referees, and editors. The wisdom of the golden rule of reviewing and structuring a response—"do unto others as you would have them do unto you"—has been around for ages, but people need to be reminded in the current language. Moreover, not all authors and reviewers have the wisdom of the ages.

WHO READS THE RESPONSE TO THE REVIEWS?

Authors might wonder to whom they should address their response letter and who will read the responses. The editor-in-chief (EIC) or associate EIC who vetted the initial manuscript submission probably will send the revised manuscript to the associate editor (AE; sometimes referred to as the handling or subject-matter editor depending on the journal) who made the initial recommendation to consider a revision of the manuscript based on the reviews and his/her own reading of the work. The AE probably provided some direction regarding necessary changes. Depending on the journal, the name of the AE may or may not be known to authors. Therefore, the response letter should be addressed to the person who signed the decision letter.

The AE will read the revised manuscript and response to reviews carefully to decide whether to recommend to the EIC that the revised manuscript should be: 1) declined, 2) sent back to the original or to new referees for further reviews, 3) accepted without further review but with major or minor revisions, or 4) accepted in its current form without soliciting additional input from referees. The response to the referees' comments should be concise and well-organized so the AE can make an assessment without having to solicit additional input from referees, which takes additional time and can increase the uncertainty of the manuscript's fate. Eventually, the EIC will review the recommendation by the AE and will contact the author with an official decision.

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STRUCTURING RESPONSES TO MAKE THE REFEREES' AND AE'S JOBS EASIER

The time a manuscript is with editors, AEs, and referees is a major temporal bottleneck in the publication process (McPeek et al. 2009), so authors should do all they can to facilitate the efforts of this network of volunteers. The revised manuscript will move more quickly through the recommendation process if referees and AEs can find responses to their comments and the associated changes in the manuscript easily. The AE and referees should not have to search and cross-reference multiple scripts of text to discover what authors have done and whether they have addressed a comment completely. Adopting this strategy is particularly risky if it is being used to avoid making some of the suggested changes because it will frustrate referees and AEs. AEs obtain 2 or 3 reviews per manuscript, so unambiguous organization of responses to each of the referees' comments will minimize a potential source of confusion and frustration for the AE and referees and can improve a manuscript's quality, likelihood of acceptance, and the speed at which it is published.

Many approaches can be used to structure responses to reviews. The most basic approach is simply to respond to the referees' comments in paragraph format. This method may be sufficient if the comments are few and minor, but this situation is rare, and referees usually have a substantial list of comments. One way to structure the response to reviews is to address each comment sequentially. Often numbering the responses helps (Table 1). The referee's comment should be included above each response, so the AE and referees do not have to move among documents, and the locations of the changes in the revised manuscript should be identified with page, line, figure, or table numbers. The same approach can be used to identify locations where changes were not made because the author disagreed with the comment. Paraphrasing referees' comments can be used to separate multiple points within a sentence or paragraph and so that an author can respond to each point separately, but the exact text of the referees should be retained when possible. Labels such as "Referee 1" followed by "Comment 1, 2 . . ." help the AE and referees follow what authors have done. Authors should avoid formatting the text (e.g., bold or italics) in the response document because formatting might not be preserved if copied into an online submission system. If the formatting of the response is essential, then the formatted response should be submitted in a portable document format (pdf) or equivalent format. Two separate files should be submitted. One should be a point-by-point response to the referees' and AE's major and minor comments, and the other should summarize the most substantial changes and should include information the author wishes to convey to the AE but not the referees, e.g., how the author addressed conflicting comments in the reviews.

An alternative structure is to use rows and columns of a table to organize the responses to the reviews (Table 2). In this schema, referee comments are inserted in a column by pasting their unedited comments (one per row) into a column, author responses are given in the corresponding row of an adjacent column, and information identifying the location of the change in the revised manuscript is provided in the corresponding row of a 3rd column. This table style is not commonly used, but it is very efficient for the AE to process because it reads from left to right (natural for most), with all information pertinent to each comment in one row of the table. This format can make the AE's job easier, reduce the likelihood that the manuscript will be sent back to the referees, and may shorten the time to a final decision.

WORDING RESPONSES TO REFEREES

Most referees volunteer their time to review manuscripts, and their intent is to help authors improve their work. A long list of detailed comments usually means that the referee has spent substantial time evaluating and suggesting improvements. Thus, referees should be thanked for their time and effort in the author's response and in the acknowledgements section of the paper. "Thank you" also is

Table 1. Typical sequential response format for responding to referees' comments.

Referee 1, Comment 1: The figures have a lot of distracting elements that are not related to the data or its interpretation. Edward Tufte, a statistician and graphical expert, refers to this as "Chart Junk", which is distracting from the message the graph is meant to convey. The ratio of ink devoted to data versus ink devoted to other stuff on the graph should be much higher. For example, please remove the distracting horizontal lines that were thoughtlessly included by MS Excel, as they are not necessary for viewing the trend or the absolute value of a datum.
Response to Rev 1, Comment 1: On Figures 1, 2, and 4, we have removed the horizontal lines and gray areas on the figures. We have increased the ink devoted to data and agree that these changes have made the figures more visually appealing.
Referee 2, Comment 1: On line 78 there is a reference to many studies but only one citation is provided to support the statement and this paper is not a review article. Please provide three exemplar citations to better support the claim that there are many studies. Similarly, on line 154 there is a statement about "recent studies . . ." but the citation at the end of the sentence is from 1975, which is not recent. Please reword the sentence or provide a more recent citation.
Response to Rev 2, Comment 2: One line 76, we include three citations to more accurately support the statement about many studies. We also include a reference from 2014 to support the statement about recent studies.

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Table 2. Example of how a table format can be used to organize the response to reviews. This table contains all responses to the referees' comments and should be accompanied by a cover letter to the editor summarizing the most substantial changes and a separate document for comments the author wishes to convey to the associate editor (AE) but not the referees. MS = manuscript.

Please use the table below when replying to the referees' comments. Identify what changes were made in accordance with the referees' comments, the location in the revised manuscript, and what changes were not made despite the referees' recommendation and explain why. Comments inserted on the manuscript, which are not listed below, should also be included and addressed in this same table.

Comment	Response	Location in revised MS
Referee 1–Version 1		
General comments:		
This was a nice paper to read. Interesting techniques and innovative analysis.	Thank you for the constructive review, the referee's comments have improved our manuscript.	
Specific comments:		
I think a summary table is needed to clarify the results.	I did not add the summary table requested by referee #1 because the new figure I have added addresses this issue.	Line 101–103; see figure 3
Lines 120–Change "further" to "farther" in usage regarding distance, such as farther downstream, as opposed to "further," which means more complete.	Thank you! Change made.	Line 128
Referee 2–Version 1		
General comments:		
This manuscript presents a novel and interesting set of findings that I enjoyed reading. However, my major concern is about the interpretation, as only one hypothesis is considered. No alternative hypotheses were considered, yet some could be easily refuted and others are likely and make the study more exciting and less confirmatory.	We agree that our initial submission was myopic in terms of the hypotheses presented. We have now included three alternative hypotheses, which required an additional statistical analysis to test two of them.	Lines 47–55 and lines 235–246; See lines 169–172 for stats
Specific comments:		
1. Use "among" when comparing greater than two and "between" when comparing two.	1. Thank you. We made the change throughout the ms.	Line 154
2. Clarify the sampling design. Numerous is vague. Please specify how many transects were sampled and how many plots were sampled on each transect, so the reader can clearly determine the sample size.	2. We have clarified the sampling design by specifying the number of transects and plots per transect.	Lines 160–165
Associate Editor–Version 1		
General comments:		
Both the referees and I felt that the manuscript lacked a strong conceptual framework. Although the question is important within the context of environmental change, how the study advances our understanding beyond the system studied is not clear. Please address this limitation by rewriting parts of the introduction accordingly.	We appreciate the associate editor's and referees' comments; we have rewritten the introduction in the context of _____ framework, which is the underlying framework that we used to generate predictions for the study.	Lines 15–25
Specific comments:		
Spell out "POC" and other acronyms the first time they are used.	All acronyms have been spelled out the first time used.	Line 156
Essentially, this sentence repeats the first sentence of this paragraph and can be deleted.	The sentence has been deleted.	Line 203
Because "vital" literally means "alive" it may not be the most appropriate choice to express a "critical" or "key" relationship.	We have changed "vital" to "critical" as suggested.	Line 206

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an appropriate reply to a referee's compliment when preparing a response to reviews. Authors should take pains to address all comments made by the AE and referees because referees probably will read the published paper and may use it in their teaching or reference it in their publications.

Substance, tone, and style all matter when writing responses to referees. The most frequent first response of an author to reviews critiquing their work is to be disappointed, offended, and sometimes frustrated by some or all of the judgments of the referees. However, in the end, these comments will improve the manuscript because most referees offer valuable advice that improves the quality and readability of publications (Underwood 2004). The reviews should be read carefully to find these kernels of wisdom from peers who have taken the time to read and evaluate the manuscript. Authors need to remember that the referees are critiquing the study and not the author. In fact, a good referee never uses the word "you" in their review because it is too easily misconstrued as a personal critique (Waser et al. 1992). A wise strategy is for the author to set aside troubling reviews for a couple of days before trying to respond. Moreover, when authors do respond, they should try to put emotions aside, even when it is clear that a referee did not. Authors should take the higher ground in their response, respond politely, and avoid sounding defensive (Williams 2004). Coauthors, advisors, and colleagues can provide advice regarding which battles are worth fighting.

Most authors have difficulty seeing (i.e., reading) their manuscript through naïve eyes. It also takes time and deliberate thought for most authors to recognize that their submitted manuscript is still not complete and needs more work (Heard 2016). That is, if something is a problem or unclear for a referee, it probably will be a problem or difficult for readers when the paper is eventually published. Even if a referee does not request a change, she/he may express confusion about something or may have missed a point that was included in the original draft (e.g., Table 3, Comment 2). This situation probably indicates that changes in clarity or emphasis are needed and will be beneficial for other readers. Similar comments or expression of confusion that appear in ≥2 reviews inevitably require substantive changes.

Concise answers and simple solutions help AEs evaluate revisions. Whenever possible, authors should respond with "We agree" and make the requested change. An appropriate response would be: "We agree and have made the suggested change on line ____ in the revised manuscript". In the case when an author chooses not to make a change, they should avoid structuring responses that are confrontational from the beginning (Table 3). A better strategy would be to identify some common ground and compromise. For example, one could start by stating what *was* changed, and then explain what was not changed and why (Table 3).

HANDLING DISAGREEMENTS

Referees' suggestions should not be taken as gospel. The author is the expert on his/her own work. Despite good intentions, sometimes referees' comments are opinions about scope or interpretation of findings that may be incorrect or biased. Reviews should reflect the referees' expert opinion and should not be a prescription or instruction manual for how the author should write the manuscript because this approach impedes the advancement of science. Not *all* of the referees' comments must be accepted by an author, but the author will need to convince at least the AE that particular changes should not be made. The response should not be a simple assertion of disagreement (Table 3). Instead, it should include a well-reasoned justification that

Table 3. Examples of how not to and how to respond to referees' comments.

Comment	Inappropriate, weak, vague, and confrontational	Appropriate, strong, clear, and compromising
1	"If the referee read the literature then he/she would already know that____"	"We agree and have rewritten and expanded this section to clarify our statements based on previous studies."
2	"This point is erroneous____ [the referee] clearly did not read our manuscript carefully."	"We make this point on lines 132–135 [respond this way even if it was made in the original draft] and have changed the text to make it clearer." Or "We believe that this comment is not correct because____"
3	"The method [we use] to rarify estimates of species richness has been around for 30 years (Hurlbert 1971) . . . [it is not our fault the referee doesn't understand it]."	"We rarified species richness because large differences in numbers of individuals among treatments can affect species richness, and rarefaction provides a way to obtain estimates of richness that are standardized for differences in number of individuals among treatments (Hurlbert 1971, Gotelli and Colwell 2001)."
4	"It is difficult to understand how the referee became so confused about this statement."	"We have reworded and clarified this statement."
5	"We don't feel this change should be made."	"We agree with the referee and have made some of the suggested changes, but we have retained the following____ because____."

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provides as many details as necessary to help the referee(s) and AE understand the author's line of reasoning and, ultimately, why the author thinks she/he is correct and the requested change is unnecessary or undesirable. Authors can cite published studies as support for their reasoning, but the fact that a paper has been published does not mean it is correct in every context. The burden is on the author, and referees should not be directed to read the literature to understand the author's logic. Moreover, when an author is certain that he/she needs to hold her/his ground on an important point, one strategy is to make a modest adjustment to that portion of the manuscript, so the editor and the referees can conclude that the author responded and is being reasonable. Another strategy is to state one's disagreement honestly, but respectfully, and to provide support for the statement with a rational, scientific explanation that includes references or other evidence (Table 3). Authors should bear in mind that the AE may send the revised manuscript and author responses back to the original referees before making a final decision.

CUTTING HARD-WON MATERIAL AND LEAVING WELL ENOUGH ALONE

Hard-won paragraphs, analyses, or figures on which the author has spent significant time developing are very hard to cut in response to a suggestion by a referee or AE, but sometimes keeping them can negatively affect the AE's decision. If ≥ 2 referees or the AE suggest removing something, then the author should do so. Resisting such a suggestion will be an uphill battle unlikely to be won. The AE or referees also might recommend or require a reduction in the length of the manuscript text by a specific amount, e.g., 30%. A reduction of this magnitude will not be achieved by removing words here and there. Often it will require cutting paragraphs, sections, figures, or tables. Authors should seek advice from coauthors or colleagues regarding what should be cut, if the AE or referees have not made specific recommendations. I recommend that authors *not* make unsolicited changes.

ADDRESSING CONFLICTING OR UNCLEAR COMMENTS FROM REFEREES

Sometimes referees' suggestions conflict, or a referee's comment may be unclear. Minor differences among reviews are natural and easily accommodated, but diametrically opposite reviews can be problematic for authors. Several remedies exist. First, the AE may indicate the direction in which the author should direct her/his response (e.g., the AE may write, "In your response, be sure to clearly address the concern by referee 2 regarding . . ."). Second, authors decide which referee's advice is best to follow and justify the decision to the AE. The author should not dismiss the conflicting suggestion altogether. Rather he/she should make it clear that conflicting viewpoints had to be reconciled. Third, authors who are unsure of how to respond to conflicting comments should contact the AE, or editor if the AE is not disclosed, and ask their advice. Providing the AE with a well-reasoned preference for one referee's suggestion over another's might tip their advice in your favor. Authors should be careful because the AE may have served as one of the referees. Some AEs will serve as an anonymous referee of a manuscript if the required number of referees could not be obtained or they feel the need to contribute another anonymous review. Other comments that may be difficult to address are those in which the information provided by the referee is unclear. Authors should seek advice from coauthors or colleagues to help clarify the comment. If this strategy fails, and the referee's comment seems like a minor point, authors can indicate in the response letter that she/he did not understand the comment but would welcome further clarity if the AE would like to see the change made. If the unclear comment focuses on a major point in the paper, then the author should contact the AE for clarification. The AE may clarify the comment himself/herself or will ask the referee for clarification. Authors should be aware that some journals share all reviews and subsequent revisions (including the response letter) with all of the referees, so requests for clarification and statements that referees' comments are incorrect or conflicting should be worded politely.

NO PLACE FOR ABUSIVE COMMENTS BY REFEREES OR BITTER RESPONSES BY AUTHORS

AEs for some journals have the ability and the duty to remove or censor inappropriate remarks from a referee's report or may choose not to share the review with the authors (Glen 2014). Inappropriate remarks can impede an author's ability to improve the manuscript by responding effectively to the referee's comments. Inappropriate remarks have no place in a review (Waser et al. 1992) and should be ignored. If a referee's comments are clearly rude, strongly biased, or sarcastic, authors can appeal to the journal to expunge the review and replace it with one from a nonhostile referee (Bernstein 2015).

Authors should not insult referees by crafting bitter, defensive, or confrontational responses to their comments. Falling into this trap is easy, so authors should be conscious of it. In the words of Mark Twain, "To be good is noble; but to show others how to be good is nobler and no trouble." (Twain 1897). Table 3 provides some examples of how not to respond to referees' comments because these responses would be viewed negatively by the referees and might influence the AE's decision.

SUBMIT THE REVISION BY THE STATED DEADLINE

Revisions have a deadline. If an author knows ahead of time that he/she will not be able to make the deadline or if an unforeseen emergency arises, then she/he should inform the AE immediately. Otherwise, making the deadline

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is important. AEs have a workflow of manuscripts they are handling. Delayed revisions can arrive when an AE is handling other new or revised manuscripts, thereby increasing turn-around time. Moreover, as more time elapses between the initial submission and the revised manuscript, the AE may either forget the details of the manuscript or may need to request new reviews in light of new literature. Likewise, if the AE decides that the manuscript should be returned to the referees, then the referees will require additional time to refresh their memories of the manuscript and in so doing, they may express new comments or concerns. This situation will delay a decision on the manuscript and could make the AE more critical of the revised work, especially if available space in the journal is at a premium.

WAYS JOURNALS COULD HELP

Journals could help improve the response to reviews by providing authors with more detailed instructions about the organization, tone, and substance of what to include in the response to reviews. For example, using a table to organize the referee's comments and the response to reviews could easily be included in journals' instructions for authors and the online system of submitting and responding to reviews in place of an unstructured text box.

CONCLUSIONS

The peer review process has been in place for many years, and its efficient and effective functioning depends on reciprocal interactions among authors, referees, and editors. The response to reviews is a fundamental step that maintains a high level of quality in publications, and this step warrants more attention to guidance to ensure a beneficial peer review experience for all.

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