THE RHETORIC OF THE COMMENT BOX: EDITORIAL QUERIES AS ARGUMENTS AND RELATIONSHIPS IN ENGINEERING PROPOSALS

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Abstract

In today's academic engineering environments, securing funding has become a volatile process, requiring the hard work of and collaboration between many different people. Technical editors are one of these important forces in the proposal writing process, as they help engineer writers to develop their proposals and persuade reviewers of the value of their research. However, to date, there have been very few studies on how editors convince engineer writers to accept their proposed revisions. To fill this gap in the literature, this thesis offers an in-depth style analysis of six proposals in order to determine what technical editors do when they edit engineering proposals and how they create working relationships with engineers. In particular, I will concentrate on how two editors in Clemson University's College of Engineering and Science argue for changes and create stylistic relationships—and the interrelationship between argument and style—by querying writers through the Comment function in Microsoft Word. The two analyses that I will complete are based on the theories of Stephen Toulmin et al. on argumentation and Walker Gibson on style. Toulmin et al.'s theory will enable me to analyze how the editors argue for revisionary changes in each of the technical proposals, whereas Gibson's theory will enable me to determine how editors create relationships with authors through the language they use in the comment box. The findings revealed from this thesis provide practical knowledge to technical editing students and to working technical editors.

Acknowledgements

I would like to thank Dr. Katz for guiding me through my graduate studies and for reassuring me during the many times that I doubted myself. He has been so much more than merely a professor to me; he has been a mentor and friend. Thank you, Dr. Katz. Without you, this work would have never been possible.

I would also like to thank Dr. Taylor and Dr. Williams for being on my committee. I have been extremely fortunate to have both of your help during my graduate studies and during the time I was writing this thesis. Thank you so much.

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Chapter 1

The Importance of Arguing and Developing Relationships in Editing

With a decrease in state funding and more demands from university administrators, finding external funding continues to be a major issue for academic engineering programs. As a result, proposals are one of the main forms of writing in which engineers must engage, and technical editors frequently play a central role in this writing process. According to Greg Myers, proposals are "the most obviously rhetorical writing scientists do" (220) as they must convince a skeptical committee that the engineers' research is worthwhile, that they are capable of completing the research, and that their preliminary findings are accurate. However, as Myers suggests, proposal writing is paradoxal: the proposal itself (with its questions about background, goals, and budget) and the scientific report within the proposal (with its passivity and impersonality) are not ideal conditions for rhetorical appeals. As such, the purpose of technical editors in these writing processes entails helping engineer writers to persuade reviewers of the value of their research.

To date, there have been very few studies on how editors convince engineer writers to accept their proposed revisions. Therefore, this thesis offers an in-depth style analysis of six proposals in order to determine what technical editors do when they edit engineering proposals and how they create working relationships with engineers. In particular, I will concentrate on how two editors in Clemson's College of Engineering and Science argue for changes and create stylistic relationships—and the interrelationship

between argument and style—by querying writers through the Comment function in Microsoft Word. The two analyses that I will complete are based on the theories of Stephen Toulmin et al. on argumentation and Walker Gibson on style. Toulmin et al.'s theory will enable me to analyze how the editors argue for revisionary changes in each of the technical proposals, whereas Gibson's theory will enable me to determine how editors create relationships with authors through the language they use in the comment box. Both of these approaches and the connections between them will be discussed in detail in the chapters dedicated to these analyses (i.e., Chapters 3 and 4, respectively).

Research Importance

As a technical editing student, I have had many professors try to explain how to develop successful, productive relationships with technical writers in which each party has their needs fulfilled: the editor is able to share his/her expertise to improve the writer's document, and the writer submits a more effective and strengthened text. While my professors and the textbooks they used tried very hard to explain how to build successful author/editor relationships, the suggestions they gave were always anecdotal or hypothetical; they never provided a theory-based methodology to help students understand the basics behind developing such rapport.

In addition, these professors and textbooks also tried to describe how to create non-threatening, yet constructive comments that provide editorial suggestions without offending writers. Again, these suggestions were based solely on editors' and writers' experiences with the editorial process but never on objective theoretical research. While

both the teachers and textbooks provide examples of effective queries, I was always unsure as to their ultimate effectiveness for one reason or another. How could I be certain that implementing these experience-based, yet un-researched, suggestions would enable me to develop good relationships with writers or write comments in which I would be able to argue my position effectively without making the author uncomfortable or angry?

The result of my educational experience is this research: I want to provide other editing students and even working editors who have faced a similar dilemma with a theory-based evaluation of how two technical editors argue for changes and develop relationships through the comment box. I hope that the results from this research will take some of the guess work out of creating effective comments, especially for students trying to learn the basics behind the complex nature of technical editing. Even though technical editors generally learn to fine-tune their skills with time and experience, I hope the findings from this research will not only provide editing students with a firmer foundation from which they can build their editorial expertise, but more specifically, I hope it will provide insight into the connection between editor's arguments and the language they use.

Selected Materials

The six proposals I chose to analyze for this thesis were written by faculty from Clemson University's College of Engineering and Science (CoES). These proposals

were edited by two CoES editors: one from the Bioengineering Department, Elizabeth Mae, and the other from the CoES Proposal Development Office, James Benson[1].

Both Mae and Benson provided me with several proposals that they had edited in the recent past from which I chose three per editor for my final analyses. These six proposals were chosen for three primary reasons: 1) they were written by native English speakers, 2) they were written for major engineering funding agencies[2], and 3) they had enough comments to provide an accurate analysis. I chose to focus on native English speakers' proposals under the supposition that the editors' comments for native speakers would focus more on each proposal's content and rhetorical appeals and less so on grammar and word choice issues common to non-native speakers' proposals. In addition, I felt it was important to choose proposals from the major funding agencies that support most of Clemson's engineering research because the proposals written to these agencies are the documents that the CoES editors revise most frequently. It is likely that engineering faculty from programs similar to Clemson's also write proposals for these agencies and that the technical editors working for these other programs will edit such documents as well. Accordingly, choosing to analyze proposals from these particular institutions will make the results of this thesis more generalizable and thus more applicable to a wider range of technical editors. Finally, it was necessary for me to select proposals with enough comments to provide reliable results, as I knew that the more

[1] The two editors' names were changed to protect their identities.
[2] Defense Advanced Research Projects Agency (DARPA), the National Institute of Health (NIH), the National Science Foundation (NSF), and the American Heart Association (AHA).

comments I was able to analyze, the more fortified and generalizable my results would be.

For both the Toulmin et al. and Gibson analyses, I will concentrate solely on the *comments* the editors made for each proposal. While every change an editor makes is an argument of one kind of another, editorial changes within the text primarily amend grammatical or mechanical errors, the basis for which can easily be defended by consulting a grammar handbook. The comments, however, provide the editors' arguments for changes that generally cannot be explained through established grammatical rules or usage handbooks; rather, the editors' comments consider revisions that they made based on their accumulated experience of what does and does not work in proposal writing. Thus, how they make their arguments in the hopes of convincing the engineer to accept these non-rule-based suggestions and how they support these arguments could reveal very interesting characteristics of both effective and ineffective editorial argument strategies that technical editors should implement or avoid when editing proposals, specifically, or technical documents, in general.

In addition, analyzing the editors' comments as arguments opens up the opportunity for undertaking a Gibson analysis, which will reveal not only how the editor's personality is reflected through his/her writing but also how style itself becomes an essential part of an editor's argument. It would be impossible to complete such an analysis based on the in-text revisions, as the editors do not explain the revisions they makes in text; consequently, analyzing the language style they use to develop a relationship with the author would also be impossible. However, with the

implementation of Gibson's theory, as will be seen in Chapter 4, I expect to discover the characteristics of the language that is most effective in developing editorial relationships, especially in cases in which the editor and author have minimal face-to-face or oral contact outside of the proposal comments.

Organization

This thesis is organized as follows: Chapter 2 is a literature review of the current research relating to engineering writing, proposal development, and technical editing, all of which inform the Gibson and Toulmin et al. analyses and results. Chapters 3 and 4 present a description of the Toulmin et al. and Gibson analyses, respectively, the results of the twelve analyses completed for this thesis (six for Toulmin et al. and six for Gibson), and how the findings are interrelated to form the editors' arguments. Finally, Chapter 5 provides the implications of these findings for editors and for students studying editing, the limitations of the current study, and suggestions for further research in this area. Appendix A includes the comments from the six proposals. Because of the proprietary nature of the information, the full-length proposals could not be included; however, the comments in Appendix A are word-for-word transcriptions of those in the original proposals. Appendix B is a compilation of the Toulmin et al. analysis charts for each comment, and Appendix C includes the Gibson tables of style results for each proposal.

Chapter 2

Querying the Literature

This chapter provides an overview of the current literature on engineering writing, engineering proposal writing, and technical editing. The information from this chapter provides the basis for this thesis and a foundation for both the Toulmin et al. and Gibson analyses.

Background: Engineering Writing

According to Dorothy Winsor, a leading researcher in the field of engineering writing, engineers, especially those new to the field, have a rather negative view of writing: they tend to view writing as a necessary part of their jobs, but they do not believe it is a part of engineering in general ("An Engineer's" 276). Because most engineers focus on research and spend most of their time collecting data and developing technologies, "writing seems to be a rather uninteresting act of translating knowledge they have encoded in another form" (Winsor, "An Engineer's" 276), such as in graphs, drawings, and calculations. Unlike most individuals in the humanities, engineers and other technical workers generally see writing as an objective process that accurately describes reality, while ignoring the possibility that their writing influences knowledge. They tend to believe that the objects and data collected from measurements speak for themselves and can then be translated to the physical world through writing (Winsor, "Engineering" 60). For engineers, "engineering writing may be said to embody objects

in the verbal form, and engineers depend a great deal on that writing for designing, negotiating, modifying, testing, and producing objects" (Ding). In addition to viewing writing as tedious, many engineers also view themselves as being poor writers, believing they frequently make mechanical errors and use ineloquent language.

However, as engineers become more indoctrinated into the field, they realize the importance of writing in engineering and usually view it less negatively. According to a pilot study done by Arfken and Henry, as engineer writers become more educated and experienced, they tend to enjoy writing more and worry less about errors. In addition, they gain confidence in their writing abilities and in the documents they produce. This lack of writing anxiety and increased confidence is also apparent in Selzer's case study, in which the engineer studied was self-assured in his ability to produce accurate, organized documents that met his audience's needs.

Because engineers view their writing as describing the natural world, they believe that persuasion is unnecessary and has the potential to skew data (Winsor, *Writing* 69). In fact, Winsor found that many engineers even attach a negative connotation to the term "persuasion," preferring to say that they are being "convincing" rather than "persuasive" (*Writing* 3). In addition, engineers generally believe that if someone is an "expert" in his/her field, he/she has the authority to tell others what to believe about their expertise without needing to persuade them.

In terms of language usage, engineers value conciseness and simplicity. In most engineers' opinion, the goal of writing is to "transfer" knowledge accurately from one form (data) to another (document), and they do this by speaking in the established forms

and tongues of engineering (Winsor, "Engineering" 67). Ineloquence and the avoidance of "flowery" language marks this style, which engineers believe makes them come across as sounding serious and reliable. Therefore, "the 'boring' nature of 'technical documents' is functional and actually increases the chance of readers getting what they need…[without being] distracted by extraneous information" (Winsor, *Writing* 90). However, for most people, even engineers themselves, reading technical documents written in this way is often difficult. Therefore, technical editors frequently alter such texts to increase their readability and comprehension.

Finally, when engaged in the writing process, most engineers use conventional methods in terms of prewriting, writing, and rewriting. Selzer believes that engineers' writing processes are more linear than recursive. In linear writing, once an author has written text, he/she hardly reconsiders or revises it thereafter. Yet, Roundy and Mair believe that engineers, like most writers, have more recursive types of writing processes in which they do reconsider text after is has been written and frequently add and delete information as they write. Regardless of this discrepancy, most researchers agree that engineers engage in three major and distinct writing phases: prewriting/planning and arranging, writing, and rewriting/revision (Selzer, Roundy and Mair). However, unlike more typical writers who approach each stage more equally, engineers tend to place "special emphasis on planning and arranging at the expense of revision" (Selzer 179). Selzer found that planning and arranging accounted for about 80 percent of engineers total composing process, whereas writing took about 15 percent, and revision accounted

for less than 5 percent. Roundy and Mair also confirmed these findings and noted that during the revision stage, engineers do not revise much past basic mechanical issues.

Background: Engineering Proposal Writing

In her article, "Finding Funding: Writing Winning Proposal for Research Funds," Laurel Grove states the following about the importance of proposal writing:

> Even though thousands of organizations fund research, there are even more researchers who need funds. What is more, not even Bill Gates could afford to pay for every research project that researchers would like to undertake. Funds are always limited. Because no researcher has enough funds to do all the work he or she might like, researchers compete for the limited funds available. And since no sponsor has enough money to pay for all potentially valuable research, agencies must find ways to select among potential recipients of their funds.

Grove goes on to explain that such agencies select recipients for their funds depending almost exclusively on the form and content of the researcher's proposal and how well the writer conveys the value of and the plan for his/her work.

While the importance of proposal writing is widely accepted, most literature on proposal writing (including Grove's piece) is genre oriented and describes how to create successful proposals, while very little research has actually examined the writing and revising *process* of creating a proposal. While such how-to guides are valuable in

helping writers to shape their proposals and understand the review process, research that goes beyond these formulaic rules could help both writers and editors create more fundable proposals. There is, however, more research on editing that could inform the proposal writing process, which will be discussed in the next section.

Greg Myers is one of the few researchers who has accepted the challenge of studying proposals from a more analytical standpoint (though not those of engineers). In his article "The Social Construction of Two Biologists' Proposals," Myers undertakes an in-depth analysis on two biologists' grant proposals. In this case study, Myers chose one proposal from each biologist, collected all of their major drafts for each document, and examined the comments and revisions from reviewers. By the end of his study, Myers had three readings of the proposals: the writers', the readers', and his own. He found that "the writing of proposals, which takes up such a large proportion of the active researcher's time, is part of the consensus-building process essential to the development of scientific knowledge" (220). This consensus, Myers suggests, evolves out of the scientist's ability to create a credible persona by enmeshing his/her research with established literature within the field. In the end, as Grove suggests and Myer's study supports, the decision to fund a research project is not only based on the quality of a proposal but also on "the reputation of the investigator" (Grove, 2004).

Myers' research adds to our understanding of the rhetorical nature of proposals; however, his analyses do not go beyond the scientists' writing and the reviewers' reactions to that writing. He does not examine the relationships between the reviewers and the writers but merely looks at how the writers implement the reviewers' suggestions

and address their concerns. In addition, Myers does not examine the reviewers' *comments* in terms of their arguments or persuasiveness; rather, he examines how the biologists respond to those comments and merely takes them at face value without considering if their claims are substantiated or warranted or if they are effective in convincing the writers to heed their propositions. (Myers, like the authors themselves. assumes authority on part of the reviewers, which we cannot assume on part of the editors of engineering proposals because, as we have seen, engineers take their authority for granted by virtue of their subject matter expertise.)

Other research has looked at the difficulties associated with proposal writing, especially in terms of collaboration and, thus, focuses on the need for writers to be effective communicators. In his article "The Rhetorical Nature of Research Funding," Brad Mehlenbacher found that most researchers believe that proposal writing requires "the ability to achieve group consensus, effectively manage large documents with multiple authors, and resolve conflicts between the proposal writers and the intended audience" (159). However, research suggests that similar to their limited ability to use rhetoric effectively, engineers tend to lack adequate communication skills when it comes to writing collaboratively. For example, Mehlenbacher illustrates how collaborators can sometimes seem like "competitors," vying for his/her own interests while neglecting the group and document as a whole (159).

In the end, all of the research on proposal writing focuses on an issue that Grove describes especially well: proposal reviewers ultimately hold "expectations that clear thinking is linked to clear communication, and that someone who truly understands his or

her subject can explain it to someone else" ("Finding Funding"). Thus, it is the technical editor's job in the proposal writing process to facilitate this communication, and it will be interesting to examine how that it is done through the comment box.

Background: Technical Editors

When reviewing proposals, referees have very high and specific expectations. They value clean copies without mistakes, omitted words, confusing language, etc., and strict adherence to their specified format, but more importantly, they expect sound arguments with convincing data and logical presentation. Distracting errors and formatting issues can lead to a reviewer rejecting the proposal before giving it a thorough read through, whereas, weak arguments will fail to convince referees of the importance of the research or the engineer's ability to conduct the research (Anderson and Garg). Because there is a disconnect between what successful proposals require and engineers' limited rhetorical knowledge, technical editors are often the solution for helping engineers produce fundable proposals.

There are two main types of revising strategies that editors use when reviewing a document: mechanical editing and comprehensive editing. According to Laurel Grove, mechanical editing is rule-oriented editing, in which the editor reads through a document line by line, word by word, ensuring that it adheres to a company's style guide. Mechanical editing focuses on correcting grammar, punctuation, spelling, sentence structure, word usage, formatting, and number usage, while the unity of the document's content and the audience's needs are ignored. Comprehensive editing, on the other hand,

is audience-oriented and more rhetorically based. During comprehensive editing, the editor takes on the reader's perspective, ensuring that the audience will understand the ideas and/or arguments easily. According to Grove, during a comprehensive edit, editors will read the document at least twice: first to study the outline and structure and second to analyze the discussion's completeness, technical discrepancies, argument soundness, definition clarity, proper tone, and the like. Additionally, during the comprehensive editing stage, editors often query the author and comment on specific sections to ensure clarity, avoid audience confusion, raise questions, and give explanations. However, during these readings, the editor essentially ignores mechanics and format.

While editors clearly understand the importance of distinguishing between and choosing from mechanical and comprehensive editing, many engineer writers do not fully understand the *necessity* for editors to go beyond mechanical editing to revise more substantial issues. As such, many engineers see editors as mere grammar fixers who do not have the technical knowledge to revise content material and expect editors to ignore how they approach persuading their reviewers. Such writers expect technical editors to fix punctuation and grammar errors, while leaving a document's content and language untouched. Yet, what most engineer writers do not realize is that "technical editing involves a wide-ranging, deeply probing, thorough review of a technical manuscript and is performed for the purpose of improving the communication of scientific and engineering concepts" (Van Buren and Buehler 5).

Most of the current research on technical editing involves developing best practices for effectively revising technical documents, essentially creating how-to editing

models. In 1980, technical editors Robert Van Buren and Mary Fran Buehler developed "The Levels of Edit" for the Jet Propulsion Lab at the California Institute of Technology. This document is often deemed the cornerstone of technical editing, as it provides editors with an orderly approach to revising any technical document depending on its audience, purpose, and time/money constraints. The levels-of-edit approach involves nine categories: *coordination* (monitoring a document's production), *policy* (ensuring a document adheres to company policy), *integrity* (verifying that parts of a publication match), *screening* (correcting aspects of the text and artwork, such as misspellings and illegibility), *copy clarification* (neatening the document for typesetters and graphics personal), *format* (ensuring that the manuscript adheres to format specifications), *mechanical style* (conforming text and images to a particular style—abbreviations, spelling, numbers, etc.), *language* (reviewing how ideas are expressed regardless of format), and *substantive* (reviewing the document for meaningful content). These nine categories are combined into five levels of editing from which an editor can choose depending on the particular document.

While the levels of edit enable editors to provide thorough revisions, they are usually more detailed than most editors need. As a result, several researchers and editors have adapted the initial levels of edit, combining them to form smaller, more clearly defined categories. For example, Prono et al. reduced the initial levels of edit into three major categories (the proofreading edit, the grammar edit, and the full edit) based on "the cumulative nature of the levels" (3). Corbin et al. also created three editing categories similar to the levels of edit—comprehensive editing, usability editing, and copy editing;

however, these editing guides' categories focus on content first and mechanics last regardless of what constraints are present.

In addition to describing how to approach technical documents, many of these guidebooks discuss how editors can collaborate with writers effectively in hopes of helping them prevent adversarial relationships with writers. Numerous editing guidelines warn editors of the strenuous working relationships that often develop between technical editors and writers, apparently due to writers' fragility and editors' super egos. As Heather Crognale explains in her article "Long-Distance Editing," "In information development circles, one of the more precarious relationships is that between the editor and writer. Too often, writers take edits personally and view editing comments as direct attacks on their abilities, or editors begin to feel smug after finding many errors in a document" (17). Along those same lines, Carolyn Rude asserts that author/editor relationships fail for three reasons: "poor writing and editing, poor management, and oversized egos" (36). However, problems can also arise when editors and writers have different expectations regarding what the editing process entails (Bernhardt and Hart). For example, an author may believe that his/her document only needs a mere grammar check, while the editor may believe that same document needs to be completely reorganized. These conflicting views will inevitably lead to stress in the author/editor relationship if not handled appropriately.

Specifically considering the sciences and engineering, the tension between editors and authors may arise because scientists "have a huge investment in [their written work], and because the language of science loses its value if it is not 100 percent technically

accurate, they are often loath to change even a single word or comma" (Firestone, 11). Thus, technical editors working with subject matter experts (SMEs) in the engineering field may face more problems when trying to convince writers to alter their documents, as those writers feel that revising their text will inadvertently revise their meaning.

Because of the apparent tension in many author/editor relationships, numerous editing guidelines provide suggestions on how to develop and maintain successful relationships. Many of these guidelines suggest that the editor become the writer's ally in order to "mediate the writer-reader relationship" (Dragga and Gong 9) and create the most effective document possible. In the end, as most of these articles suggest, the clarity and communicative effectiveness of the final document is the ultimate goal. Thus, overcoming the inherent tension in their relationship will ultimately benefit both writers and editors: the editor "must make it abundantly clear that he and the writer share a common goal; they are in no sense adversaries" (Bennett 9).

One common method cited in the literature for helping editors create and maintain successful working relationships with authors is the construction of comments that are both beneficial for and polite to the author. In years past, editors and writers generally had to meet to discuss documents and potential revisions; however, today "the diffusion of electronic editing in technical communication is continuing, driven by the increasing use of telecommuting, dispersed work teams, single-sourcing, Web-based documentation, and ever-compressed product development cycles" (Dayton). As a result of the increased use of electronic editing, using the track-changes and commenting functions (such as those in Microsoft Word) on electronic versions of technical documents has become

standard in the technical editing field. Nevertheless, using the comment function is by no means a substitution for face-to-face communication, as it limits editors' ability to elaborate on their thoughts and suggestions and may lead to author misinterpretation. However, in today's fast-paced electronic world, the comment feature allows editors to discuss their revisionary choices with authors when other communication means are unfeasible.

Since editors are generally unable to have face-to-face discussions with writers, "carefully phrased comments are all the more important to convey not only useful feedback but also an encouraging attitude" (Doumont 39). However, because "carefully phrased comments" is a rather abstract concept, many editing guidelines suggest different approaches for creating effective editorial comments. Some researchers believe that politeness is the key to successful comments and author/editor relationships (Crognale, Hart, Doumont, and Mackiewicz and Riley). For example, Hart suggests that editors "remember to use the word *please* often, and to phrase [their] comments as suggestions rather than demands" (27), whereas Doumont suggests using gentle feedback and acknowledging the positive aspects of the writer's text as forms of politeness.

While helpful, the concept of *being polite* is still rather vague. To mitigate the ambiguity intrinsic in politeness, Mackiewicz and Riley outline a set of linguistic strategies that editors can use when constructing comments that balance directness/indirectness with communicating a need so that the editor can create the most polite comments possible. According to Mackiewiz and Riley, depending on what message the editor needs to convey and how he/she needs to do so, editors can choose

from seven linguistic strategies; however, editors should generally choose from the five most polite comments (from most polite to less polite): opinion (e.g., "*I would* include a table here); derivable-active (e.g., *You should probably* include a table here); bald-on-record (e.g., Add a table here. It will make the information easier to read); preparatory-active (*You could* add a table here. *That's just a suggestion.*); and interrogative (*Could you* add a table here?). However, the authors advise that editors avoid using passive voice and hints when making suggestions.

Forming comments in the form of questions is another method often cited in the literature as a way to develop and maintain successful author/editor relationships. According to Draga and Gong, "Questioning the author is an effective and judicious manner of calling the writer's attention to problematic passages" (32), while enabling them to come across as suggestive, rather than demanding. Phrasing comments as questions illustrates that editors acknowledge the SME's superior technical knowledge about the text but also allows editors to point out potentially problematic areas.

Regardless of how editors approach writing comments to their writers, the literature suggests that authors want to know *why* editors make the changes they do, and they often want to see such explanations in the comment boxes. According to Elaine R. Firestone, "authors respect and trust editors who have [communication] knowledge and who can explain the reasoning behind their changes" (12). Thus, "the best comments identify a problem, diagnose why it is a problem, and offer a solution" (Bernhardt 463). This three-step concept of a comment satisfies both the editor's need to notify the author of a potential problem and the writer's desire to know why the editor was compelled to

change his/her text, ultimately leading to a more communicative and effective working relationship and a better document in the end.

Research Questions

After consulting the current literature on engineering writing, proposal writing, and technical editing, I believe that there is a major gap in our understanding of editors' work, especially in terms of how they communicate with writers through comments. As such, my research questions for this thesis are as follows:

> *How do technical editors develop relationships with engineering proposal writers and argue for important revisions through the language in their comment boxes?*
>
> *How do the argument and style work together on a structural level to convince engineer authors of the validity and necessity of changes?*

As technical writing becomes more computer-based with editors and writers working in different physical areas, this issue will gain more importance, as comment boxes become the main means of communication between editor and writer.

Chapter 3

Arguing for Change

On a fundamental level, the revisions and comments technical editors suggest to writers are essentially arguments. I was thus able to perform an analysis on the editor's comments on the six engineering proposals based on Toulmin et al.'s model in *An Introduction to Reasoning*. The Toulmin et al. method is particularly suited for understanding editorial arguments, as it provides a systematic way to break down the editors' comments into their argumentative parts and examine their effectiveness. In this model, any argument can be broken down into six constituent parts: claims, grounds, warrants, backing, modals, and rebuttals. In general terms, the claim is a statement the writer is asking another person to accept; the ground is the basic premise on which the claim is built; the warrant is the link between the ground and the claim that provides rational support for the claim; backing includes the general body of knowledge accumulated over time on which a warrant is founded; modals are qualifiers that establish the strength of the connection between the ground and the claim; and the rebuttal is the writer's anticipation and refutation of a counter argument. Figure 1 is an example of a Toulmin et al. argument chart with each box representing its respective argumentative component and a description of that component:

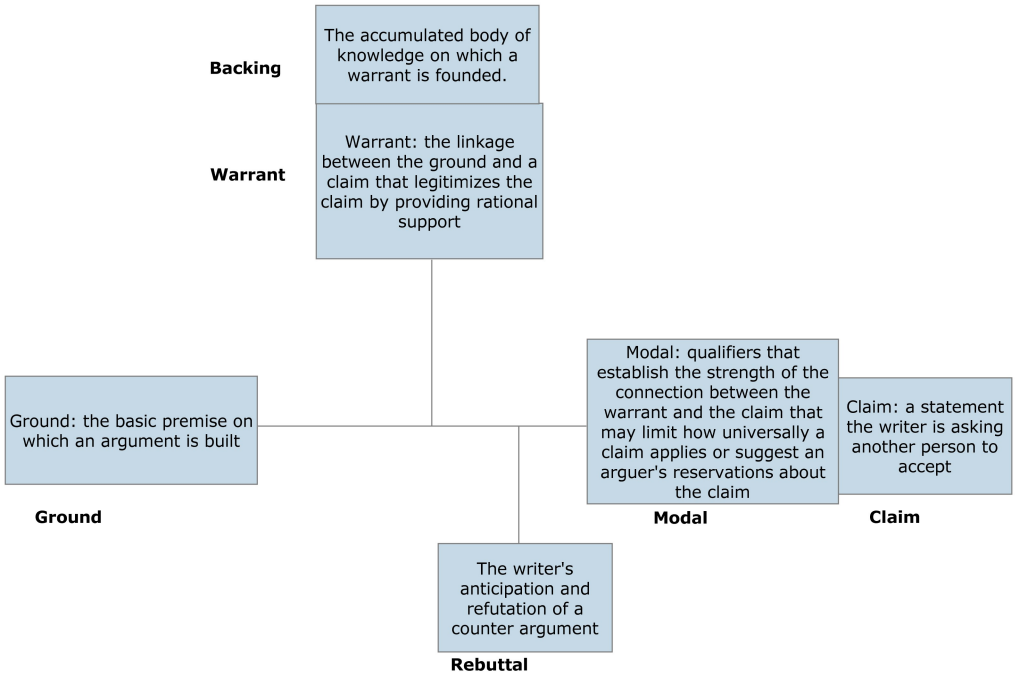


Figure 1. The Component Parts of a Toulmin et al. Argument

The arguments in the editors' comment boxes follow this basic outline with a few specific characteristics: the ground always relates to something problematic or questionable in the author's text; the claim is always the editors' revisionary suggestion; and the warrant establishes the change's necessity.

Interestingly, the claims, warrants, backing, modals, and rebuttals of each argument may or may not be present in the actual argument but may merely be implied. In opposition to strictly formal, syllogistic approaches to the study of argumentation, Toulmin et al. developed a way to chart more informal arguments in terms of these various parts in order to determine how writers convince (or fail to convince) their audience of their argument's validity. Toulmin et al.'s analysis method also enables one

to analyze the parts of informal arguments (with missing argumentative components) and how they work, in addition to more formal arguments that include all of the constituent argument components. The goal in this argumentative situation, as Toulmin et al. puts it, is "directed toward a consensus, or rational agreement, between the parties concerned" (317). In this thesis, "the parties concerned" are comprised of the editors and the engineer writers with whom they work.

Using Toulmin et al.'s charting technique, I graphed each argument that the two editors from the College of Engineering and Science (Benson and Mae) presented in Microsoft Words' "Track Changes" function[1]. While the editors made numerous separate comments on each proposal, several of the comments contained more than one argument. For example, Comment 18 of the Mae.NIH.1 proposal has more than one argument:"Don't use a colon separate a verb from its complement, esp. when the bullets make it very clear that this is a list. I changed the bullets to numbers to avoid the redundancy of bullets and numbered aims." "Don't use a colon…" and "I changed the…" begin two separate arguments: the first argument calls for a revision of colon usage based on a grammatical warrant, and the second argument calls for the author to use bullets to list his/her information. Below are the two separate Toulmin et al. graphs for each argument:

[1] A list of these comments can be found in Appendix B. Comments are labeled as with the editor's name followed by the type of proposal (e.g., Comment 1 from the Benson.DARPA proposal refers to the first comment in the DARPA proposal edited by Benson).

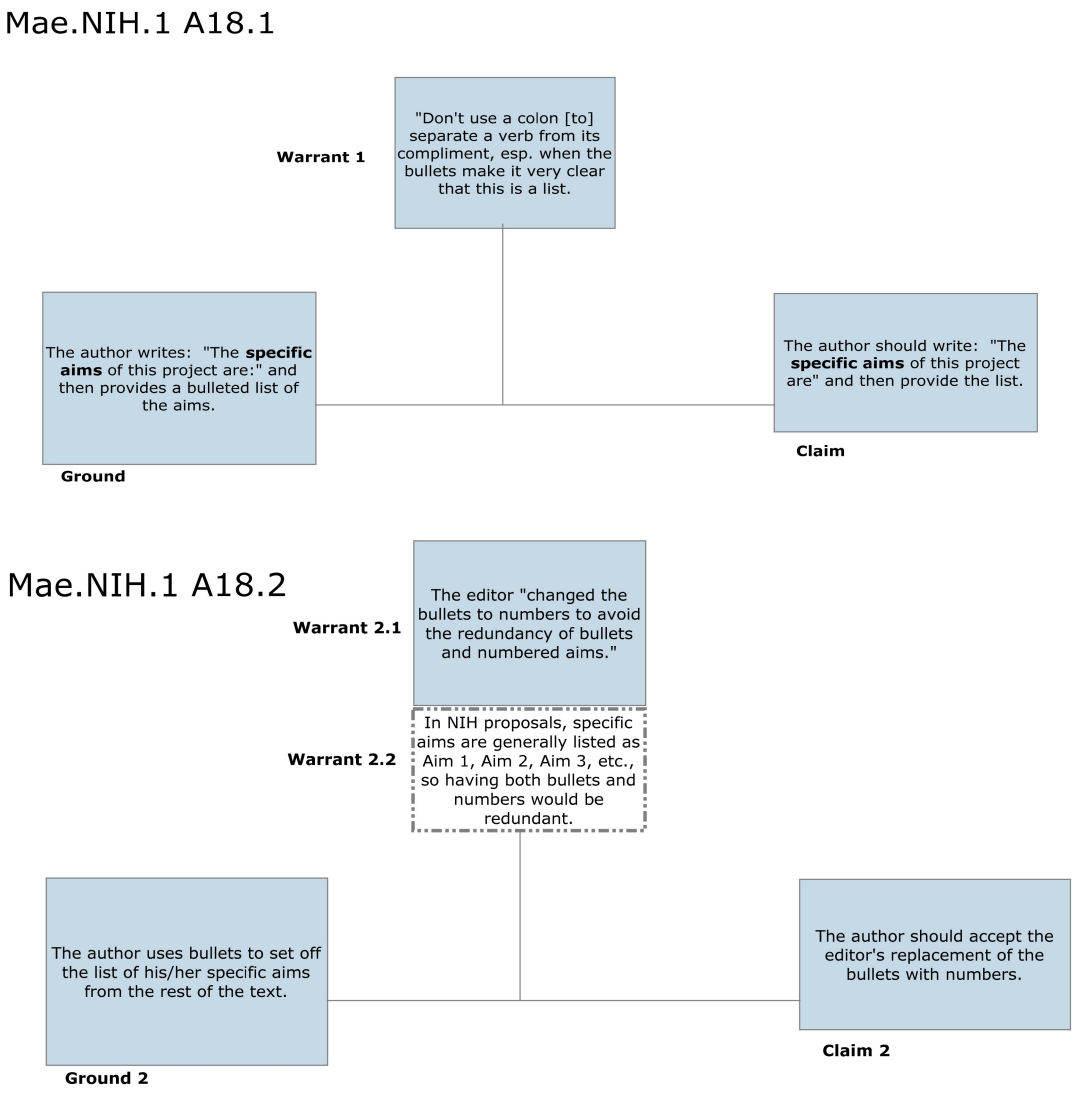


Figure 2[2]. Toulmin et al. Charts for Comment 18 of the MAE.NIH.1 Proposal

Thus, when necessary, I had to break down comments into several arguments, after which I was able to chart each argument the editors made throughout the six given proposals. These Toulmin et al. analysis charts revealed several interesting facts as to

[2] In each chart, blue boxes represent parts of the argument that were *stated,* and the white boxes with broken lines represent parts of the arguments that were *unstated.*

what types of arguments the editors made to the engineer writers, what evidence they used to support their arguments, and how they queried the authors when the engineers' writing was particularly confusing. These charts also revealed several characteristics that could potentially make the editors' arguments weaker for one reason or another, which, in turn, could have affected the writers' acceptance of certain revisions.

Successful Arguments

According to Stephan Bernhardt, author of "Improving Document Review in Pharmaceutical Companies," "the best comments identify a problem, diagnose why it is a problem, and offer a solution" (463). Bernhardt's ideal comment can be understood as a map for the three major component parts of a successful Toulmin et al. argument: the ground identifies the problem and points to the argument's exigency; the warrant contextualizes the ground and generally describes why it is problematic; and the claim offers the solution the editor believes will ultimately solve the problem. Both Benson and Mae provided these three-part comments in the proposals that were analyzed, which helped the engineering writers identify, justify, and fix problematic parts of their text. For example in Comment 20 of the Mae.NIH.2 proposal, the three parts of her argument are particularly evident:

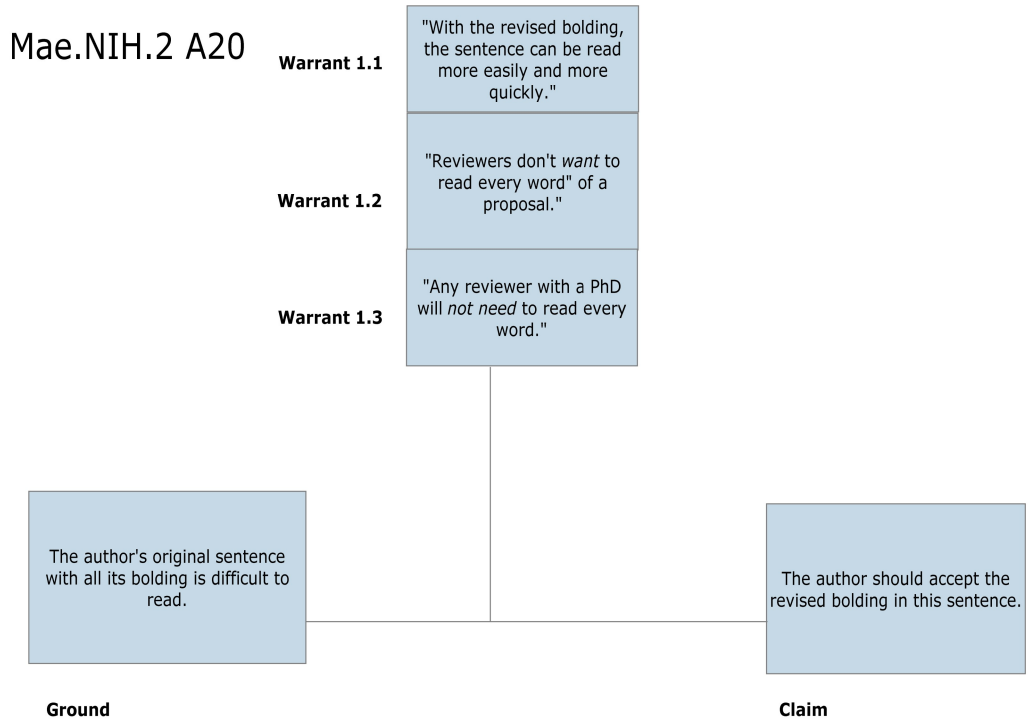


Figure 3. Toulmin et al. Chart for Comment 20 of the Mae.NIH.2 Proposal

In this comment, the problem is that the author bolds too many words in the sentence, which makes it difficult to read. This bolding is problematic because "reviewers don't want to read every word, and any reader with a PhD will not *need* to read every word." With the editor's solution—to unbold certain words in the sentence—"the sentence can be read more easily and quickly."

Comment 1 of the Benson.CAREER propsal is another query in which all three constituent parts of the argument evident:

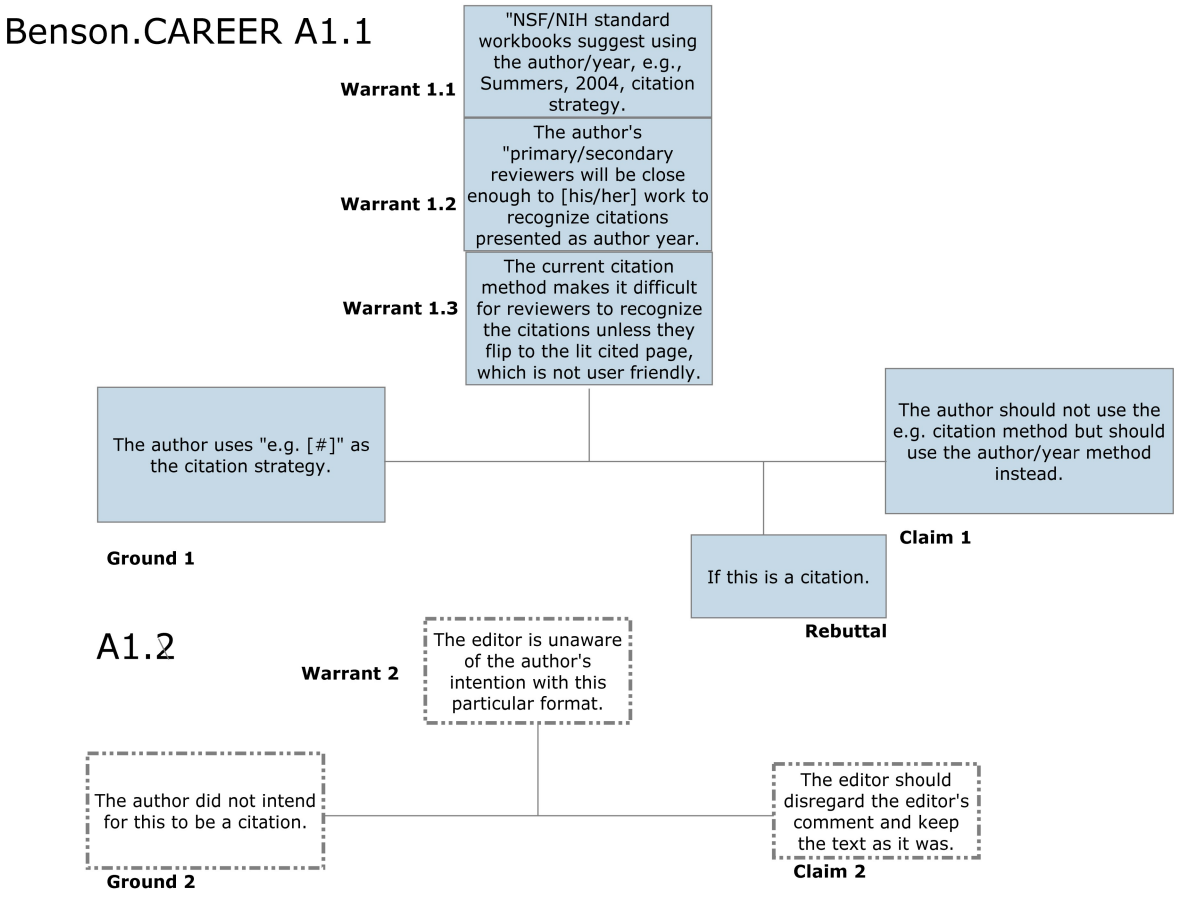


Figure 4. Toulmin et al. Chart for Comment 1 of the Benson.CAREER Proposal

In this case, the problem is that the author uses the "e.g. [#]" as the citation method throughout the proposal, which is problematic for the several reasons that the editor points out: it does not follow NIH/NSF standard workbooks' suggestions, the authors "primary and secondary reviewers will be close enough to [the author's] work to recognize citations presented as author/year," and the current citation method forces reviewers to flip back and forth between the proposal and the references. Therefore, the solution to this problem is simply using the author/year citation strategy.

Each of these arguments provides the writer with clear reasoning as to why his/her writing is problematic in certain areas and what he/she needs to do to fix the problem. Also, in such comments, Benson and Mae do as the literature suggests and provide the bases of their suggestions and the importance of incorporating the revisions into the text. As individuals who commonly disbelieve in the social construction of knowledge or in the influence writing can have on meaning, engineers are particularly hesitant to accept changes to their technically sound documents, especially if they cannot discern a good reason for doing so. However, it is probable that writers will accept comments that explicitly state the problem, explain the problem, and provide solutions more readily than comments that omit one or more of these argumentative parts because such comments enable them to improve their writing and understand why they needed to do so in the first place.

While three-part comments like Bernhardt's are ideal, they are not the norm in editing: more often than not, one of the three constituent parts of a comment's argument is missing. In the Benson and Mae proposals, warrants were frequently omitted and claims were occasionally omitted. In each of these cases, the editor assumes either knowingly or unknowingly that the writer will have enough writing experience to understand what needs to be changed and/or why it needs to be changed.

In some cases, these assumptions are unproblematic, as the writers are familiar enough with the proposal writing process to understand what needs to be changed and why. For instance, there were several comments in each of the proposals that had the same underlying, yet unstated warrant, for different arguments that most likely conveyed

the reasons why the editors made the changes they did. For example, Comments 4 and 14 in the Mae.AHA proposal and comments 2 and 5 in the Benson.MEM proposal (to name a few) each asked the authors to check the meaning of the revised text in some way to ensure that the editors' revisions did not change the technical content of the text.

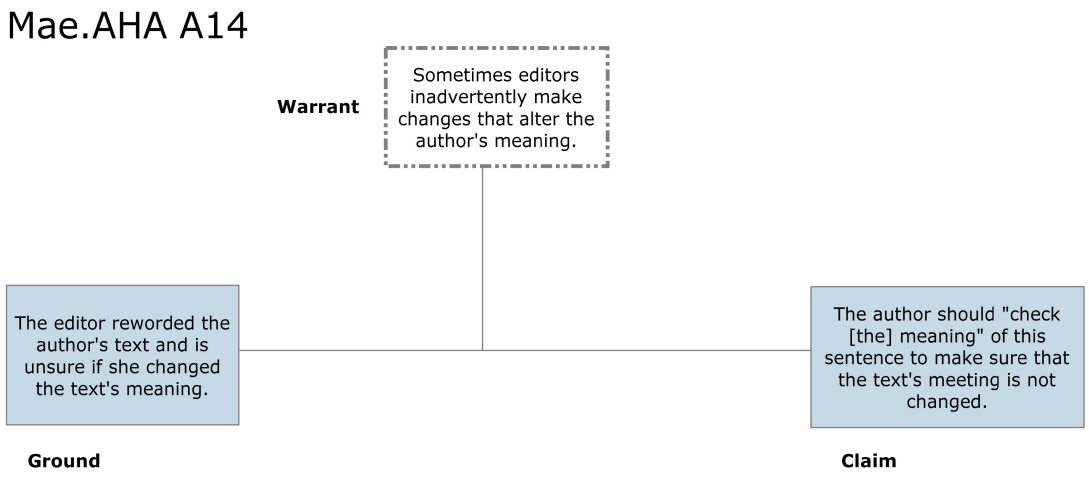


Figure 5. Toulmin et al. Chart for Comment 14 of the Mae.AHA Proposal

In each of these cases, the underlying, unstated warrant was "Sometimes editors inadvertently make changes that alter the author's meaning." Although unstated, both the editors and the writers understand that there are times when an editor implements changes in a text that alter its technical meaning. For this reason, the argument for comments like "check the meaning here" is still successful, as both parties understand the importance of checking for potentially changed meaning.

The editors make similar assumptions about other underlying, yet unstated, warrants, such as those related to coherence, overstating claims, and consistency. In each

of the cases, the editors feel that they do not need to state the warrant behind their arguments explicitly because they believe that engineering writers (who have written numerous proposals in the past) will have the required knowledge to understand why the revisions were necessary. That is, the editors assume that the engineering writers will have enough knowledge about proposal writing to understand these particular arguments in the comment boxes without further explanation; the editors' assumptions are validated if the writers do understand the argument and implement the proper revisions. For this particular thesis, however, there is no way of knowing whether writers implemented the changes or not; nevertheless, it is highly likely that the writers did understand the reason for these particular changes and implemented them without hesitation.

In addition to these unstated warrants, there were also times when the editors did not state a definitive claim as to what they wanted the writer to do to amend a problem. Take, for example, Comment 14 of the Mae.NIH.1 proposal:

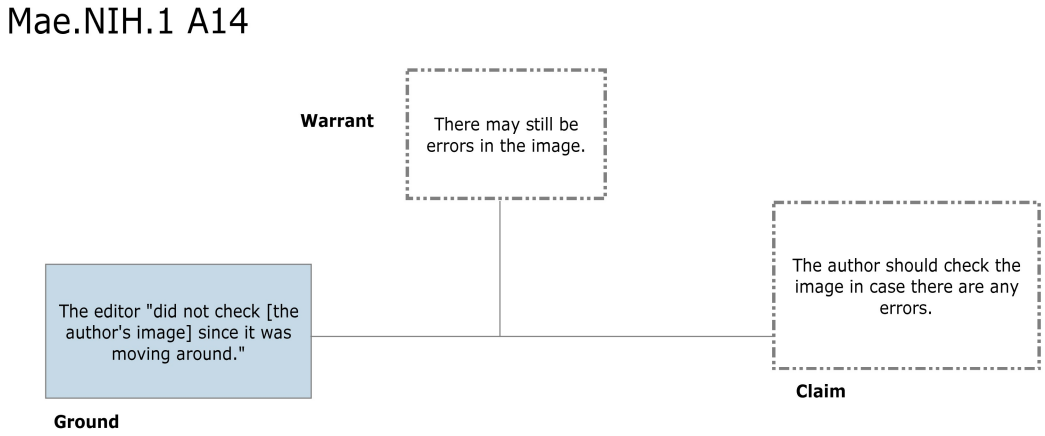
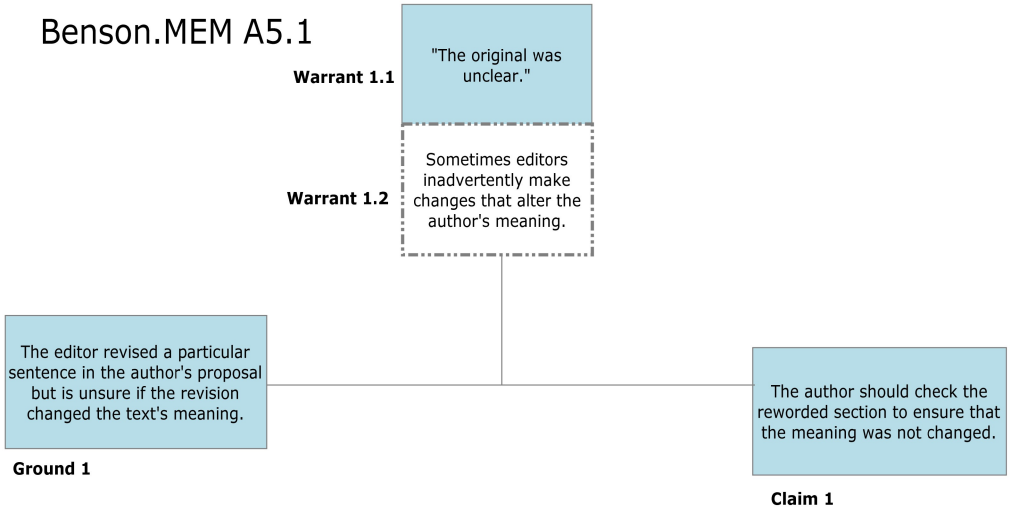


Figure 6. Toulmin et al. Chart for Comment 14 of the Mae.NIH Proposal

In this case, the editor does not overtly state that the author needs to check the image for him/herself or have someone else check it, but it is likely that the author will review the image again after reading this comment to ensure that he/she did not overlook any errors during the initial review process. In this case, Mae assumes that the writer will know enough about the review process to understand that if she did not check the image, it could still potentially contain errors, which could detract from the author's credibility if left uncorrected. Again, it is probable that the editor's assumption in this case is correct and that the author will indeed recheck the image.

There are also times when the editor presents whole arguments that are completely implied in the wording of his/her sentence but are left unstated. These implied arguments occur each time the editor asks the author a question. For instance, in Comment 5 of the Benson.MEM proposal, the editor writes: "Check this; the original was unclear. Are first responder and unit the same thing?" Below is the chart for this argument:



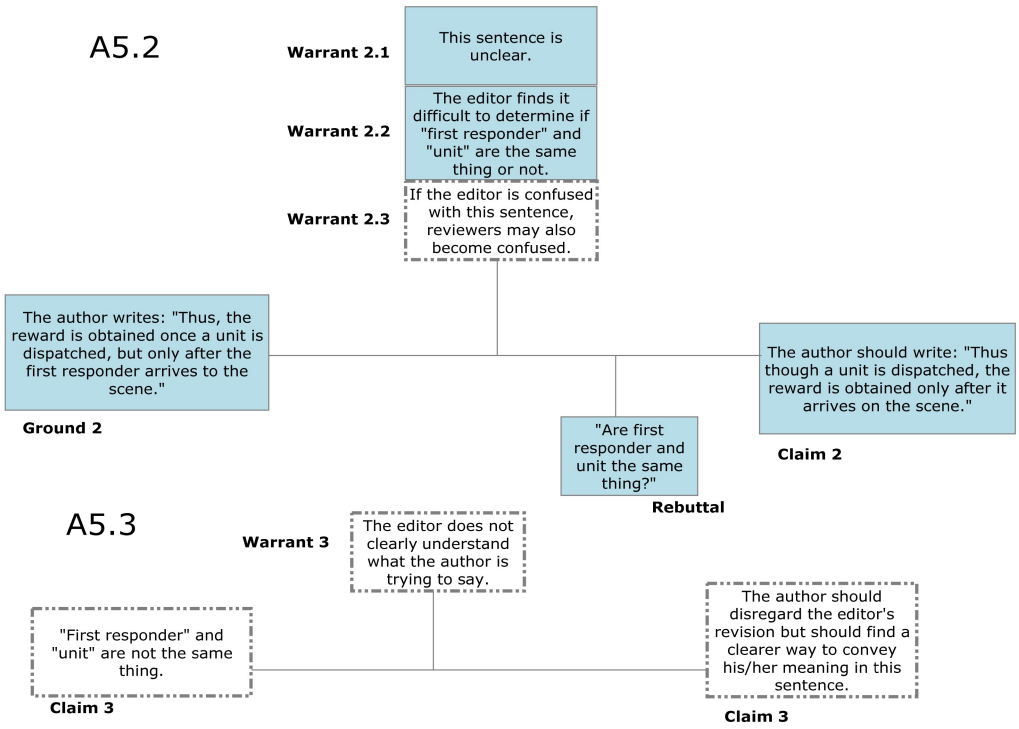


Figure 7. Toulmin et al. Chart for Comment 5 of the Benson.MEM Proposal

Benson revised the author's original sentence (Ground 2) based on the assumption that *first responder* and *unit* refer to the same thing; however, because he is not completely familiar with the engineer's research, he cannot be certain if the change will alter the writer's meaning. Thus, he asks the question "Are first responder and unit the same thing," which then becomes a rebuttal because the question has two possible answers, and thus two possible counter arguments are formed. If the answer to this question is "yes," then the author can accept the change; however, if the answer is "no," then the question actually becomes a rebuttal to the editor's change: if "first responder" and "unit" do not refer to the same thing, then the editor's change would be erroneous.

In this case, the second, unstated argument outlined in this chart (that the editor did not fully understand what the author was trying to say) becomes relevant: "first responder" and "unit" are not the same thing, and the editor did not fully understand what the author wanted to say, so the writer should disregard Benson's revision. It is unnecessary for the editors to state the arguments related to the questions they introduce because if the answer to the question negates the revisions the editors made, the author simply will not accept those changes. However, these questions do serve the purpose of alerting the writer 1) to editorial changes that possibly changed his/her meaning and 2) to areas in the text that could lead to a reader's confusion.

Unsuccessful Arguments

Most of the time, the editors' arguments are successful and the writer accepts their revisions even when one or more argumentative components are missing from the comment. However, there are also several reasons why certain editorial arguments have a high potential for failing to convince writers to change their text. The majority of the arguments that have a high potential for failing are characterized by six major features: 1) the editor revises based on an improper identification of the ground; 2) the editor provides a faulty warrant to support his/her argument; 3) the editor provides an unclear warrant to support his/her argument; 4) the editor introduces an error into the text; 5) the editor leaves ambiguity as to what the writer should do; or 6) the editor's claim does not seem to apply to the text it references. While not all of these features are identified specifically in Toulmin et al.'s theory, they are based on his main principles of what a

successful argument entails and are thus consistent with his ideas of what makes an argument successful or unsuccessful.

Issue 1

The first issues that the Toulmin et al. analysis was particularly good at identifying were those relating to the editors' logic when creating a claim. In particular, there were times when the editor misidentified a ground as being problematic, when in fact nothing in the text was technically or stylistically wrong. Take for example, Comment 10 of the Benson.DARPA proposal:

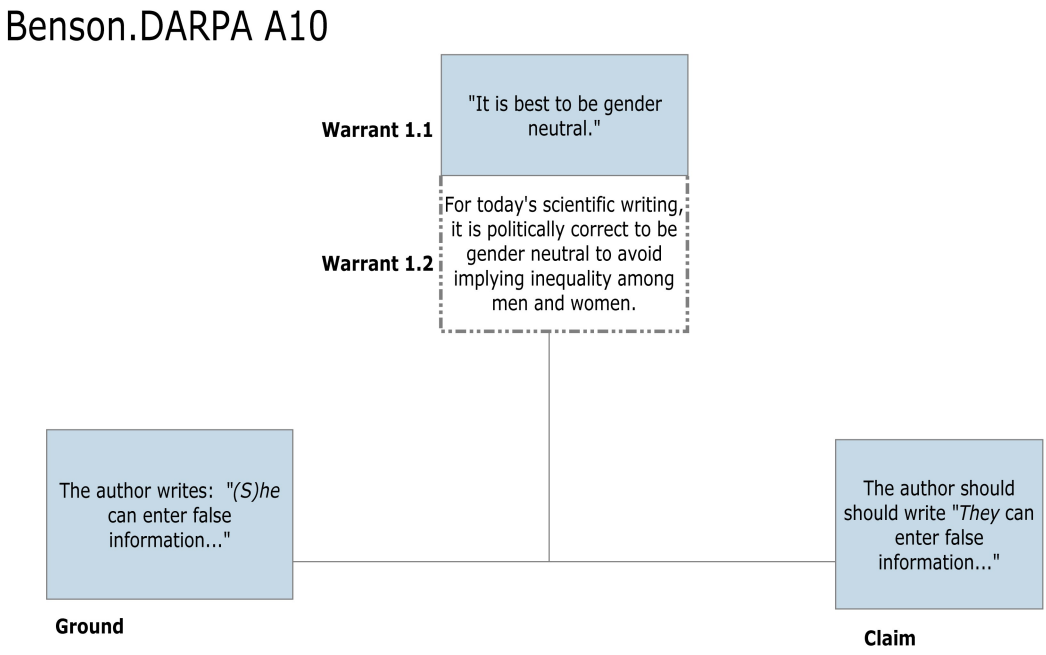


Figure 8. Toulmin et al. Chart for Comment 10 of the Benson.DARPA Proposal

In the proposal, the author writes "*S(he)* can enter false information…," (emphasis added) which the editor changed to "*they* can enter false information…" (emphasis added) based on the warrant that "it is best to be gender neutral" in scientific writing. However, the ground for this argument is faulty because writing *s(he)* or *he/she* are common ways to be gender neutral in writing, as they include both sexes equally just as writing *they* does. Had the author written, "*he* can enter false information…" or "*she* can enter false information," then the editor's argument would be valid; however in this case, the writer was gender neutral and the change was unnecessary based on the erroneous identification of a faulty ground.

Issue 2

In addition to faulty grounds, there are also several comments containing faulty or unclear warrants throughout the six proposals I analyzed. This issue is particularly interesting, as editors are supposed to be "writing experts" who improve documents *based on established* (and obviously correct) *writing, visual design, format, and graphic design principles*. However, there are times when the editors' warrants for their arguments are counter to formal logic; that is, given the text they reference, these comments do not provide logical reasons as to why the writers' text is problematic. Comment 19 of the Mae.AHA proposal exemplifies this issue, as the editor provides a warrant that does not logically justify her argument:

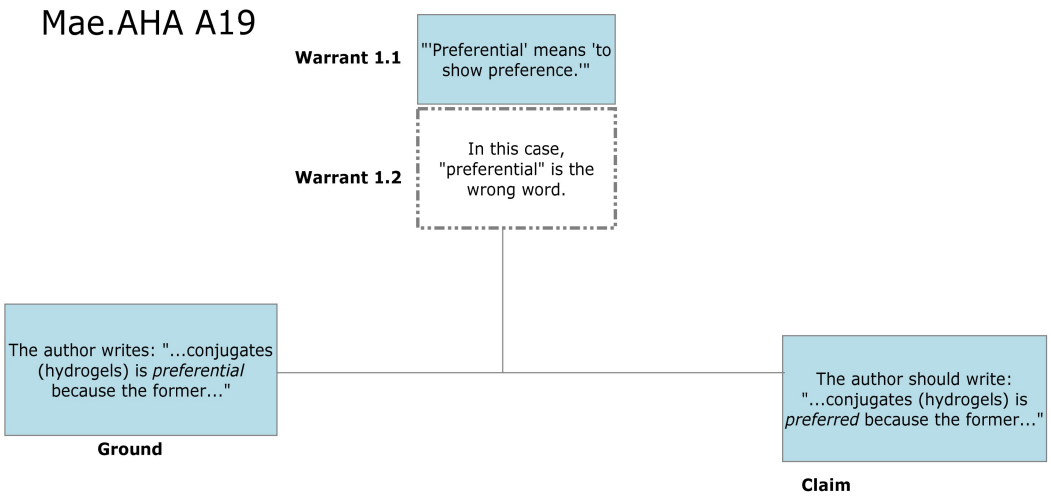


Figure 9. Toulmin et al. Chart for Comment 19 of the Mae.AHA Proposal

Unlike the comment mentioned in the previous example, this comment actually refers to an error in the writer's text (i.e., the ground is correct), as he/she writes "...conjugates (hydrogels) is preferential because the former..." In this case, the writer wants to use an adjective derived from the root word *prefer* in order to show that he/she wants to use conjugates over another material. The editor makes the correct revision for this particular error and changes *preferential* to *preferred*, but her warrant for doing so—because "preferential means 'to show preference'"—is not correct. The warrant the editor provides is the definition for an infinitive verb. The problem is that *preferential* is an adjective; therefore, she needed to provide the definition for an adjective, which, according to Merriam-Webster is "showing preference."

This brings up the issue of whether or not the author would even notice the subtle difference between these two definitions; however, that is not the point. The point is that the "language expert" provided a faulty warrant behind her revision, which could

ultimately lead to the writer's confusion. If the engineer happens to be very knowledgeable about grammar and *does* notice this error, he/she may have a lower opinion of the editor's work and thus question or even ignore other revisions. As Toulmin et al. suggest, when choosing a warrant, one can only make an informed choice by "going behind the warrant and looking to see on what basis its authority rests" (66). In this particular case, the editor did not take the initiative to look behind the warrant carefully to ensure that its authority could be upheld under close scrutiny. Perhaps providing the definition of both *preferential* and *preferred* would have been the best strategy to show the author why his/her original word choice was incorrect and convince him/her of the change's importance.

In both of the cases related to the editors erroneously identifying improper grounds and providing logically unsound warrants, the flawed support that the editors use to back their argument could ultimately be damaging to their credibility as editors and to the rest of the work they do both with these specific proposal writers and other writers they make work with. As such, it is important for the editors to ensure 1) that they are actually correcting an error in the writer's text (e.g., as in the Benson.DARPA proposal) and 2) that they provide the *correct* reason behind why they made a particular change (e.g., as in the Mae.AHA proposal). Thus, it becomes clear that "an important part of sound reasoning therefore consists of 'critical thinking,' and this involves being prepared to ask questions about the underlying backing for those ways of thinking and reasoning our culture has drilled into us and normally takes for granted" (Toulmin et al. 67).

Editors need to examine their warrants and grounds carefully to ensure that they are in fact logically valid before arguing for an erroneous or unnecessary revision.

Issue 3

An editor's argument can also become problematic when the warrant justifying his/her claim is unclear or does not seem to make sense given the argument at hand. Comment 15 of the Mae.NIH.1 proposal exemplifies this issue very well:

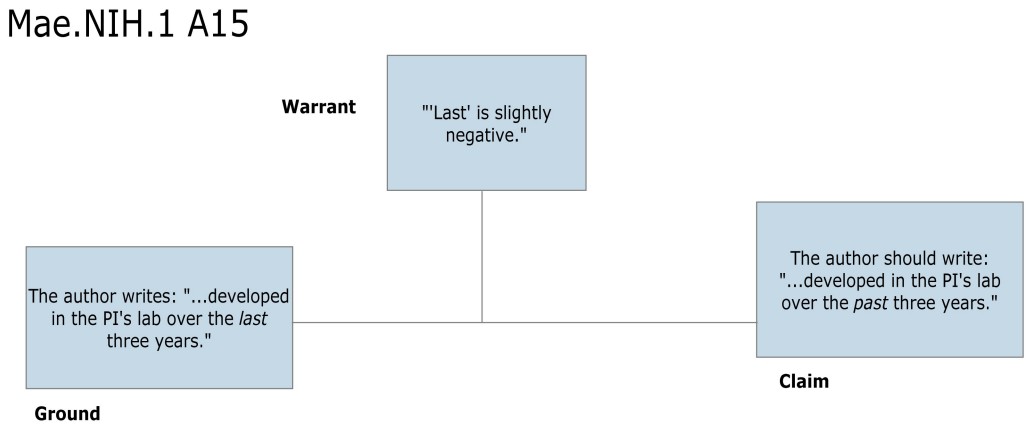


Figure 10. Toulmin et al. Chart for Comment 15 of the Mae.NIH.1 Proposal

In this case, the author wrote "The approach is designed as a platform technology based on novel biomaterials developed in the PI's lab over the last three years." The editor believes that the author should change *last* to *past* because "'last' is slightly negative." However, this warrant may not seem to make sense to some individuals, especially engineers: to the engineer, *last* may not seem to have a negative connotation because the writer is simply referring to the research his/her lab has done for the "past" few years.

However, editors are more attuned to the slight nuances that word choice can have on audience perception, which is probably why Mae suggested this particular change. Generally speaking, though, engineers are not accustomed to analyzing word choice so deeply and may not understand the impact that one word could have on their reader's assessment of their writing. Thus, the editor's suggestion is logical but may be unclear to the engineer writer due to his/her limited knowledge of rhetoric. This point relates to Toulmin et al.'s idea of argument as consensus building: if the editor cannot clearly justify his/her reason for a change, the writer may not be able to understand the revision's significance, and thus consensus cannot be obtained.

Comment 5 of the Benson.CAREER proposal is another very good example of problematic arguments with unclear warrants:

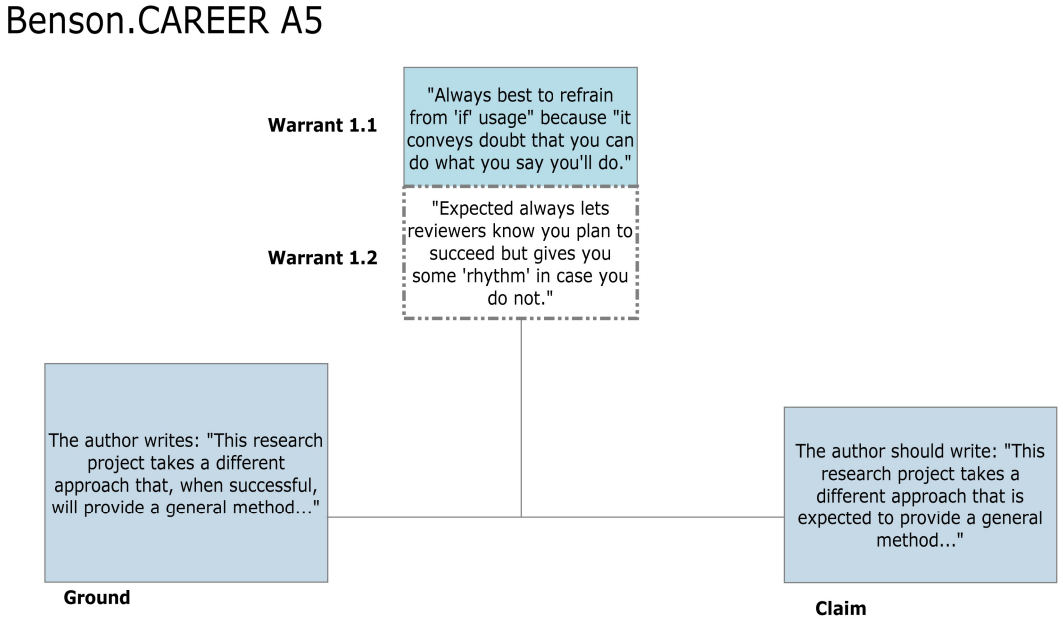


Figure 11. Toulmin et al. Chart of Comment 5 of the Benson.CAREER Proposal

In this case, both of the warrants the editor provides do not quite make sense. First, Benson says that it is "always best to refrain from using 'if' usage" because "it conveys doubt that you [the author] can do what you say you'll do." Although this may initially seem like the editor misidentified the ground, the editor has identified a problematic issue in the author's text: by saying "when successful…," the author gives the impression that there are times when his/her methodology is not successful, which may lead the reviewers to question his/her ability to do the work. Yet, the author never uses the word "if" in the sentence the editor refers to, which makes this line of reasoning confusing because there is the chance that the author will not relate the editor's comment of "if usage" to this particular comment; thus, it is not unlikely that the author will merely disregard this comment.

In addition to this problematic warrant, the other warrant that the editor provides is confusing as well. Benson mentions that the author should use the word "expected" in the revised version of this sentence because it "always lets reviewers know you plan to succeed but gives you some 'rhythm' in case you do not." While the editor's change does seem to improve the text, it is still unclear exactly what he means by "rhythm" in this warrant. Perhaps his use of "rhythm" was metaphorical in this case and not based on formal logic. However, because engineers are not adept at identifying the subtleties of language, it is probable that this particular writer will not fully understand the meaning behind this metaphorical language, and if he/she does not fully understand the importance of the author's justification, he/she may simply ignore the revision. Again, this may not

necessarily be problematic if the author merely accepts the revision; however, if the author does notice these two anomalies in this comment, it may lead him/her to reject the revision and think more negatively about the editor's work.

Issue 4

While it does not occur very frequently, the next unsuccessful argument that the analyses revealed occurred when the editor actually introduced an error into the writer's text and argued for that revision based on illogical warrants. For example, Comment 9 in the Mae.NIH.2 proposal introduces an error into the author text:

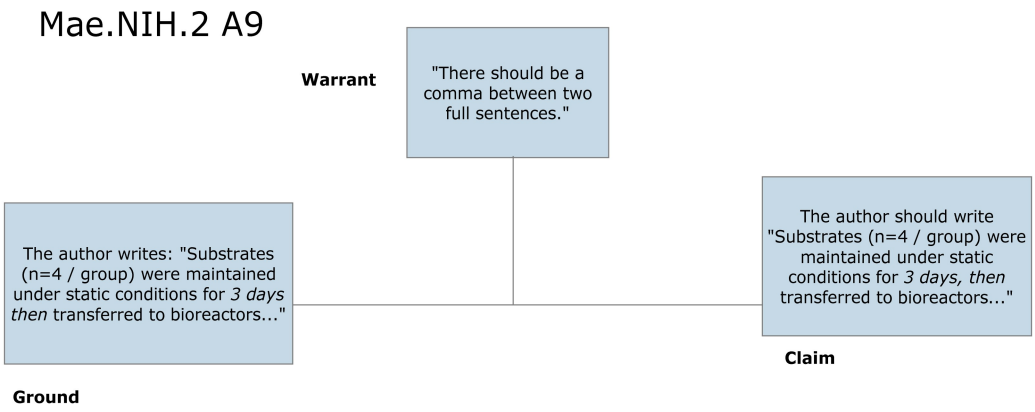


Figure 12. Toulmin et al. Chart for Comment 9 of the Mae.NIH Proposal

This comment was based on the author writing "Substrates (n=4 / group) were maintained under static conditions for 3 days then transferred to bioreactors and subjected to..." While this sentence does have an error that needs to be revised (there needs to be some sort of conjunction or punctuation after "days"), the editor's remedy (her claim) for this error, along with her warrant for doing so, are incorrect. She revises the text based

on the warrant that "There should be a comma between two full sentences." Firstly, the sentence Mae references is not made up of two full sentences. According to any English grammar book, a full sentence must have a subject and a predicate. While the first part of this sentence is a full sentence, the latter part ("…then transferred to bioreactors and subjected to…" does not have a subject or a verb.

Second of all, those same English grammar books would state that one should never put a comma between two sentences without a coordinate conjunction. A semicolon would be required in such a case but is irrelevant for this particular sentence because the editor is not dealing with two full sentences. As such, Mae's revision to the text—"Substrates (n=4 / group) were maintained under static conditions for 3 days, then transferred to bioreactors and subjected to…" (the comma)—merely introduces an error. Rather, to fix this grammatical mistake, the author either needs to write "…were maintained under static conditions for 3 days and were then transferred to bioreactors…" or "…were maintained under static conditions for 3 days; they were then transferred to bioreactors…"

As mentioned before, such problematic arguments will most likely make the editor lose credibility in the engineer writer's eyes and make him/her less likely to accept other revisions; however, introducing an error into the writer's document also has the potential to seriously anger a writer, or worse. What would happen if the author accepted the editor's claim without knowing any better only to have a reviewer discover the error in the proposal review process? Writers send their documents to technical editors for them to eliminate errors and obviously not for them to introduce mistakes. While

everyone makes mistakes, editors need to be particularly careful to ensure that the revisions they make are not erroneous and that the warrants they base their arguments on well founded.

Issue 5

Another problematic argument arises when the editor leaves too much ambiguity in his/her claim for the author to understand definitively how the text needs to be changed. One can see this ambiguity in Comment 11 of the Benson.DARPA proposal in which the editor writes "Looks like this sentence detailing a simple approach to [the] key assignment works best as a segueway [sic] into a more sophisticated approach." This comment hints that something needs to be changed in this section of the writer's text, but the editor does not clearly identify a problem in the text, nor does he provide any kind of solution. The writer is thus left wondering if the editor was merely making a statement in passing, if he is suggesting that the author could develop a more sophisticated approach, if he believes the editor should reword the statement, or any number of other possibilities.

As Toulmin et al. state, "Often enough, the particular words in which an asserter (*A*) first presents a claim will not be wholly clear. The chosen words may contain unresolved ambiguities and may lend themselves to alternative interpretations" (31). This ambiguity could arise from the editor's inability to clearly identify and state the grounds for his claim; that is, he knows that something is wrong but is not sure what exactly and thus cannot convey it in an unambiguous manner. They could also arise if an editor does not understand the writer's technical content. For example, in the comment above, maybe the editor did not understand the simple approach enough to develop a

more substantial claim. Nevertheless, comments that leave too much ambiguity leave the author with a wide array of possible ways to revise the text but with no clear-cut answer as to what the initial problem was.

Another example of too much editorial ambiguity is present in Comment 38 of the Mae.NIH.2 proposal. In this comment, the editor simply writes "Better coherence." The ambiguity arises because it is unclear whether the editor means that the text *needs* "better coherence," or if the writer *has* "better coherence" in this particular section. If the author mistakenly believes that the editor means the former possibility, then he/she may make unnecessary revisions and waste time. However, if the writer mistakenly believes that the editor means the latter possibility, then he/she may not make the necessary changes to make the text more comprehensible. Either way, this ambiguity could cause issues for the author later during the proposal review process.

It should be noted, that these ambiguous comments are slightly less serious than the other unsuccessful arguments mentioned in this section mainly because if the author ever comes across one of these comments, their reaction is most likely going to be one of confusion. On realizing that they are unsure about how their text needs to be change, writers are most likely going to contact their editor and ask for clarification. However, given the time-sensitive nature of proposal writing, many engineer writers are on tight deadlines and only have time to send a draft for one editorial review. Thus, when writers do not have a great deal of time or the editor is out of the office, these ambiguous comments could frustrate authors tremendously because they are left without solutions. In addition, if the editor makes several ambiguous comments in one document, it is likely

that the writer will become exceedingly frustrated and react negatively toward the editor. As a result, editors need to review their comments to ensure that they are as clear as possible regarding what is wrong with the writer's text and what the writer needs to do to fix the issue without allowing ambiguity to interfere with the argument at hand.

Issue 6

The final type of problematic argument that these analyses revealed occurred when the editor's claim did not seem to apply to the ground it referenced. For instance, in Comment 4 of the Mae.NIH.2 proposal, the editor states that the author should "check period usage with citations." The sentence this particular comment was attached to read "A bioreactor capable of cyclic strain and vibration was developed (Figure 1)." There was not one citation in or around this particular sentence or in Figure 1 for that matter. While Mae's comment seems important, as a proposal's format is one of the first things a reviewer looks at, it is unclear exactly what the editor was doing or referencing when she wrote this comment. Perhaps it was just an error, or perhaps she merely wrote the comment there because there was not a better place for her to place it. Regardless, it is confusing, and it is likely that the author will not implement the proper change as a result. For this reason, it is important for editors to make sure that their comments and claims are relevant to the text they reference. If, for some reason, the editor decides to add a comment that does directly refer to the text it references, then he/she needs to explain that comment and its purpose in more detail.

Arguments as Consensus

If, as Toulmin et al. suggest, making an argument is "directed toward a consensus, or rational agreement, between the parties concerned" (317), then editors need to provide logical, well-founded arguments in order to reach this consensus with objective-minded engineers. As was discussed in the literature review, engineer writers do not generally acknowledge that language has a direct impact on the meaning of their text; they believe that their experimental data and descriptions are strong enough on their own to show the importance of their work, regardless of how the presentation of that data is undertaken. As such, the arguments editors make to improve the rhetorical standing and persuasiveness of a proposal need to be developed in a way that appeals to the objective, logical mindset these engineer writers have when developing their text. Thus, arguments that are based on misidentified grounds, that are justified by illogical warrants, that leave too much ambiguity in their claims, or that do not seem to apply to the text at hand are likely to fail as engineers want logical explanations for the changes editors make to their text.

Based on Toulmin et al.'s theory, the arguments from the previous sections have clear-cut reasons as to why they fail; however, another type of argument that would seem to fail given engineers' logical mindset includes arguments with warrants based solely on the editor's opinion. Yet, as we will see, opinion-based arguments are quite successful and are very much a part of this consensus-making process between engineer writers and editors. Take for example Comment 5 of the Mae. AHA proposal:

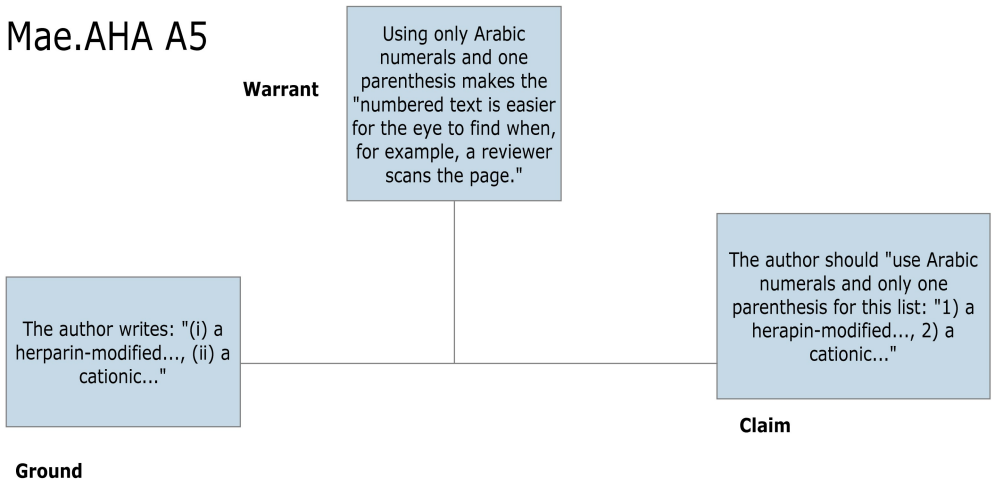


Figure 13. Toulmin et al. Chart for Comment 5 of the Mae.AHA Proposal

In this case, the method the writer uses to list the components of his/her list is perfectly acceptable in scholarly writing, and neither the proposal guidelines nor any established writing authority advises not to list information in this way. Rather, Mae bases her revision on her opinion that the author should "use Arabic numerals and only one parenthesis" for the list because "numbered text is easier for the eye to find when, for example, a reviewer scans the page." This warrant is not wrong by any means and is logically valid in its reasoning; however, the original method the author used to list his/her series is logically acceptable as well. Thus, the editor's change is based on her opinion and practical experience from her many years of editing that one way of listing a series is better than another. In cases such as these, Toulmin et al.'s idea of backing comes into play. Although the backing for this argument is left unstated, Mae develops her warrant on an established body of editorial and writing knowledge that she has accumulated throughout her career as both a student and a professional. Most engineer

writers are not aware of this knowledge, or backing, for the writing/editorial process, so it may be difficult at times for editors to translate the foundation for some of their warrants.

One would assume that because engineers generally accept arguments only when their claims are supported by established warrants, such opinion-based warrants, with their subjectivity and the editor's *personal* influence, would ultimately fail to convince them to accept editorial arguments. However, counter to intuition, these opinion-based arguments are very likely to succeed most of the time. How could this be? As we will see in the next chapter, the language style editors use when crafting their comments contributes directly to this consensus building process in author/editor relationships and engineer writers' acceptance of both theory- and opinion-based arguments.

Chapter 4

Developing Successful Author/Editor Relationships with Style

The second analysis I preformed on these six proposals was based on Walker Gibson's essay "Tough, Sweet, and Stuffy," which examines how authors' choices in language create the relationships they have with their audience when there are no other cues for doing so. That is, Gibson's analysis reveals how authors create relationships with their readers when no other verbal or face-to-face communication is possible. Given the current surge of electronic editing, such an analysis could provide us with useful insight into how editors create working relationships with writers through the comment box when no other means of communication are available.

The Toulmin et al. analyses provided insight into how editors create arguments to justify their revisions; the Gibson analyses will add to those findings by identifying what language is best suited to create author/editor relationships in which editors can effectively persuade engineer writers to accept their revisionary comments. The Gibson analysis reveals this language dimension of the author/editor relationship because it allows us to examine how editors' vocabulary, syntactical structures, and grammatical usage influence the messages they wish to convey and how readers may potentially interpret those messages. According to Gibson,

> When a writer selects a style, however unconsciously, and so presents himself to a reader, he chooses certain words and not others, and he prefers certain organizations of words to other possible

> organizations…every choice he makes is significant in dramatizing a personality or voice, with a particular center of concern and a particular relation to the person he is addressing. (x)

Gibson includes an appendix in his essay called *A Model T Style Machine*, which is derived from traditional grammar and modern linguistics to determine the tone of a written passage. Gibson's method includes analyzing sixteen grammatical variables broken down into six categories: word size, substantives, verbs, modifiers, subordination, and other effects on tone. Using Gibson's *Style Machine,* I analyzed the editors' word choices and syntactical structures to examine how the language they use helps them to develop successful working relationships with engineer writers.

Common Gibson Grammatical Terms

Before a review of my Gibson analyses can be done, it is important to understand exactly what the characteristics of Tough, Sweet, and Stuffy writers are. However, before delving into the characteristics of the Tough, Sweet, and Stuffy talkers, it is important to become familiar with the specific grammatical terms that Gibson uses in his *Style Machine* (Table 1). While this is not a comprehensive list of all the terms Gibson uses, these are the terms relevant to my analyses.

Table 1. Common Grammatical Terms in Gibson's *Style Machine*

Grammatical **Term**	**Definition**	**Examples**
Finite Verb	A verb that shows tense, person, or singular plural; a verb that has a subject and shows tense	She *goes* to the movies. The boy *owned* a bike.
"To be" Form of Finite Verb	The infinitive "to be" is inflected to show tense, person, or singular plural; the infinitive "to be" has subject and shows tense	The cats *are* sick. That *is* not the book I wanted.
Passive Voice	The object of a sentence becomes the subject	The cake was eaten by the children.
True Adjectives	Adjectives that can be put into the superlative form	Good, better, best happy, happier, happiest
Noun Adjuncts	One or more nouns are used to modify another noun. Used to coin new terms based on existing vocabulary.	Chicken soup Bird house Amusement Park
Subordinate Clause	An incomplete sentence attached to an independent clause that has both a subject and a verb and begins with a subordinate conjunction or a relative pronoun.	She is driving the car *that her parents bought for her a year ago.* The dog does not like him *because he took away her bone.*
Sentence Fragments	A sentence that is missing its subject, verb, or both	Because I said so! Whereas, he likes her.

Tough, Sweet, and Stuffy Talkers

With an understanding of the common Gibson terms, one can examine the particular characteristics of the Tough, Sweet, and Stuffy talkers:

Tough talkers' language creates a close, yet hard, intimacy with their reader in which the writer assumes that his/her readers will be very knowledge about the subject being discussed. Tough talkers create this sense of intimacy by using a high proportion of monosyllable words, personal pronouns, subjects referring to people, finite verbs,

minimal subordination, and informal speech features, such as contractions and sentence fragments, all of which are common to colloquial language. However, the intimacy that the Tough talker creates is centered on his/her own feelings and attitudes, with little consideration given to the reader, which Gibson refers to as "I-Talk." This characteristic of Tough talk is a result of the writer's choice to use first-person pronouns (e.g., "I"), which tend to reflect only the writers needs, thoughts, and feelings.

In addition, the Tough talkers' lack of modification and his/her heavy use of monosyllable words are also a result of his/her self-centeredness, as the writer assumes without hesitation that the reader will know exactly what he/she is talking about without needing to explain the information further with descriptions or verbosity. This leads to the Tough talkers "this-is-that" way of speaking (characterized by its use of "to be" forms of finite verbs), which allows the writer to enforce his/her knowledge as fact without providing any further details to the reader (Gibson 113-133). As my analyses will reveal, these characteristics combine to create author/editor relationships in which the editor can effectively convey his/her knowledge and argue for revisions in a manner that engineer writers will respect.

The language Sweet talkers employ also creates a close intimacy with their audience; however, unlike Tough talkers, the intimacy Sweet talkers create is explicitly considerate of the reader's needs and feelings. Like Tough talkers, Sweet talkers also create a sense of intimacy through their use of everyday language characteristics: the use of monosyllable words, personal pronouns, subjects referring to people, finite verbs, minimal subordination, and informal speech features, such as contractions and sentence

fragments. However, the Sweet talker goes a step beyond the Tough talker in terms of his/her use of colloquial language and actively tries to mimic speech patterns; according to Gibson, Sweet talkers achieve this speech-like quality in their writing by using parenthesis, italics, dashes, question marks, and exclamation marks, each of which adds emphasis and feeling to writing that traditional, more formal writing conventions hinder.

Also unlike the Tough talker, the Sweet talker is overtly concerned about the reader's needs, attitudes, and desires but much less so on his/her own. The Sweet talker creates this audience-centered intimacy by using the second-person pronoun "you," which allows him/her to engage the reader directly in the text (Gibson calls this "You-Talk"). In addition, Sweet talkers go out of their way to make sure their reader knows what they are talking about and, therefore, use heavy modification when constructing their prose; Sweet talkers do not assume that their reader will know what they are talking about, and they want to make sure that they clearly describe it for their audience (Gibson 113-133). My Gibson analyses relating to the Sweet talker will reveal how the two CoES editors effectively use certain characteristics of Sweet talk to demonstrate that they value the engineer writers' concerns and opinions and to convey their own opinions in a non-threatening manner.

Unlike both the Tough and Sweet talkers, Stuffy talkers do not want to create a sense of intimacy with their readers; rather they take on an air of "no-personal-responsibility" (121), as Gibson states, and maintain a distance between themselves and the reader. Stuffy talk is characteristic of formal academic writing and of organizational writing, both of which want to come across as being official and objective. As such,

Stuffy talkers tend to use many polysyllable words, few personal pronouns, subjects referring to neuter objects, and passive voice in order to develop and maintain a professional voice characterized by a "legalistic" repetition of words and by language lacking personal influence. This legalistic, professional tone is enhanced by the Stuffy talker's use of noun adjuncts, which "roll off the stuffy tongue in great official bundles" (126), again making the Stuffy talker's prose more formal and less colloquial.

In addition, Stuffy talkers want their prose to be clear at all times but do not rely on their reader's ability to understand their meaning, almost as if he/she does not "trust his reader to make the proper reference" (119). As a result, Stuffy talkers employ heavy modification and subordination to eliminate any ambiguity and to ensure that their reader understands exactly what they are trying to convey (Gibson 113-133). Even though Benson and Mae work in a very professional environment and actually edit documents that Gibson would classify as being Stuffy, the language they employ to create relationships with engineer writers has very few occurrences of Stuffy language.

Table 2. Characteristics of Gibson's Categories of Styles

Style	Characteristics of Style
Tough	- Has hard, curt, self-absorbed manner - Concerned for his/her own needs - Assumes intimacy and common knowledge with readers—beyond explanation and politeness - Aware of his/her limitations - Uses short sentences, word repetition, simple grammatical structures, and colloquial speech patterns - Avoids modification and description as writer assumes reader will know what is being talked about without further assistance

Sweet	- Has explicit intimacy with reader, as if he/she knows the reader well—forces intimacy - Concerned for the reader's needs—addresses reader personally and asks questions - Uses polysyllabic words, noun adjuncts, modifiers, colloquial language, conversation-like punctuation
Stuffy	- Speaks for an organization and lacks personal responsibility for his/her writing - Uses a high proportion of polysyllabic words, neuter subjects, passive voice, noun adjuncts, and subordinate clauses - Avoids features of colloquial language: conversation-like punctuation, fragments, and contractions

After completing the analyses, I found that the editors' primary style in these documents was Sweet (see Figure 1). The Sweet style dominated in four out of the six proposals; the Sweet and Tough style were equally present in the Benson.MEM proposal; and the Tough style dominated in the Mae.NIH.2 proposal. Even though the Sweet style dominated throughout the editors' comments, the Tough style was also strong throughout the queries. Thus, it appears that these two stylistic voices work in conjunction with one another to create the editors' personality through their words and ultimately help them to convince the engineer writers to accept the arguments they make. However, there are also characteristics of both the Tough and Sweet styles that work separately to create successful author/editor relationships. Table 2 summarizes which style characteristics were dominant in these six proposals.

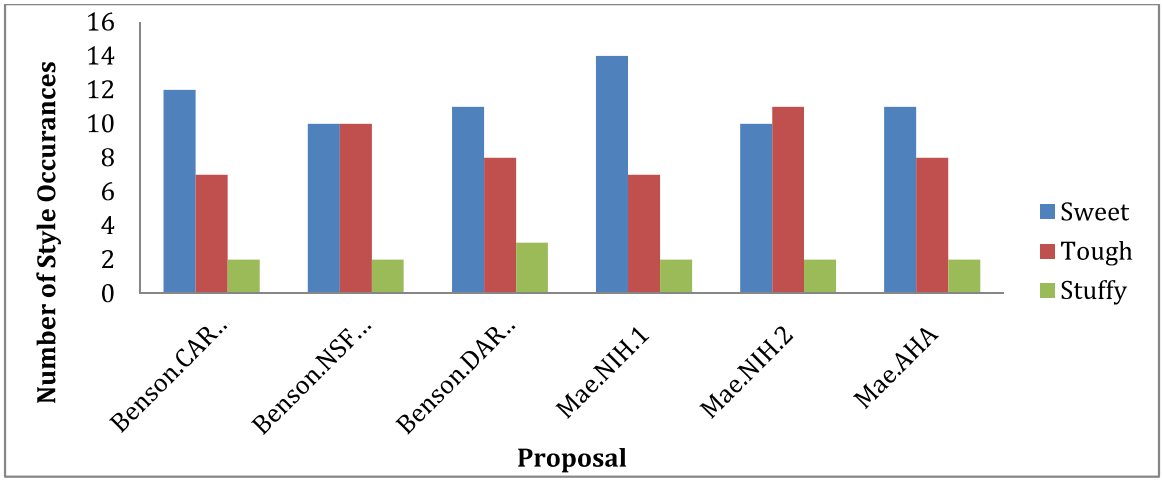


Figure 1. Rate of Style Occurrences in the Six Proposals

Table 3. Predominate Stylistic Characteristics for the Six Proposals

Style	**Predominate Gibson Characteristics from the Six Proposals**
Sweet	Monosyllables, Words with 3 or More Syllables, 2nd-Person Pronouns, Adjectives Modified, Use of "The," and Parentheses and Other Punctuation
Tough	1st-person pronouns, "To Be" Form of Finite Verbs, and True Adjectives
Tough/Sweet	Subjects Relating to People, Finite Verbs, Passive Verbs, Average Length of Clauses, Proportion of Total Words in Clauses, Embedded Words, Contractions and Fragments
Stuffy	Noun Adjuncts

The Tough Sweet Talker

According to Gibson, both the Tough and the Sweet talkers' styles are marked by informal, colloquial language that creates a sense of intimacy between the author and reader (71). Because both of these styles take on a more informal communication approach, several of the comments' characteristics could be characterized as both Sweet and Tough talk: i.e., the editor's use of pronouns, subjects referring to people, finite

verbs, clauses, contractions, and fragments. Each of these five characteristics directly contributes to the intimate, conversation-like style of the editors' comments.

Firstly, the editors' high frequency of first- and second-person pronouns actively engages the author's attention because the editor is essentially asking him/her to participate in the conversation. For example, in Comment 3[1] of the Benson.DARPA proposal, the editor's engaging use of pronouns is particularly evident: "Do you mean simple or do you mean not previously subjected to experiment. If simple, [I][2] suggest a change since this word is usually associated with people, emotions, etc." From the second-person pronoun usage in this comment, the writer knows that he/she is personally being addressed by the editor and that he believes the wording he/she uses in the sentence is unclear. Additionally, the editor's use of the first-person pronoun "I" allows him to establish himself in the conversation. It also engages the writer because it directly follows second-person pronoun usage and creates a "you-and-I" type of conversation[3] in which both parties are important; however, the editor's use of "I" in this situation also enables him to take a dominant position in the conversation, as he is suggesting what *he*, the technical editor and language expert, believes is the best revision for this particular text. This particular comment and those similar to it can be characterized as both Tough and Sweet because the use of personal pronouns is common of both styles' conversation-

[1] These comments can be found in Appendix A.
[2] The "I" was only implied in this case. As will be discussed below, editors commonly use fragments when writing comments in order to save time and effort. Thus, their elimination of first- and second-person pronouns is not uncommon. However, the first- and second-person pronouns are clearly implied: in this case, for example, the verb is conjugated in the first-person singular case, and since the editor wrote the comment, it is obvious that he is referring to himself.
[3] As opposed to an "I-Talk" conversation in which the speaker is only concerned with his/her needs, or a "You-Talk"" conversation in which the speaker is only concerned about the other person (Gibson 119).

like tone. However, there are differences between first- and second-person pronoun usage that differentiate the Tough style from the Sweet style, which will be discussed shortly.

Another example of how editors engage writers is through the use of "we." The use of "we" clearly incorporates the author's opinion and makes him/her feel actively included in the editorial conversation. Take, for instance, the first question in Comment 16 of the Mae.NIH.1 proposal in which the editor asks "Do we need this definition?" By using "we," the editor seems to be trying to include herself in the decision-making process for this particular writing choice, while actively speaking with the author, not to override the writer's ultimate authority but to communicate her opinion about this particular definition. If an editor thinks that an author may find a particular comment to be rude or unnecessary, he/she could use "we" in the comment to mediate any tension in the relationships and to convey his/her suggestions. While Mae was writing this comment, she may have felt that the author would believe the definition of RNAi to be an obvious need, so saying "do *you* think…" would be ineffective, since the writer wrote it in the first place and so at least might have meant it, if it is not a mistake: obviously if the author included the definition in the original draft, he/she thought it was important. By including herself in the comment, however, the editor becomes a part of the writing process as a team player and thus has a better leveraging position to voice her opinion: that if reviewers know what SMAD is, they will know what RNAi is. Using "we" allows the editor to establish a close, intimate relationship with the writer as a teammate (as

opposed to being a dominant figure, as in the hypothetical example above) in order to convince a potentially hesitant writer of a necessary change.

This personal relationship between the author and the editor is further enhanced by the editors' recurrent use of subjects referring to people and their use of active finite verbs (as opposed to passive verbs), which again are characteristics of both Sweet and Tough talk. Both of these categories are traits of everyday conversational patterns because we generally speak of *people doing* rather than of *things being.* Consider Comment 3 of the Benson.CAREER proposal: "Since you've eliminated these items, [I] removed the second mention of Michelin as well." This comment has both a human subject and an active finite verb, which creates a personal connection between the editor and writer. The editor could have taken a more impersonal approach through passive verb and neuter subject usage, both of which mark more formal (Stuffy) writing; however, this would have taken away from intimate relationship he is trying to create.

Rewriting the previous comment in passive voice with a neuter subject (i.e., "Since these items have been eliminated, the second mention of Michelin should be removed as well") clearly demonstrates this point. Not only does this revised sentence create a much more formal, distant relationship between the writer and editor, it also eliminates the personal quality of the conversation at hand. Instead of two people discussing what actions they took, the revised version creates a sense of actions merely being done without human intervention. In a sense, the humans are erased. As such, the editors' choice to avoid using passive voice and instead address authors in active voice strengthens the intimate relationship created by their use of colloquial language.

Finally, the informal communication and intimacy between editor and writer in both Tough and Sweet talk is created through the editors' avoidance of excessive subordination and their use of contractions and fragments. When speaking to someone familiar, most individuals use short sentences with minimal subordination in order to clearly articulate their ideas. In addition, subordination also involves evaluations; based on syntactical structure, information placed in the main clause will appear to be more important than information placed in the subordinate clause. Therefore, to make clear comments and avoid this issue of evaluation, the editors tend to use simple and compound sentence structures, as opposed to complex and compound complex sentences. Take for example Comment 23 of the Mae.AHA proposal: "in the figure, terms used in descriptions 1, 2, and 3 are inconsistently capitalized. Suggest capitalizing only the first word in each phrase." When examining this sentence, the writer gains a sense that Mae is sitting right next to him/her pointing to the text as she makes her suggestion.

However, if this comment is rewritten to create more complicated sentence structures, it becomes more verbose and more difficult to read, and it loses that sense of closeness that the simple syntactical structure created: "In the figure, the terms used in descriptions 1, 2, and 3 are inconsistently capitalized, so I suggest that you capitalize only the first word in each phase in order to remain consistent."[4] Such a revision makes this sentence less conversational: this is simply not how people talk in everyday situations. The result of choosing such complex sentence structures could negatively affect the

[4] Obviously, this revised comment and the one in the following paragraph are not exemplar of how a person would generally go about making a suggestion. They are merely examples of how heavy subordination can affect a reader's perception and understanding.

intimate, trusting relationship the editor needs to develop to effectively convey his/her argument. In addition, if the editors chose to write with heavy subordination, their use of the other colloquial language characteristics described above would seem out of place in such formal syntactical structures; for instance, it may seem odd for the editor to use fragments in such complex sentences, but using fragments in simpler sentence constructions adds to the conversational tone. As such, the editors' use of simple sentences is effective in strengthening intimate, personal relationships with writers.

In addition to taking away from the conversational tone of an editor's comments, heavy subordination also seems to make their recommendations more difficult to decipher quickly. For instance, in Comment 12 of the Benson.CAREER proposal, the editor writes: "Recommend explaining PEER and WISE since they definitely work with underrepresented groups—only a line or two, ties into comment 10." If this sentence is rewritten to have more subordination, its verbosity makes it more difficult for the author to determine quickly what revisions the editor is suggesting: "I recommend that you explain in a line or two what PEER and WISE are since they definitely work with underrepresented groups, which ties into what I said in comment 10." The more complex comment, with its heavy subordination, full sentences, and increased number of prepositional phrases, makes it more difficult for the author to identify the editor's suggestions. In the original comment, the author clearly makes a suggestion for revision, explains the reasoning behind the suggestion, and explains how to incorporate the revision; each of these components is easily identifiable. However, in the revised version of this comment, the suggestions about how to revise this section and how it ties into

Comment 10 are embedded in the sentence. Therefore, the editors' choice for using simple sentences not only adds to the conversation-like tone of their comments but also makes their suggestions easier to identify and thus implement.

The editors' use of contractions also makes their comments seem more conversational. In Comment 3 of the Benson.MEM proposal the editor writes: "What's the dif?" This comment, with the contraction and the abbreviation of *difference*, "echoes speech patterns" (131) as Gibson says, making it seem like the editor is actually there talking to the writer. The editors' use of sentence fragments, or "groups of words punctuated as sentence, but lacking a subject or a verb or both," (131) also contributes to the apparent open conversation between the editor and writer. Many of the editors' comments were comprised of sentence fragments: "Best to remove…" (Benson.CAREER, Comment 14), "since you asked for a synonym" (Mae.NIH.2, Comment 31), or "moved text to be near similar text, above" (Mae.AHA, Comment 8), just to mention a few. These fragments[5], like minimal subordination and contraction usage, are common to everyday informal speech. Because the editors feel a sense of intimacy with the writer, they do not go out of their way to formalize their speech. They assume that the writer will be very familiar with the document and will therefore know exactly what they mean in their comments; as such, they do not feel as though they have to use complete sentences or formal language to convey that meaning.

[5] It is also likely that editors choose to use sentence fragments due to the limited space provided in comment boxes. While Microsoft Word does not limit how much an editor can write in the comment box, both Benson and Mae generally kept their comments short, probably due to time considerations and because lengthy comments become difficult to write and see in the small comment boxes.

The intimacy that the editors create with the engineer writers contributes to their ability to convince them to accept the revisions. Obviously, proposal writing is a serious activity that needs to be approached with a certain level of gravity and professionalism; however, using a more formal language style could make the editor come across as being pompous and overly verbose with how he/she conveys his/her knowledge and expertise. If, as result of a more formal style, the engineer writer feels that the editor is merely being pretentious, he/she may simply ignore the comments. In addition, a more formal style marked by long-winded wordage and complex subordination may make the editor's arguments unclear, which again may lead to the writer simply ignoring the suggestions. The editors' more informal tone, however, enables them to impart their knowledge non-confrontationally in a clear and understandable way.

Although both the Tough talker and the Sweet talker use colloquial language to create an intimate relationship with their reader, the intimacy each creates is slightly different: the Tough talker creates a tense intimacy with his reader that is focused on his/her own needs, while the Sweet talker creates a welcoming intimacy that is based on the reader's needs. In these analyses, this difference in intimacy was caused by the editors' use of more Tough or Sweet style characteristics when constructing certain parts of their comments.

The Sweet Talker

The Sweet talker creates a welcoming intimacy with his/her reader in which the reader's needs and concerns are put first. As Gibson says, the Sweet talker writes "as if

he knows [the reader] exceedingly well" (76) and "may use rhetorical devices of informal speech…to secure [this] intimacy" (85). In these proposals in particular, the editors' Sweet style is apparent in their use of informal punctuation, monosyllabic words, questions, second-person pronouns, and modal auxiliaries.

Because traditional modes of writing limit a writer's ability to mimic conversational speech, both Benson and Mae adopt the more informal writing strategies characteristic of the Sweet style in order to sound as though they are actually engaged in a conversation with the engineer writers. In particular, the editors' use of punctuation (namely dashes), monosyllabic words, and questions create this close conversation-like feel in terms of the language they choose for developing their comments.

According to Gibson, "The liberal use of the dash gives an effect of breathlessness—literally a characteristic of an actual speaking voice…furthermore, relations between parts of a sentence connected by dashes remain logically in the air, another characteristic of our elliptical and loose syntax in conversation" (133). As such, the editor's use of dashes echoes the sound of informal discourse, such as in Comment 5 of the Benson.CAREER proposal: "Always best to refrain from 'if' usage—weak word again, conveys doubt that you can do what you say you'll do." The dash, in conjunction with the contraction and the sentence fragments previously discussed, makes it seem like the editor is actively engaged in a personal conversation with the author, almost like he is sitting right next to the writer and referencing the text as he speaks.

In addition, the majority of words in the editors' comment (like in the comment above) are monosyllabic, which again reflects the colloquial aspect of the editors' speech.

In informal, everyday conversation, people are generally less verbose and tend to employ simple vocabulary as opposed to multisyllabic and/or complex words. In fact, a great deal of the multi-syllabic words the editors use in their comments come directly from the engineer writers' proposals; the editors use these words simply because they must in order to effectively comment on the text at hand. For example, in Comment 3 of the Mae.AHA proposal, the editor writes: "You first use both PLA and polylactic acid nanoparticles on page 5. Polylactic acid nanoparticles is not used again." In this comment, like in many of the editors' other comments, the only words with more than two syllables (i.e., *polylactic* and *nanoparticles*) directly reference the author's text. The rest of the comment is comprised of predominately monosyllabic words and a few disyllabic words. These simpler words, which are more common to everyday conversation, are more effective in conveying the editors' concerns and are also easier for the writers to comprehend. Thus, the editors' use of simple, monosyllabic words characteristic of the Sweet style is yet another way that they create an intimate, familiar relationship with writers in which the editor shares his/her knowledge and the author's needs are considered as well.

The editors' use of questions also adds to the conversation-like feel of their comments. As Gibson states "More than any other mark of end-punctuation the question mark engages the assumed reader directly" (134). In addition to engaging writers, by asking them questions directly, the editors are reinforcing the idea that they care about the authors' input and opinions, such as in Comment 7 of the Benson.MEM proposal: "Maybe your could drop this sentence? It's best for tasks to be independent of one

another (e.g. what happens if you have difficulties with 1 and 2?—is that a showstopper?)" Not only is the editor speaking directly to writer, but by writing "maybe" he is also soliciting the writer's feedback. In addition, the parentheses and dash in this sentence add to the closeness created by this sentence: the parentheses make it seem like the editor is whispering a secret to the writer, and the dash echoes the breath-like feel of everyday conversation.

Questions also make the writer feel as though the editor is present, soliciting feedback about various questions he/she had while revising the proposal. For example, in Comment 24 of the Mae.NIH.2 proposal, the editor asks "is this name correct?" and then explains that she "can't find in on the Internet." In this case, the editor needs to solicit the writer's feedback in order to determine the proper spelling of a product because her other resource for doing so (i.e., the Internet) is insufficient. Comment 19 of the Mae.NIH.1 proposal is similar. In the text, the engineer writer wrote "This represents not a competing, but a complementary approach, as investigated in Aim 3." In response to this text, the editor asks "Complementary to what?" Again, the editor needs the author to share his/her knowledge about this particular piece of text in order to revise it for clarity because Mae does not have the technical knowledge to do so on her own.

This also relates to the function of questions in the Toulmin et al. analyses, in which questions take on the form of a rebuttal to the editor's warrants or claims. Being asked such questions directly signals to the reader that the editor is unsure about the particular claim he/she is making and that, depending on the answer to the question, the

author him/herself has to make the ultimate editorial decision because the editor does not have enough information to do so.

Although the editors frequently comment on their own thoughts and actions, they also concentrate a great deal on the writers, addressing them directly through the use of "you." For example, in Comment 5 of the Benson.MEM proposal, the editor writes a rather long comment in which he uses both first- and second-person pronouns:

> The first version was a little vague; [I] tried to clarify this and this sounds correct as differing from the other two tasks, but [I] wanted you to see it. Also, in the subsequent sentences, can there be more than one unit per district? I changed that too under the supposition that most EMT fixed assets have several ambulances, but because you refer to single unites more than once, [I] am not sure.

While the first-person pronouns are characteristic of the Tough style and generally make the editor's speech seem self-centered[6], the editor's use of "you" here and the content of this comment show that Benson is more concerned about the author's thoughts and choices regarding the text this comment references and not so much on his own. Using second-person pronouns and addressing the author directly enable the editor to show that the author is the ultimate decision maker in the proposal writing situation and that his/her technical knowledge of the content is superior than the editor's.

[6] When writing an editorial comment, it is often difficult for an editor not to include him/herself specifically, especially when he/she is conveying an opinion. As a result, it is difficult to find a comment without any personal reference on the editors' part. This particular comment was chosen because, although it does contain first-person pronouns, many of those first-person pronouns were not directly written, but were implied. Additionally, in this comment, it is clear that the editor is more concerned with the writer's opinion as opposed to his own.

It is also interesting that the editor did not actually write "I" in this comment but merely implied it, even though he obviously revised the text and is stating his uncertainty. Again, this seems to relate to his desire to concentrate on the writer's concerns and less so on his own. So, in this particular comment, the editor's use of "I" merely described what steps he took but had nothing to do with his knowledge, whereas his use of "you" engaged the writer and demonstrated that he/she had the ultimate authority. This use of "you" may be especially important when editing engineers' documents, as the literature suggests that they are particular wary to implement revisions suggested by a "non-expert," or someone outside of their technical field. However, by focusing the comment around the writer's needs and demonstrating that the change will improve his/her writing or credibility, the editor can suggest revisions in an effective manner. At the same time, the editor is the writing expert and thus needs to do his/her job to improve the document; therefore, the editor needs to balance this "you-centered" aspect of Sweet talk with the more "me-centered" aspect of Tough talk in order for engineer writers to accept sound claims and warrants.

In addition, the editor's use of modal auxiliaries[7] and qualifiers, also discussed by Toulmin et al., also adds to this focus on the writer's needs. As Gibson says, modal auxiliaries "express some kind of attitude (it has been called 'emotional') toward the action that the verb names" (122). Through their comments, the editors' attitude reveals that they are concerned about the writers' opinion: "[You] *may* need to…," "[You] *might* want to…," "*Can* anything else be unbolded," etc. Although the editors are ultimately

[7] I.e., may, might, can, could, would, should, must, and ought.

making suggestions about what they believe the writer should do, through their use of modal auxiliaries, it appears that they are leaving the final decision up to the writers themselves, which, in turn, most likely makes editors' arguments more appealing to writers, as they are given a voice in the decision making process.

Modal qualifiers have a similar affect on the editors' comments. Take, for example, the following comments: "We *probably* should...," or "Montessori is *generally* perceived..." When modals like these are omitted, the editors' tone becomes much more demanding: the comments "You need to…," "You want to…," "We should," and "Montessori is…" are all much more straightforward; however, they may also come across as being overly harsh, possibly making the authors feel as though the editor is trying to force them to take actions or think in a particular way.

Clearly, the modals enable editors to develop their arguments without coming across as tyrannical or overstepping their role in the author/editor relationship. Again, this may be particularly crucial when working with engineers, or subject matter experts, as they often believe that the way something is written does not affect its meaning. If editors create their arguments with modals (which imply that their claims could be wrong in the end), their tone may be more persuasive than if they give direct commands. Thus, when editors create arguments to convince writers to accept their revisions, it seems advisable that they use modal qualifiers whenever they can. Again, doing so allows them to convey their suggestions as to how the text should be changed but also allows the author to know that the claims *could* be wrong and that ultimate decision is his/hers.

The more personal relationship that the editors' use of Sweet talk creates is very important as they try to convince writers to accept their arguments for revision. By creating the impression that they do in fact care about what the writers have to say, the editors seem to engage the authors in the revision process more actively, allowing them to provide their input and knowledge. When individuals feel that their input will be positively accepted in any given situation, they are much more likely to participate reciprocally in the activity at hand. In addition, the editors' use of modals also allows them to demonstrate that they are aware that some of their claims may be incorrect and that the writer's advanced technical knowledge is necessary to prevent errors from being introduced into the text. As such, if writers feel that they have a say in what the editor is revising, that the editor actually values their opinion, and that their counter-arguments to the editor's claims will be acknowledged, it is likely that they will be more open to the editor's arguments and accept more of the revisions.

The Tough Talker

While the Sweet talker creates a more welcoming, reader-centered relationship with his/her audience, the Tough talker's intimacy with his/her reader is based on assumed shared knowledge and centers on the editor's goals, knowledge, and concerns. The editor's use of "to be" forms of finite verbs, first-person pronouns, and modifiers, are distinct to the Tough talker. According to Gibson, the Tough talker puts the reader in a position "where he is expected to assume that he does know what the speaker is talking about…as if, for the assumed reader, a conversation had been going on before he opened

the book [or proposal in this case], a conversations that lad the groundwork for all this assumed intimacy" (38). Because of this assumed closeness and common knowledge with the reader, the Tough talker uses a simple style and does not go out of his way to explain every detail about what he is discussing, nor does he flourish his language with modifiers. This aspect of Tough talk can be seen in several of the editor's comments. For instance, in Comment 3 of the Benson.CAREER proposal, the editor writes "Since you've eliminated these items, [I] removed the second mention of Michelin as well." Anyone other than the writer of this piece would be confused as to what "these items" refers to[8]; however, because the editor feels a sense of close intimacy with the writer, he believes that the writer will know exactly what he is talking about. Thus, as the Tough talker, the editor does not bother to explain what "these items" refers to; he merely expects the writer to know. The writer is "reminded that the narrator [the editor in this case] knows [him/her], speaks familiarly, doesn't in fact go out of his way" (Gibson 35).

Because the editors frequently chose to use "to be"[9] forms of finite verbs and first-person pronouns, the intimacy they create with the writers is quite often focused on their own knowledge. By using "to be" forms of finite verbs, the editors leave no room for the writer's counter-arguments. Take, for example, Comment 7 in Mae.NIH.1 proposal: "it's easier to read the main words if all words are not underlined," or Comment 12 in the Benson.DARPA proposal: "Chicago Manual plural for edited by is eds." Through the editors' use of "is" in both cases, they make it appear that the knowledge

[8] In this case, the comment box does not point to the text being referred to the way Word's Comment function ordinarily does. Thus, this example is probably the exception rather than the rule.
[9] E.g., "You *are* good," "the plane *is* small."

they impart is the absolute truth and that alternative ideas are ultimately wrong. In the second case, the knowledge the Benson provides is certifiable: if the author questions this statement, he/she can reference the *Chicago Manual of Style.*

However, the first comment, is not certifiable but is based on opinion, so the editor is ultimately trying to show that *her* opinion in this case *is* true. In this case, Mae could have qualified this statement by saying "*For most individuals,* it's easier to read…" or "*generally,* it's easier to read…,"but doing so would take away from Mae's assertion of *her* own expert writing knowledge. The editors' ability to focus comments around their knowledge and intentions may be particularly important when working with engineers, who often want reasons behind the changes editors make. If the editor can describe why he/she made the change in a strong manner, then engineer writers may be more willing to heed the comment's advice, as they believe the editor's revision is well grounded. As the literature suggested, engineers respect editors who can edit effectively *and* who can explain why they make the changes they do.

This finding of my Gibson analyses relates directly to my discussion of opinion-based warrants that initially seem to lead to unsuccessful arguments but will most likely result in engineer writers accepting the editors' claims. While engineer writers prefer evidenced-based facts and explanations as opposed to those based only on personal opinion, there are instances when editors face time and space constraints that limit their ability to provide theory- or handbook-based explanations for their revisions. In addition, there are also cases when editors may simply base their revisions on the practical knowledge they have gained through years of experience; thus, in such cases, it is likely

that they do not have a definitive source from which they can develop the warrant to support certain claims. In most of these instances, because editors are language experts, engineer writers may accept changes and explanations even when editors do not provide substantiated warrants for their revisions. That being said, however, editors should also realize that their audience, in this case engineers, may not value or rely on just their opinion, so such arguments may fail in the end.

This seemingly self-centered presentation of the editors' knowledge is also apparent in their use of the first-person pronoun, "I." The use of "I" makes it appear that the editors believe that their actions and thoughts are more important than the writer's. This idea is seen in several of the editors' comments: "I added…," "I took out…," "I have…," "I made…," I thought…," and so on. In each of these instances, the editor seems to reveal "himself to be more concerned with his own attitudes and feelings" (119) and less so with the writer's. However, the use of first-person pronouns is necessary for the editors to discuss the changes they made with the author in addition to their opinions and feelings about the text. It is likely that writers will not be put off by the editors' use of "I" in these comments because the writers are asking for the editors' assistance and thus expect their opinions in the form of "I" statements. The editors' use of "I" does revolve around their knowledge and opinions, but combining this particular aspect with the "You-Talk" of the Sweet style enables the editor to argue for changes without becoming too intrusive on the writer's "you." This way of speaking is simply based on the editor's authority in the writing situation, which is formed from his/her language and writing expertise.

Although Gibson seems to believe that the Tough talker is a bit forceful and self-centered, the editors' use of the Tough style is necessary for them to share their knowledge with the writer. By using "to be" finite verbs and centering their comments around their own knowledge, editors can tacitly demonstrate to the author that they know what they are talking about without having to provide excessive explanations or constantly justify their actions with excessive warrants. This, in turn, may give the writer more confidence in the editors' ability, which, as discussed before, is essential for creating author/editor relationships in which the writer heeds the editor's revisionary advice.

At the same time, however, by using such forceful language and centering their comments on their own thoughts and attitudes, editors risk pushing writers too far out of the decision-making process and even offending them, which could result in the writers ignoring or rejecting suggestions and arguments that could greatly improve their documents. Therefore, editors should also implement various features of Sweet talk in order to balance their claims with the writers' opinions and concerns, which will be discussed in the Chapter 5.

Chapter 5

Concluding My Argument on the Comment Box

The Toulmin and Gibson analyses of the comments in these six proposals revealed many interesting characteristics about the relationship between the CoES technical editors and the six engineers they worked with. These analyses reveal the main stylistic choices and argumentative strategies that two successful editors[1] in academic proposal writing environments utilize, whether consciously or unconsciously, to develop relationships with the writers they work with and reason for revisions. The main point that current and prospective editors should take away from these analyses is that writing effective comments and arguing for change is about balance: balance between concentrating on one's own needs and beliefs and those of the writer, between sharing one's own language expertise and knowledge and knowing when to ask questions, and balance between using conversational speech and providing quality suggestions. More importantly, however, there needs to be balance between warrants grounded in the engineers' assumption and in the editors' ethos established in the language they use to create relationships with writers.

Creating this balance will ultimately help editors to create successful arguments and have the writers they work with accept those arguments. Balancing Tough and Sweet talk allows editors to share the knowledge and skills they have developed as language experts in a non-threatening way such that writers will heed their advice but still

[1] We can assume that they are in fact successful because 1) writers return to these editors recurrently for advice of their own free will and 2) they have edited proposals that have been funded, some of which received million-dollar grants. This will be discussed further in this chapter in the Limitations section.

feel as though they are a part of the writing process. Benson and Mae's use of both Tough and Sweet talk, both of which are characterized by intimacy with the author and a conversation-like tone, allowed them to develop close, yet comfortable, relationships with the engineer writers in order to provide the conditions that seemed to allow for equal contributions for both parties. The characteristics of Tough talk, which center around editors' expertise and attitudes, allow editors to state warrants and claims in a way that demonstrates that they are the language experts and have the resources necessary to make the writers' prose most effective. The characteristics of Sweet talk, on the other hand, allow the editors to demonstrate to the writers that they are still an important part of the writing process and that the editors value their opinions in the argument. In addition, Sweet talk enables editors to qualify their comments (especially through the use of modals) such that the writer knows that he/she is the content expert and that the editor's claims could ultimately be wrong. Thus, the balance between both Sweet and Tough talk sets up the relationship and conditions editors need in order to have the writers they work with accept their sound arguments and implement their suggestions.

Style as Part of a Successful Argument

Both the Toulmin et al. and Gibson analyses independently provide a great deal of insight into how editors develop arguments for their revisions and how they create successful relationships with writers, respectively; however, when taken together a more substantial finding emerges: the stylistic choices editors use when developing their

comments actually become an important part of how they create successful arguments that result in writers accepting and implementing their suggestions for revisions. Style essentially becomes an unstated warrant in itself. As these analyses have revealed, this stylistic influence is particularly evident when editors develop arguments based solely on their opinions and on the practical knowledge that they have gained from years of experience. This finding is extremely significant because editors frequently encounter situations in which they realize a writer's text needs to be revised but know that they cannot provide the theory- or handbook-based warrants necessary to convince logical-/objectivist-minded writers that their claim is valid. This research reveals that when editors combine the characteristics of the Sweet and Tough styles discussed in Chapter 4, they can create successful arguments (opinion-based or otherwise) that seem to provide a firmer basis with which editors can share their knowledge effectively and persuade writers to accept their changes.

What Editors Can Learn

As the literature suggested in Chapter 2, engineers have specific goals in mind when they create a document; however, it may take a technical editor for engineers to fully realize their persuasive potential. For novice engineers, the editor might make the overall writing process seem less tedious by providing overall guidance, examples, and corrections. For the more experienced engineer writer, the technical editor may serve as a final reviewer before the document is sent out for a more formal review. In any case,

however, argumentation and style are important aspects of editing. Therefore, the findings from this thesis can also be applied practically when editing for engineers and other technical writers. The following two sub-sections reveal these practical implications.

What Editors Can Learn From Toulmin et al.

Firstly, the Toulmin analysis revealed what strategies editors take when they develop successful arguments and what factors seem to make their argumentative suggestions less successful. Learning from this analysis, editorials students and even current editors should remember the following major points:

- Use the three-part comment structure whenever possible: provide the ground, warrant, and claim for each argument made, especially when establishing new author/editor relationships.
- Provide clear and accurate warrants; providing faulty warrants may diminish an author's trust.
- Make sure that comments are not arguing for revisions that introduce errors into the text; again, this may diminish the author's trust in the editor's knowledge and abilities.
- Provide clear claims so the writer will know exactly how to change the text; writing unclear comments may leave authors frustrated and confused.
- Make sure that the comments refer directly to the text they reference; again, not doing so may leave writers confused and frustrated.

Each of these points can be easily implemented into the editorial process. At first, editors may need to take more time to review their comments to ensure that they have addressed all of these points when arguing for revisions. However, after several rounds of actively checking for and amending these issues in their comments, it is likely that the editor will internalize these points and create successful arguments from the onset.

What Editors Can Learn from Gibson

While the Toulmin et al. analyses revealed the argumentative characteristics of editor's comments, the Gibson analysis uncovered several useful features about the language editors use to communicate with editors and how that language builds relationships with writers. The following list includes the language characteristics that lead to successful[2] working relationships with authors as evidenced by the two CoES editors at Clemson:

- Use a conversational tone when writing author queries, including the use of one-syllable words, simple sentence structures, personal pronouns, active voice, subjects referring to people, sentence fragments, contractions, and informal punctuation.
- Avoid using overly formal language marked by a high number of polysyllabic words, passive voice, subjects referring to objects, and heavy subordination.

[2] Again, it can be assumed that the relationships between the CoES editors and the writers at hand are successful because the writers have voluntarily had several of their pieces revised by these two editors.

- Balance the use of first- and second-person narrative voice in order to convey your motivations, suggestions, and concerns, while acknowledging the author's concerns and expertise.
- Use modal modifiers and verbs when you are unsure about the necessity of a revision.
- Use language and ask questions that actively engage the writer, so he/she feels included in the revisionary process.
- When creating comments based more on your practical knowledge, experience, or opinion, balance your concerns and attitudes with those of the writer by adopting the characteristics of Sweet and Tough talk.

Limitations

While the results of this thesis will can help current and future editors in the technical editing field, there are also some limitations to this study that may hinder its applicability and generalizability to some extent. Probably the biggest limitation to this study is that the corpus of material was rather small and came from only two technical editors. In an ideal situation, a larger sample of technical editors and their respective proposals would have been available from which to choose, but there were few technical editors who were willing to subject their proposals to analyses. In addition, the limited scope of this paper made it impossible to look at documents other than technical proposals; however, it is possible that analyses based on comments from other documents could reveal findings different from those of this thesis.

Another major limitation to this study was the inability to determine which revisions the engineer writers implemented and which they ignored. Because of the limited scope of this thesis, conducting interviews with the engineering writers was beyond the means of this study; however, it would have been interesting to examine what engineering writers do when confronted with a comment, how they interpret editors' arguments, and how they interpret the editors' particular language choices.

Next, the proposals that were analyzed came only from native English speakers from Clemson's College of Engineering and Science, which makes one wonder if comments directed to non-native English speakers would have similar characteristics as those from this study. Finally, this study has limited formal inter-rater reliability because no one available had a strong grasp of *both* the Gibson and Toulmin analyses techniques; as such, it was impossible for a novice analyzer to develop enough familiarity with these techniques to complete full analyses and obtain accurate results. That being said, many individuals did review this work closely to ensure that the findings were sound. These analyses have revealed several results that are both generalizeble and transportable to other technical editors and documents. And it is likely that if similar studies were undertaken, they would reveal findings similar to those in this study as a result of the objectivity inherent in these particular methods of analyses themselves.[3]

[3] Toulmin et al.'s analysis is based on the diagramming of logic, Gibson's on a statistical breakdown of grammatical categories.

Future Research

This thesis has provided several useful suggestions that both novice and practiced editors can implement when querying authors; however, as this is only a pilot study, a great deal of research relating to this work could also benefit the technical editing field. The next step in this research would be expanding the analysis corpus to include editors from other technical fields and more types of proposals. If the results such studies are similar, they would make the results from this study and those from future studies sounder and thus more generalizable. In addition, the method I developed for this thesis could eventually go beyond comments from proposals to include queries from other genres, such as research articles, books, letters, and other technical documents and could even expand to include editorial comments from non-technical editors in traditional publishing houses or magazines.

Additionally, because of the influx of non-native English speakers in technical fields, it would be beneficial to study proposals and other documents from non-native English speakers to determine if these same principles apply to these writers or if the analyses reveal a whole other set of guidelines for working with such individuals. Finally, gaining first-hand information about the findings from this research from both editors and writers involved in the editorial process would further enhance the results from this thesis. Namely, interviews from these two parties, within the limits of interview protocols and human consciousness, could confirm the results obtained here and reveal other valuable characteristics of argumentation and relationship development in the comment box that these more formal analyses could not uncover. Nevertheless,

this research has provided the foundation for other studies attempting to unveil the complicated features behind developing successful author queries. More importantly, the results of these analyses provide student editors with some theoretically-based, yet practical, methods for developing successful author queries, creating effective tactful arguments, and building trusting author/editor relationships.

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Appendix A

Editors' Comments

Mae.NIH.1[1]

1. I took out the double spaes after periods. I will put the doubles back in if you prefer.
2. Check meaning; I deleted "primarily." The revised statement's true, but may not have the emphasis you want.
3. "changing demographic trends resulting in"—these trends are a reflection, not a cause, right?
4. need to rewrite for coherence, but i think your ltg needs to be stated here
5. i have a question about clarity
6. not sure from the discussion above what the other *essential* characteristics are
7. it's easier to read the main words if all words are not underlined
8. try not to use "significant" in scientific/medical writing unless the reference is to statistical significance
9. great usage of this term
10. to make parallel with subsequent phrase
11. need some punctuation here; not sure this is it
12. since the study is so old?
13. would be less distracting if we could use the same tense throughout
14. did not check image since it was moving around
15. "last" is slightly negative
16. Do we need this definition? If the reviewers know SMAD, won't they know RNAi?
17. Does this refer to RNAi (not the process)? May need to make the text a little clearer.
18. Don't use a colon separate a verb from its complement, esp. when the bullets make it very clear that this is a list. I changed the bullets to numbers to avoid the redundancy of bullets and numbered aims
19. complementary to what?
20. don't need to qualify your search; they know when it had to have been conducted
21. need to talk about this section; need to make a clearer case for "WOW!"

[1] All of the comments are written as the editor wrote them in the proposals. Any errors were in the original comments.

22. may want to get an opinion about this; probably need to state a little more positively
23. this is very good; we probably should highlight it in some way

---

Mae.NIH.2

1. Reviewers could read this more quickly with some changes that apply to any closely written text:
   ----use parentheses to enclose one or more words; when used for numerals or single letters, especially in text blocks, they detract from readability by increasing clutter
   ----format key figure letters in bold; parentheses here decrease readability
   ----don't bold complete sentences within a text block
   ----in figure text, place the key letters prior to the related text, so readers know where to look when they're reading
2. *vibratory groups; vibratory sample groups*: use the same term consistently throughout. Also, use the plural consistently—*group, groups*
3. if you accepted the paragraph indentations to .3, make this change throughout
4. check period usage with citations
5. Still too much bolding, esp on this line; can anything else be unbolded?
6. i removed a period and space in the title of the figure to match this usage
7. period usage is inconsistent in text under figures. See 2B
8. spaces around "/" make it more difficult to read quickly
9. comma between full sentences
10. In all figures, increase ease of reading and the reader's ability to switch between the text and the figure, by
    ----formatting figure letters in bold (but not italic) as in Figure 10 below; parentheses here decrease readability
    ----placing the letters prior to the related text (period is optional), so that readers know where to look when they're reading
11. Is *relatively* necessary? If so, relative to what? *In general relatively*
12. better not to use this word in proposals unless you support the claim; alternative: *notably*
13. easier to understand if we know what we're reading about *before* we read details
14. no comma because the adjectives can't be interchanged
15. do we also want to put this earlier per our conversation yesterday?
16. Next time, change Fig. 7 so that *fibromodulin* is capitalized (to parallel the rest of the list)
17. needed ";" or "and"; comma alone is incorrect
18. just wanted to point this out; I know this is how chemists write

19. These two sentences succinctly describe some of what you want to say in the intro.
20. With the revised bolding, the sentence can be read more easily and quickly. Remember, reviewers don't *want* to read every word, and any reader with a PhD will not *need* to read every word
21. must have this comma or write "*the* increased MMP/decreased TIMP expression"
22. because you don't want to appear to assume that it definitely alters one of these, right?
23. the flowchart is not experimental
24. is this name correct? I can't find it on the Web
25. I made regularizing changes in text accompanying most of the figures in this proposal; if you approve, please paste the changed text into the final version
26. " is correct, not '
27. "from" carries the meaning; don't need "instead"
28. these are en dashes
29. "vibratory" is used in the Aims, and I think it was the usage chosen for the manuscripts
30. italicization of these terms is inconsistent throughout
31. since you asked for a synonym
32. do you want to say he's professor of cell biology?
33. don't use "greater than" symbol unless it has a special meaning here
34. periods *always* inside quotation marks
35. visually easier to follow the series if the numerals are not underlined
36. need "1" and "1.1"
37. second set of parentheses should be "[ ]"
38. better coherence
39. sentence needs a verb
40. no capitals unless referring to Promoter Extraction from GenBank (PEG), right?

Mae.AHA

1. Turned off Track Changes to replace double spaces after periods with single spaces.
2. check indentations at the beginning of paragraphs; I do not see a pattern
3. You first use both PLA and polylactic acid nanoparticles on page 5. polylactic acid nanoparticles is not used again.
4. check to see if revision is OK with you
5. use Arabic numerals and only 1 parenthesis; doing so makes your numbered text easier for the eye to find when, for example, a reviewer scans the page
6. this transition isn't very coherent. The first several sentences
7. check this transistion and the following paragraph for coherence
8. moved text to be near similar text, above

9. is this strengthened claim OK?
10. many people write previously studied, but it's usually redundant
11. reviewers will still see the unbolded words
12. I think parentheses can sometimes make text more readable than the use of several commas, esp. when terms are lengthy
13. see what you think of this change
14. check meaning
15. check wording
16. check meaning; this change makes a big difference in meaning
17. don't need a hyphen after an "ly" word
18. don't need hyphen if the word modified comes before the modifiers (there are no words following the modifiers, so we can't be confused about which words go together)
19. "preferential" means "to show preference."
20. Check pluralization
21. term is not used again in this text, so I deleted abbreviation
22. check
23. in the figure, terms used in descriptions 1, 2, and 3 are inconsistently capitalized. Suggest capitalizing only the first word in each phrase
24. check meaning; an "amount" of a substance or a "number" of samples
25. i thought the original wording was unclear; not sure if this revision is what you meant
26. if the claim is too strong as revised, place "future" immediately before "development."
27. not sure why the alternative is more efficient? makes it sound like this should have been the primary design
28. check this big change

Benson.DARPA

1. To do what?
2. NSF/NIH standard workbooks suggest using the author/year e.g. (Brooks et al., 2004) citation strategy. Your primary and secondary reviewers will be close enough to your work to recognize citations presented first as author/year. Regardless of suggest familiarity, current citation strategy forces reviewers to "flip" to the citation section and look. It's not really reviewer friendly.

3. Do you mean simple or do you mean not previously subjected to experiment. If simple, suggest a change since this word is usually associated with people, emotions, etc.
4. Might want to change a bit so reviewers know what "this" is.
5. Changed to remove "we" use as a pronoun for the system
6. Try to avoid the pronoun "this" when starting a sentence. It always leads a reviewer to ask what the "this" is.
7. Cliché.
8. Weak phrase
9. Can current applications automatically add their own security attributes for an Application Programming Interface or does a develop need to? Rewrote in the past tense to recover the bases.
10. Best to be gender neutral.
11. Looks like this sentence detailing a simple approach to key assignment works best as a segueway [sic] into a more sophisticated approach.
12. Chicago Manual plural for edited by is eds.
13. Retabulated [sic] employment info—first entry had a hanging indent.

Benson.MEM

1. Don't think this sentence is necessary since you're dealing primarily with medical units. Research you've cited is adequate.
2. Sentence needed clarity but unsure if technically correct
3. What's the dif?
4. By whom? May be good to say.
5. Check this; the original was unclear. Are first responder and unit the same thing?
6. The first version was a little vague; tried to clarify this and this sounds correct as differing from the other two tasks, but wanted you to see it. Also, in the subsequent sentences, can there be more than one unit per district? I changed that too under the supposition that most EMT fixed assets have several ambulances, but because you refer to single units more than once, am not sure.
7. Maybe you could drop this sentence? It's best for tasks to be independent of one another (e.g. what happens if you have difficulties with 1 and 2?—is that a showstopper?)

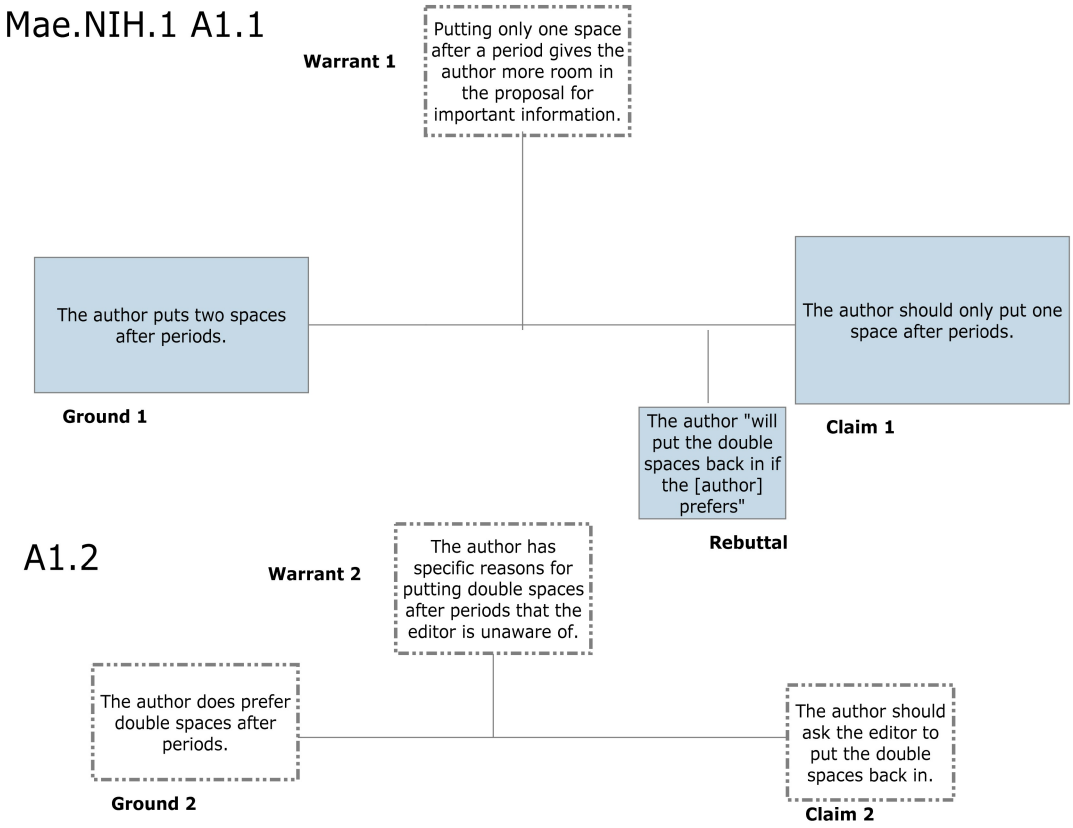
Benson.CAREER

1. Dr. Summers, no need to use e.g. here if this is a citation. NSF/NIH standard workbooks suggest using the author/year e.g. Summers, 2004 citation strategy. Your primary/secondary reviewers will be close enough to your work to recognize citations presented as author/year. However, they will not be able to recognize them unless they flip to the lit cited section. Because this is not user friendly, best to refrain from doing so.Since you're citing yourself some, this is also a clever way to get across the idea that you've done the work being cited.
2. Should is a weak word. Do you plan to investigate how the tool impacts the design process? It sounds like it, so you can simply say will.
3. Since you've eliminated these items, removed the second mention of Michelin as well.
4. FYI: no colons when introducing a series with a verb.
5. Always best to refrain from "if" usage—weak work again, conveys doubt that you can do what you say you'll do. Expected always lets reviewers know you plan to succeed but gives you some "rhythm" in case you do not.
6. Cliché
7. Weak words, "might be". [sic]
8. In scientific writing passive voice is de rigeur [sic], but with proposals it's okay to use "We" when you feel like it.
9. Be detailed about transparency; this sounds like a generality which doesn't convey much. Do you mean that you'll conduct surveys to see if engineers want "total hands-on" control from start to finish?
10. Not sure that this section really hits your underrepresented groups that NSF Career reviewers look for. Montessori is generally perceived to cater to upscale kids. However, on page 2 of the Broader Impacts Merit Criterion, this might be addressed by the quote "certain types of academic institutions". [sic] Maybe a little rewrite on how this work might be targeted to GIRLS/MINORITIES at Montessori could expand your underrepresented groups. ☺
11. [Beginning of comment includes all of comment 10 and then moves into newer comment→] I've read some other work where professors actually bring primary and secondary kids out of the school and into a Clemson lab environment. Since you've got the lab facilities, maybe you could do the same? ☺
12. Recommend explaining PEER and WISE since they definitely work with underrepresented groups—only a line or two, ties into comment 10.
13. Growing pains; Cliché
14. How? Best to remove. Supporting in part or in whole is support, regardless.
15. Tautological. Since you've cited it, no need to say what it agrees with.

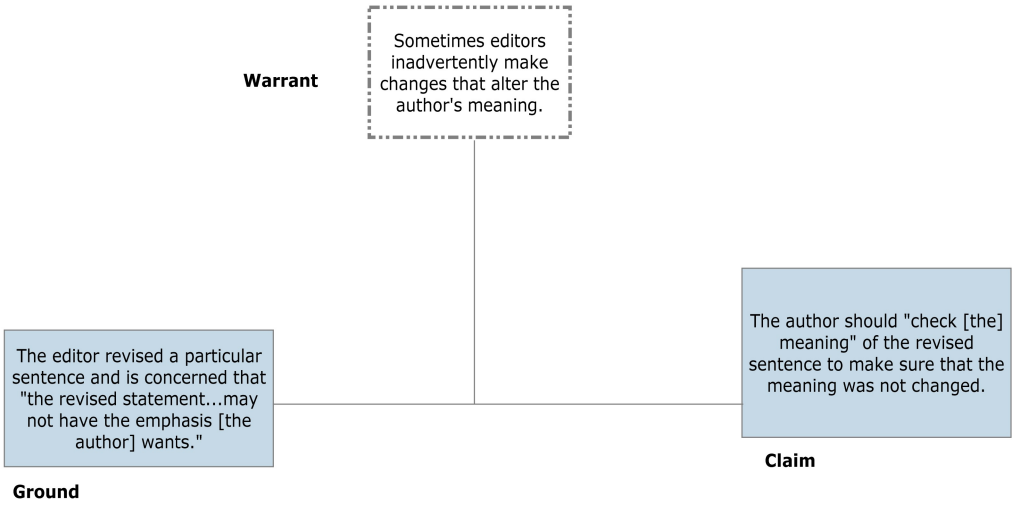
Appendix B

Toulmin Charts for the Editors' Comments

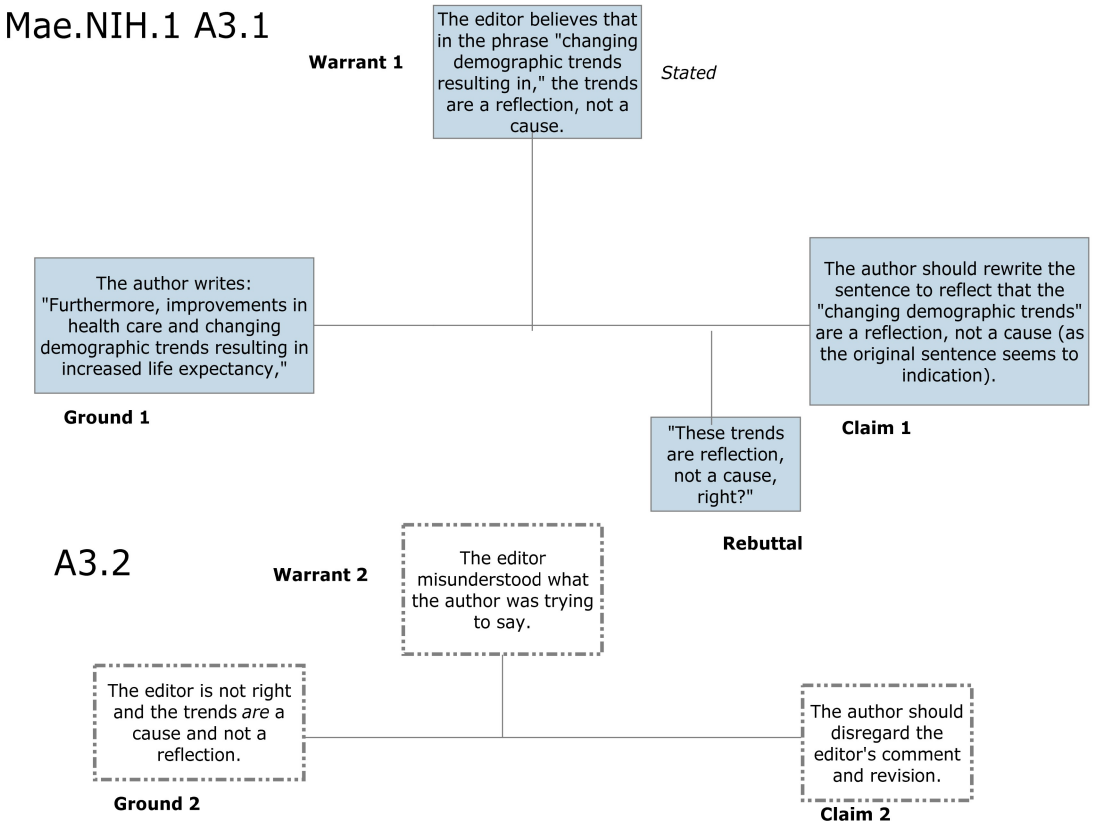
Mae.NIH



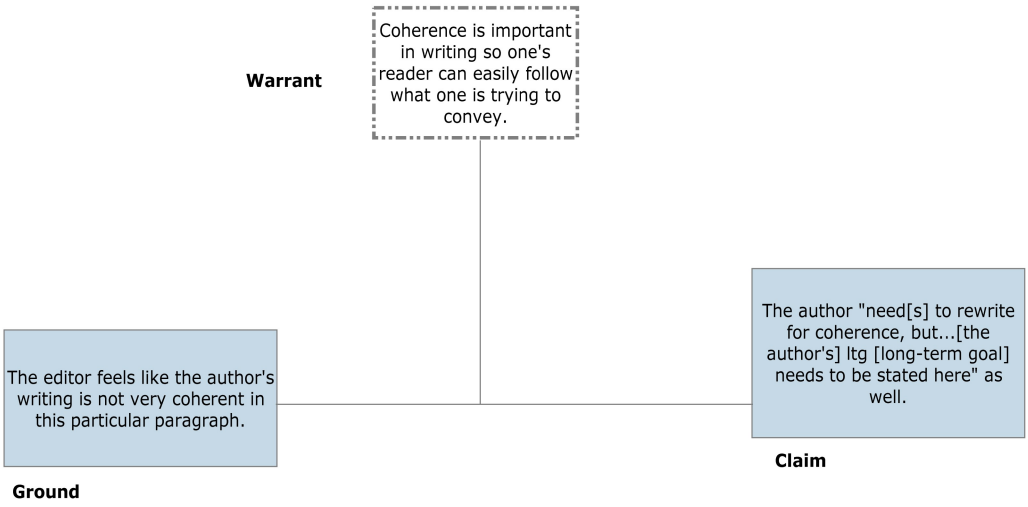
Mae.NIH.1 A2



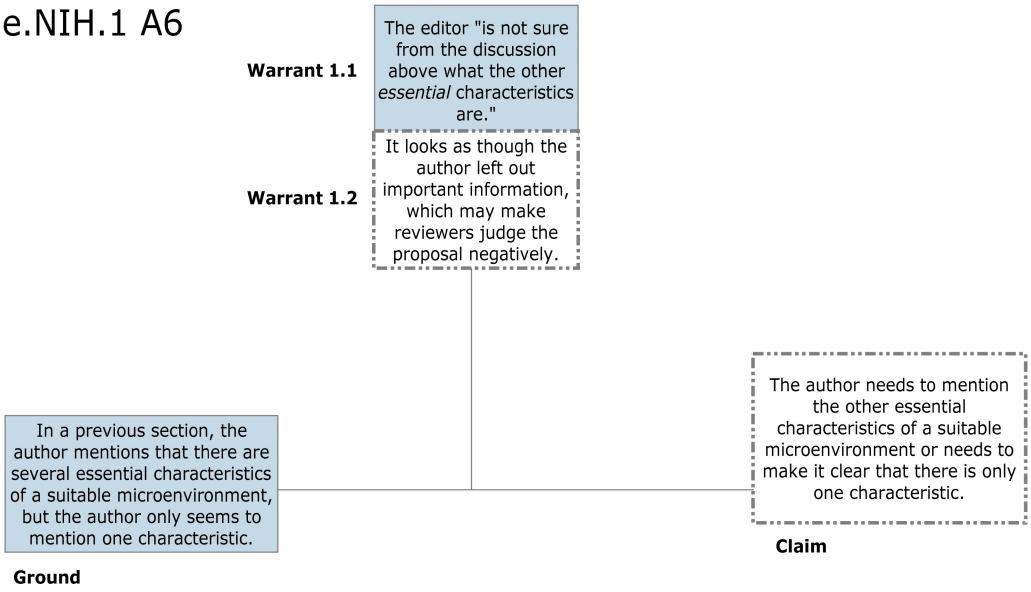
Mae.NIH.1 A3.1



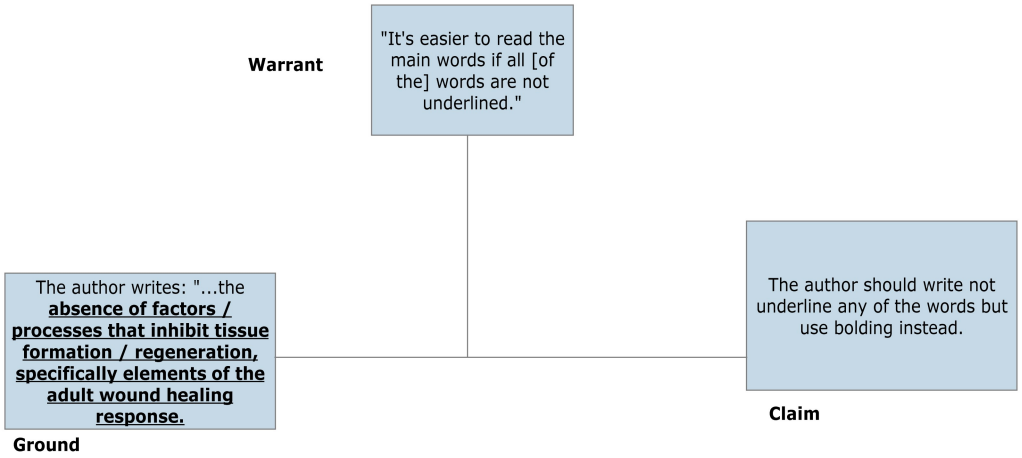
Mae.NIH.1 A4



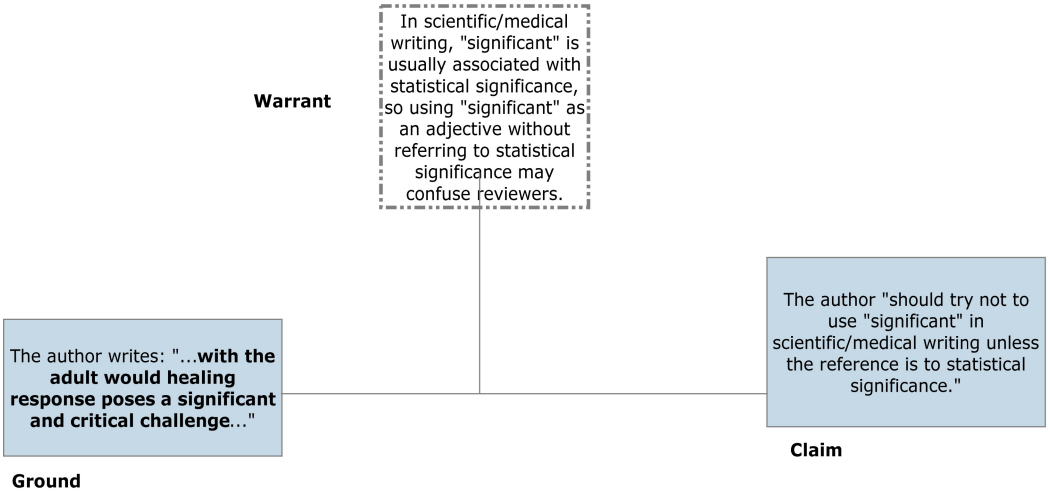
Mae.NIH.1 A6



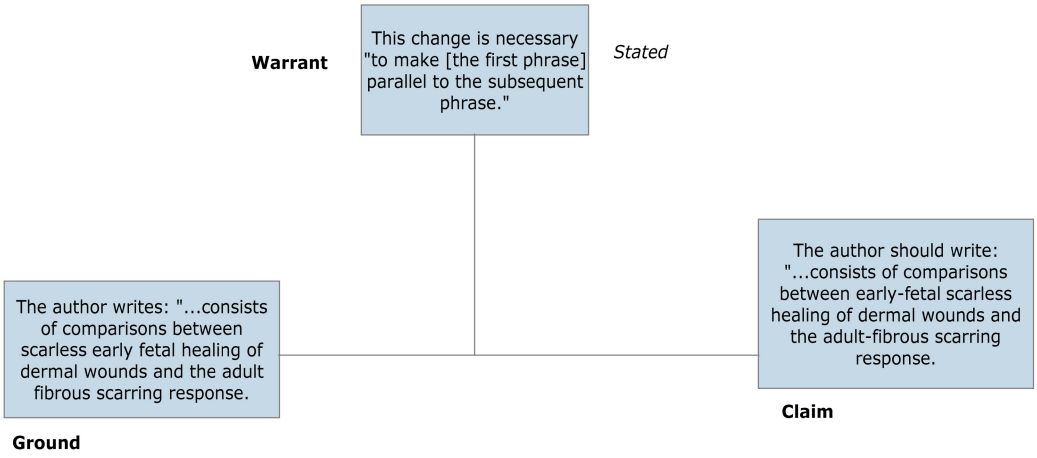
Mae.NIH.1 A7



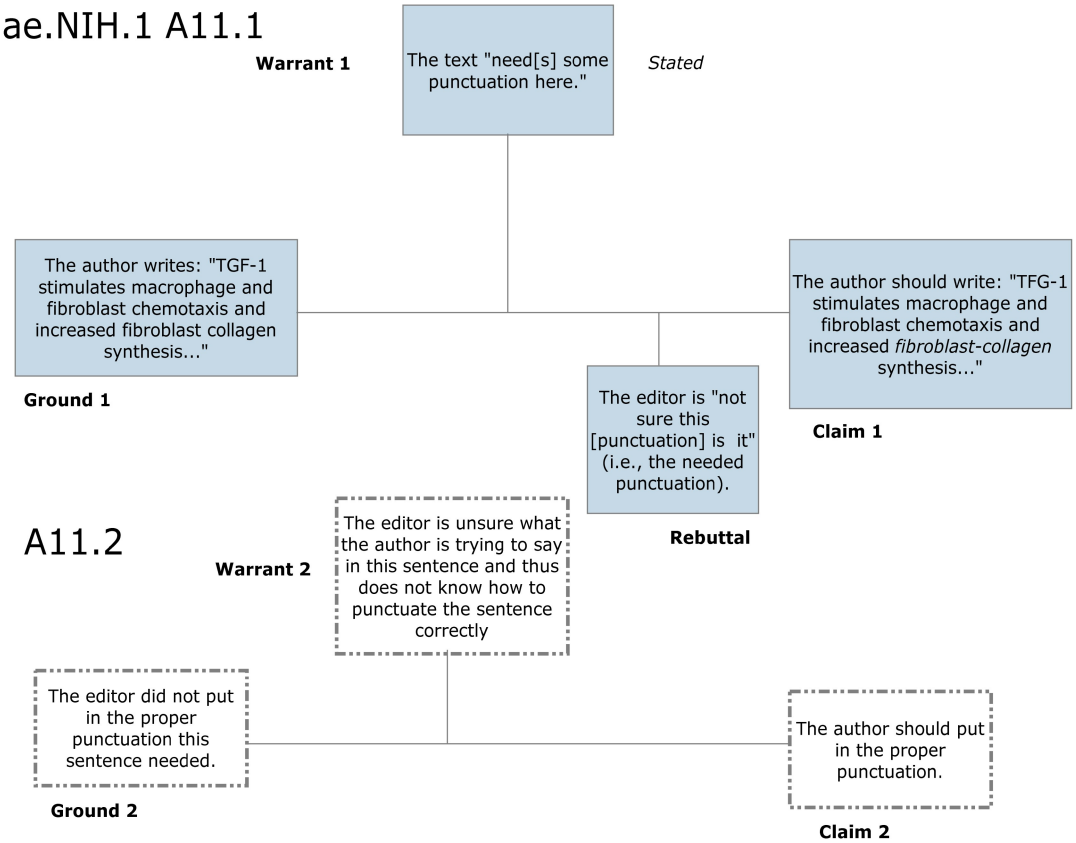
Mae.NIH.1 A8



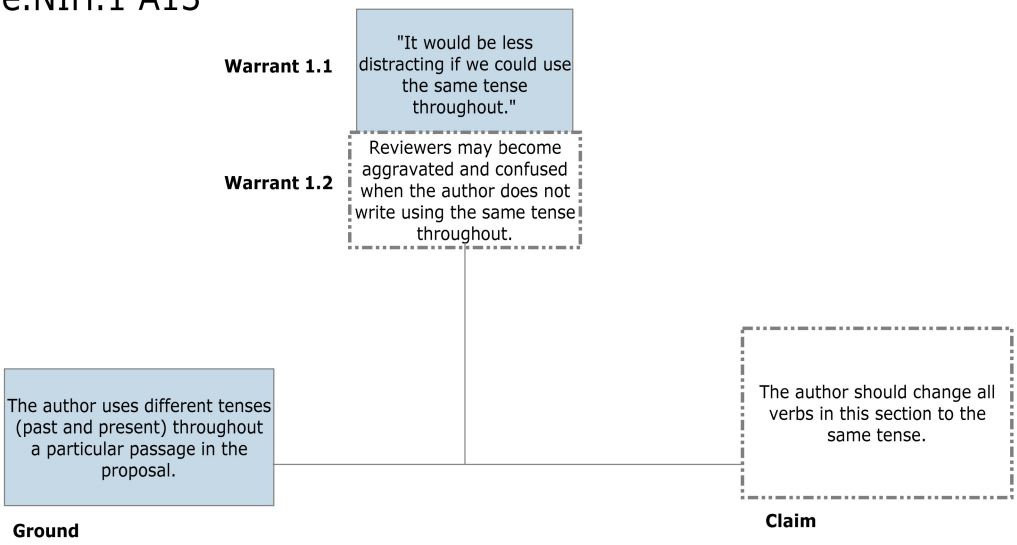
Mae.NIH.1 A10



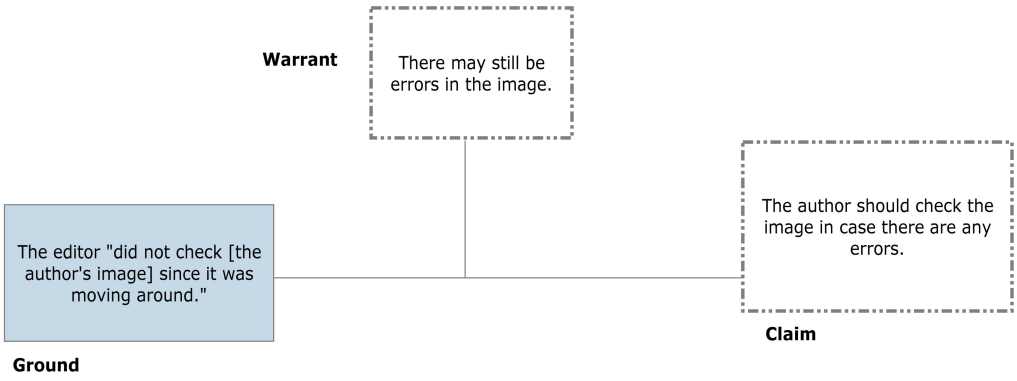
Mae.NIH.1 A11.1



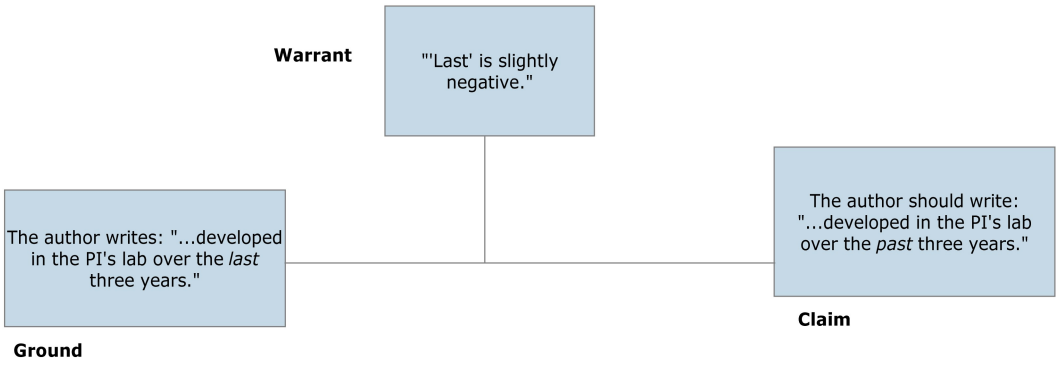
Mae.NIH.1 A13



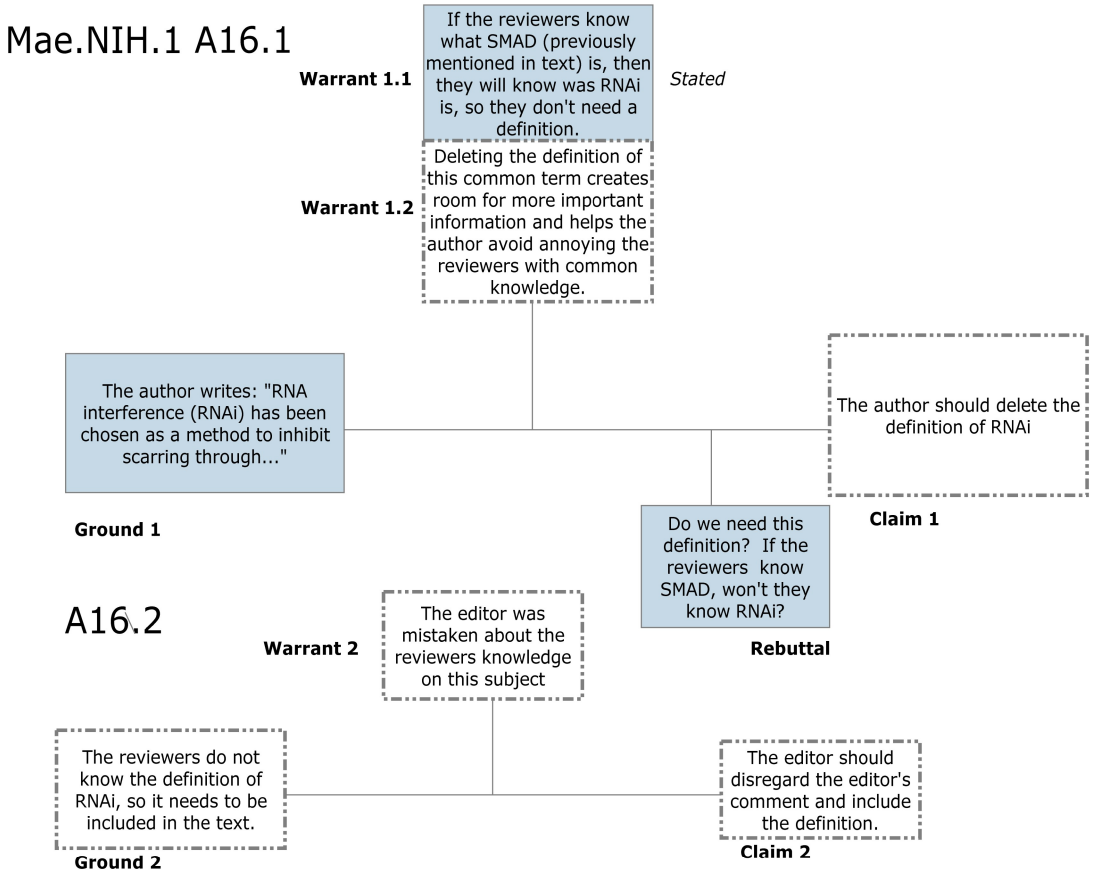
Mae.NIH.1 A14



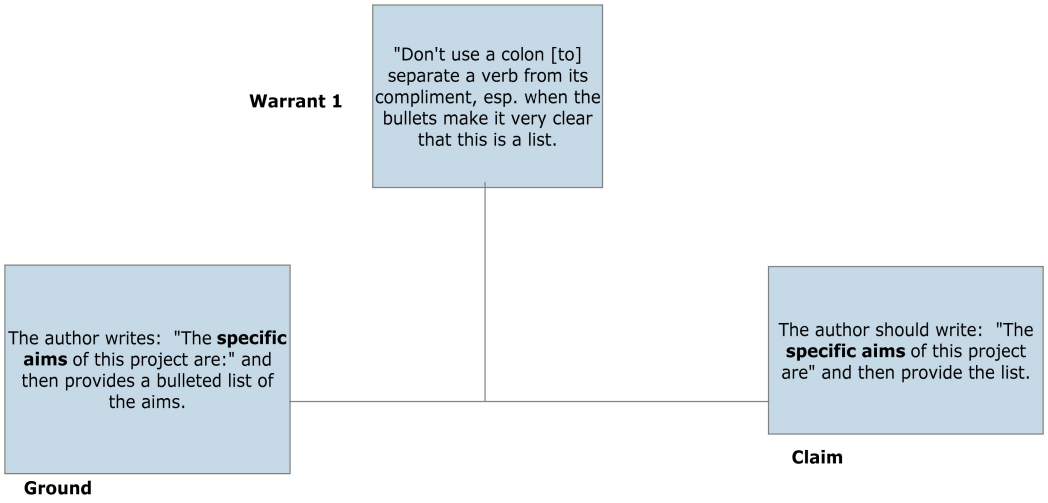
Mae.NIH.1 A15



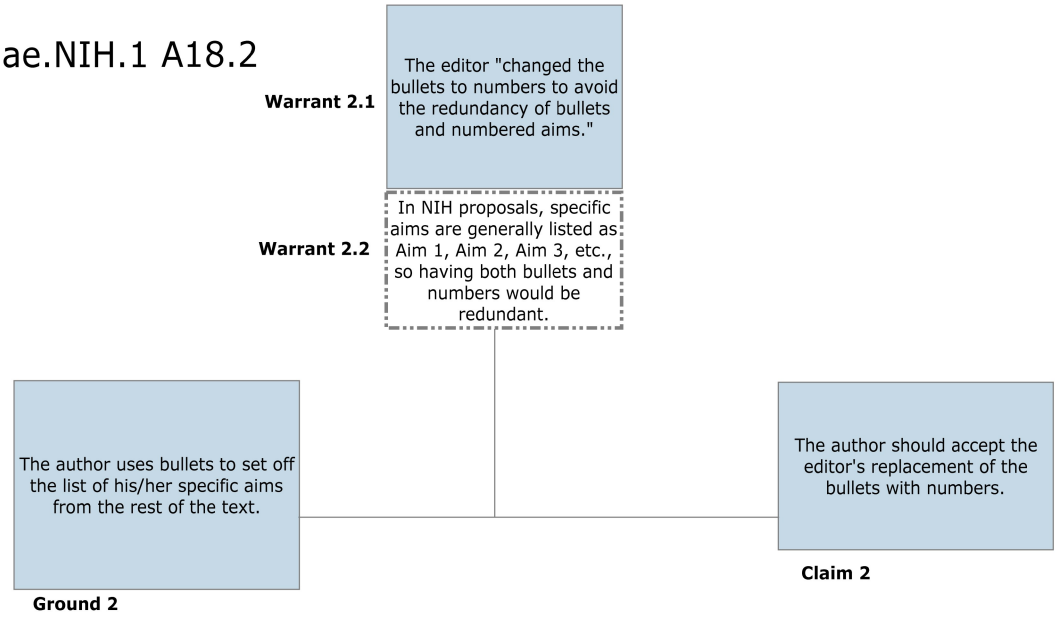
Mae.NIH.1 A16.1



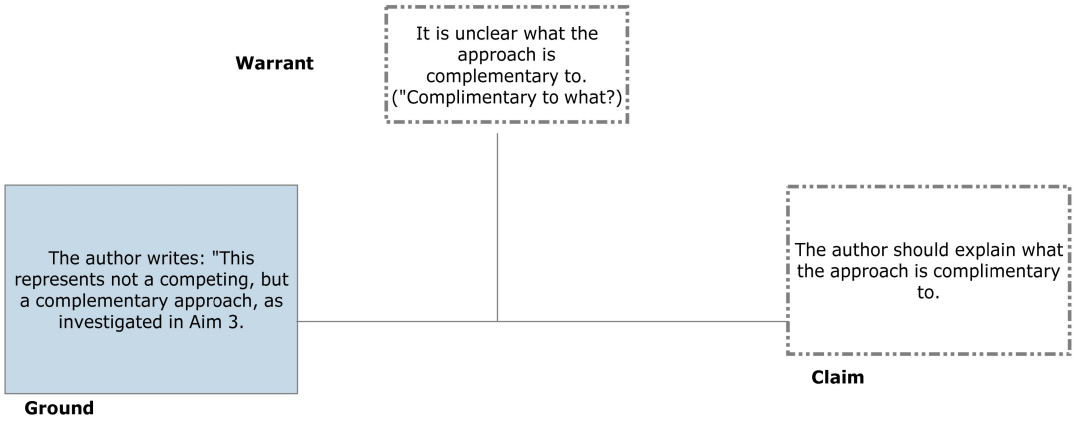
Mae.NIH.1 A18.1



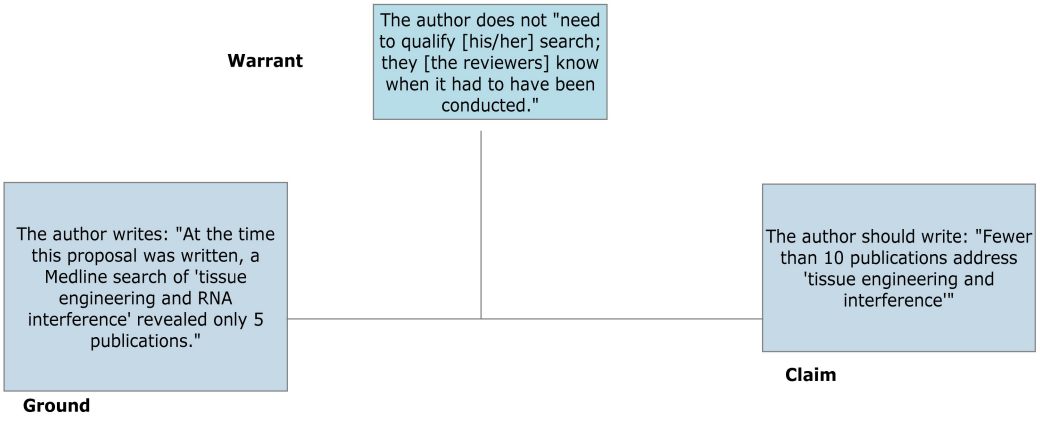
Mae.NIH.1 A18.2



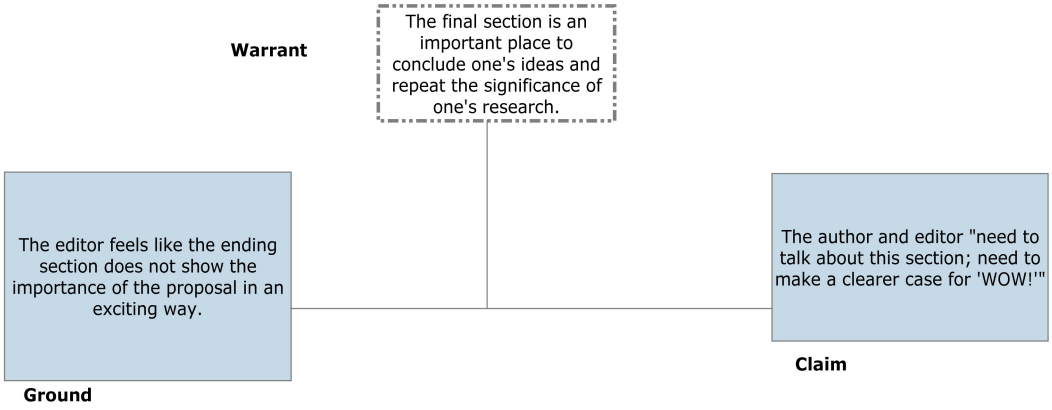
Mae.NIH.1 A19



Mae.NIH.1 A20



Mae.NIH.1 A21



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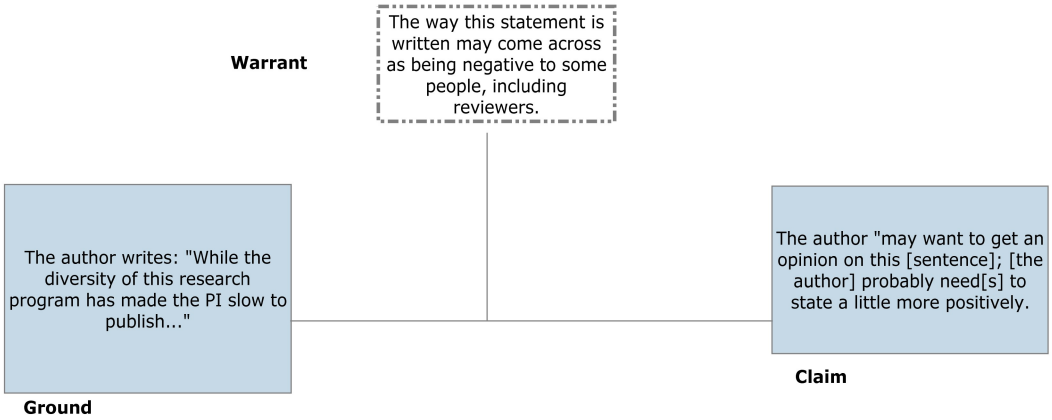
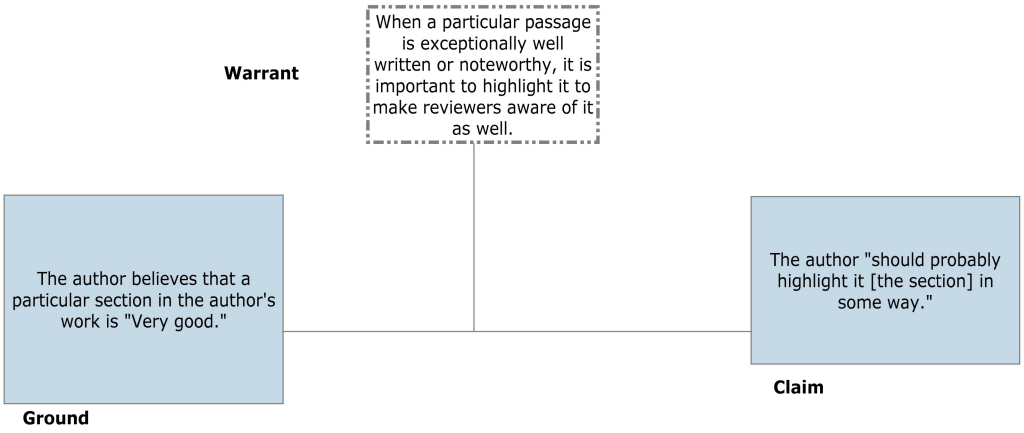
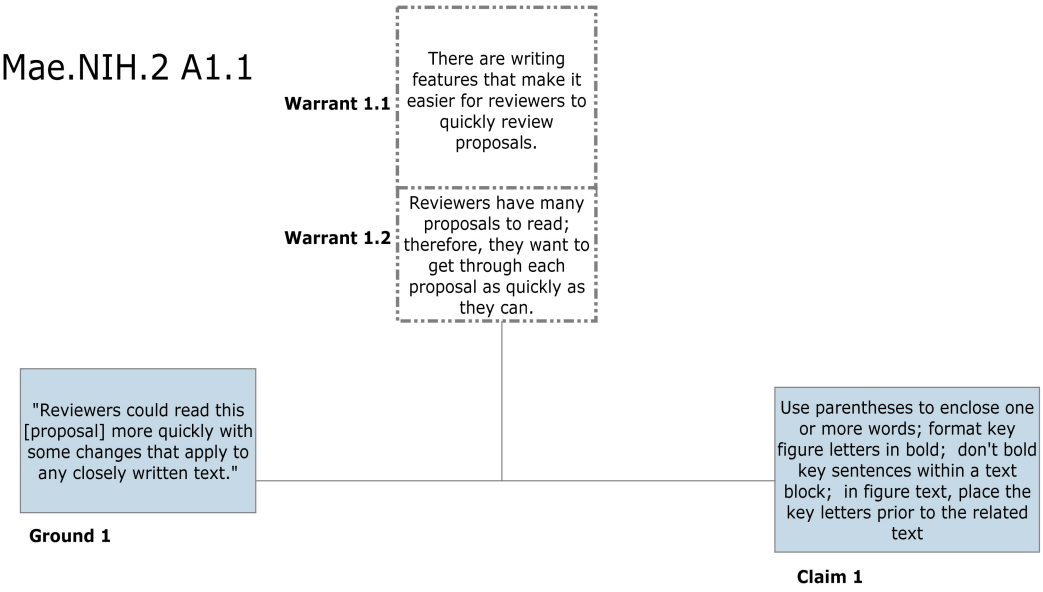


Mae.NIH.1 A23

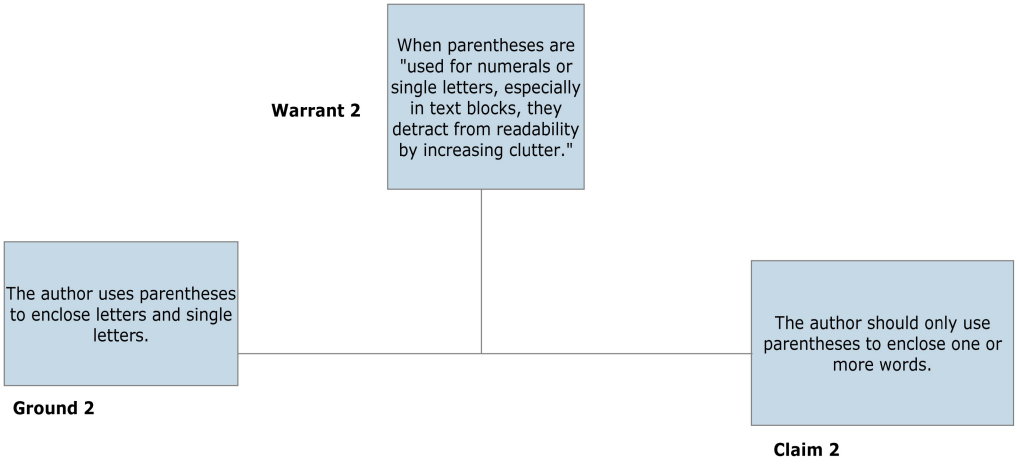


Mae.NIH.2

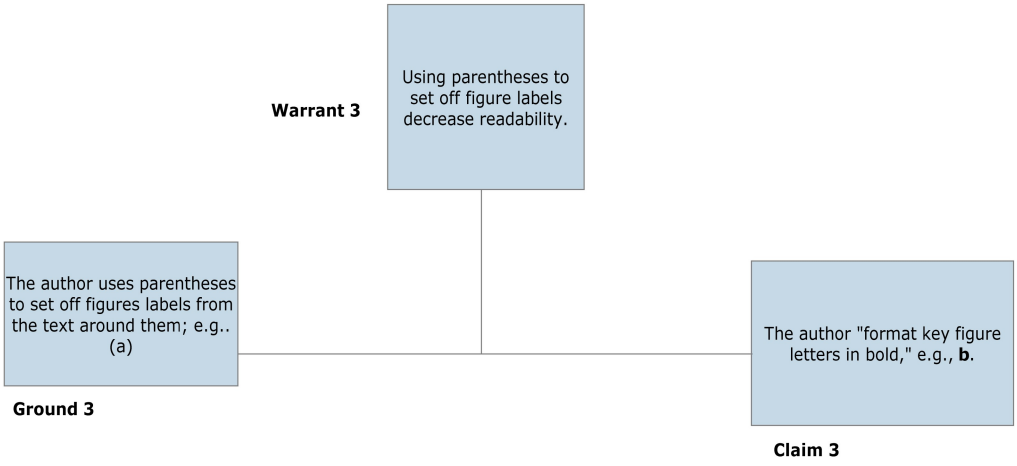
Mae.NIH.2 A1.1



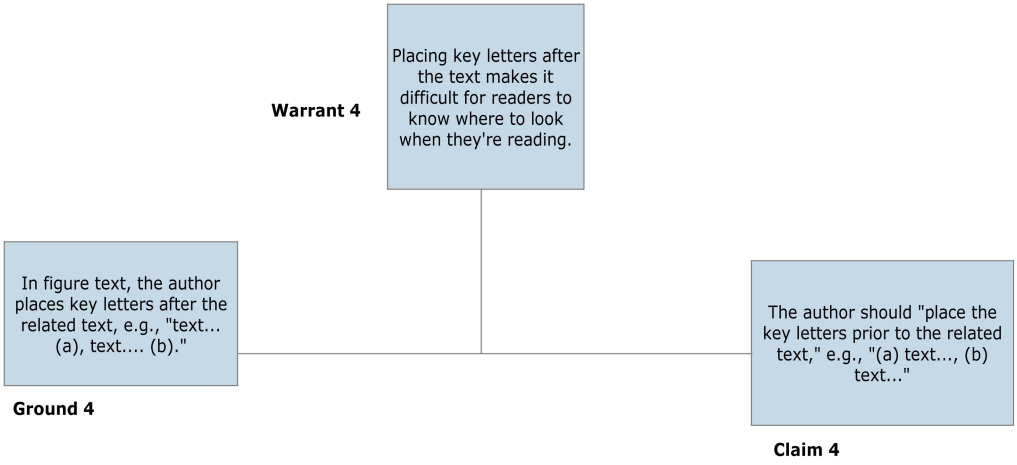
Mae.NIH.2 A1.2



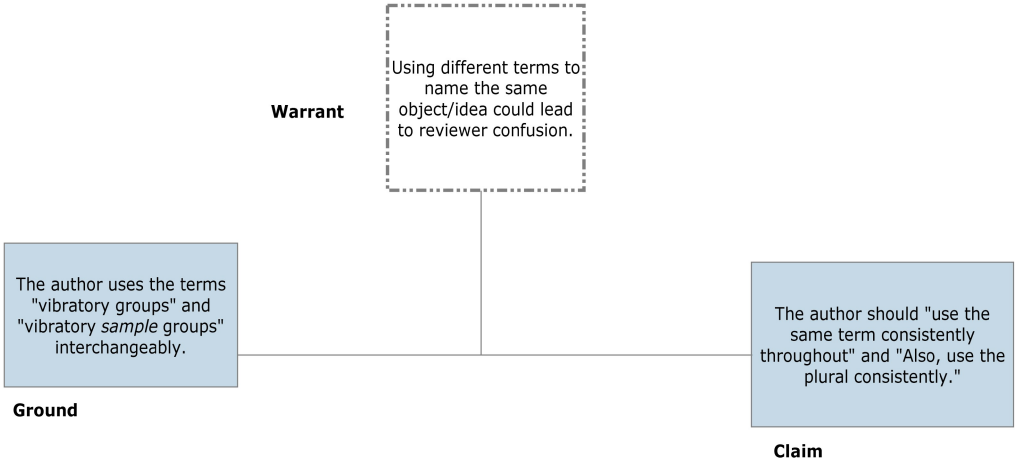
Mae.NIH.2 A1.3

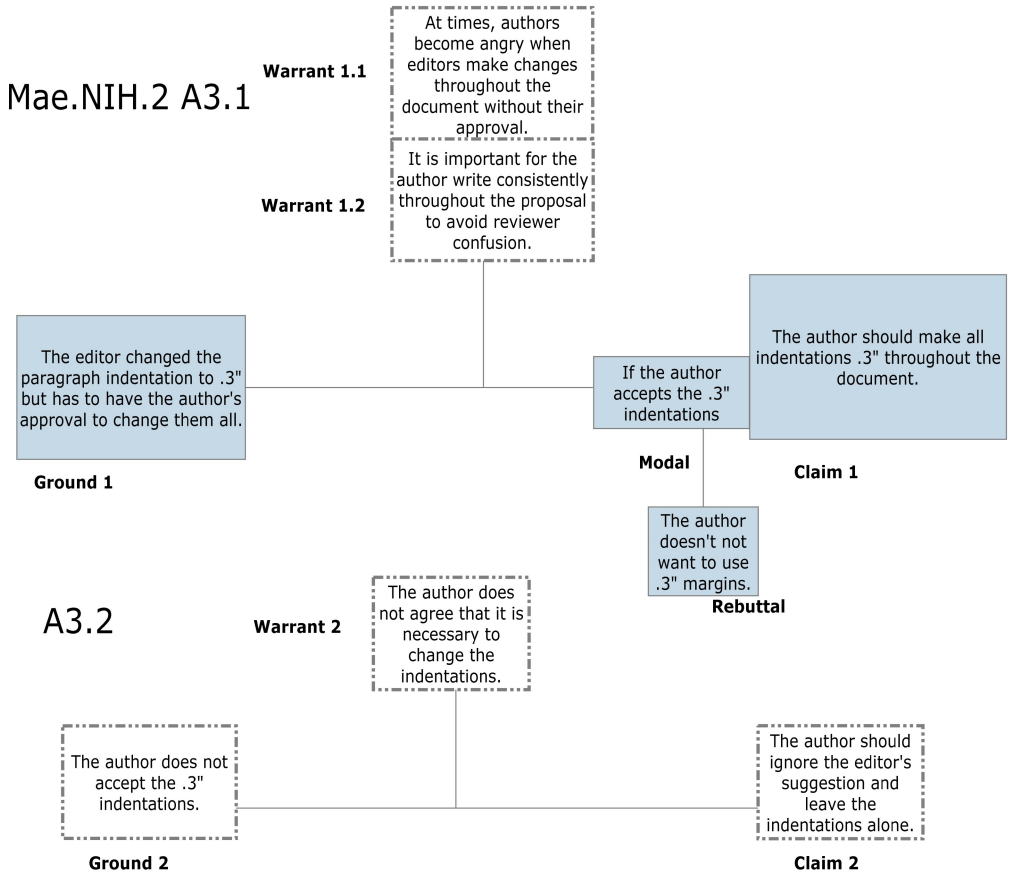


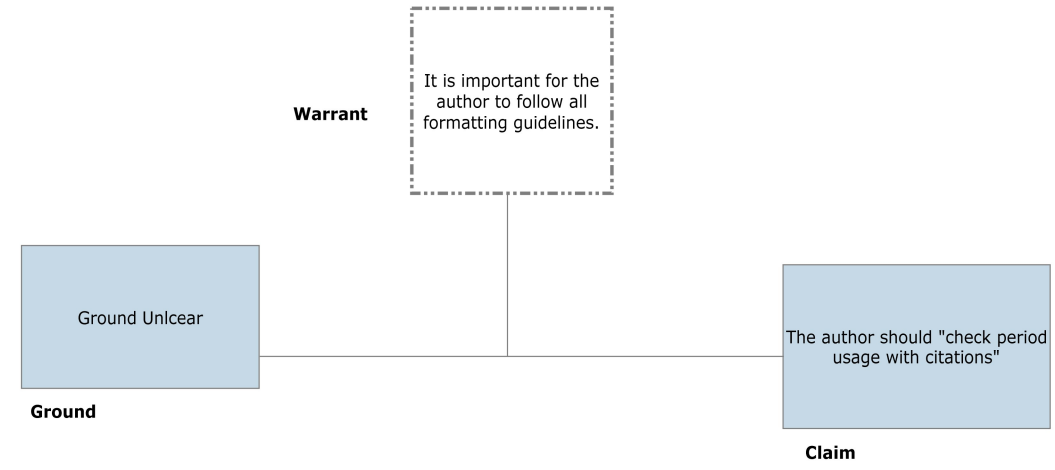
Mae.NIH 2 A1.4



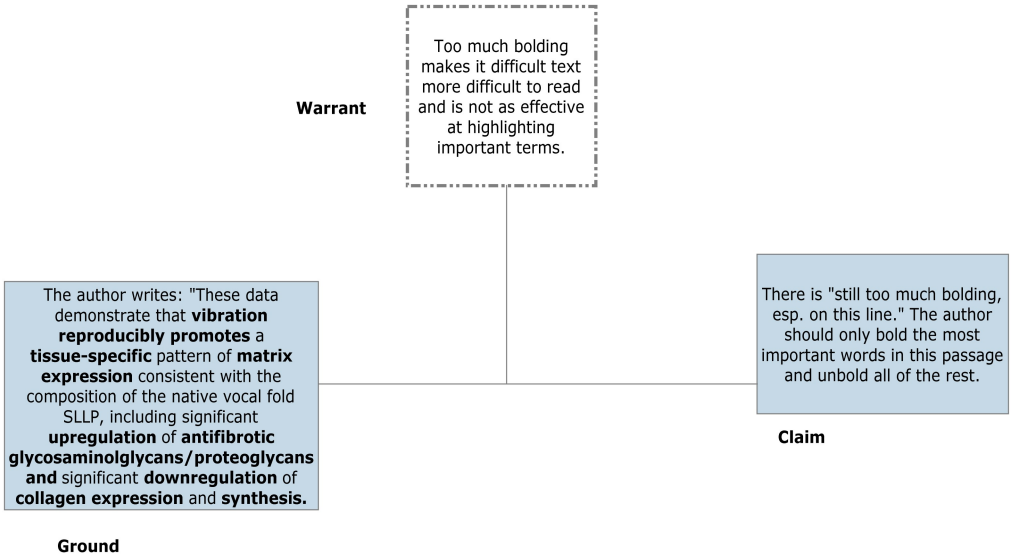
Mae.NIH.2 A2



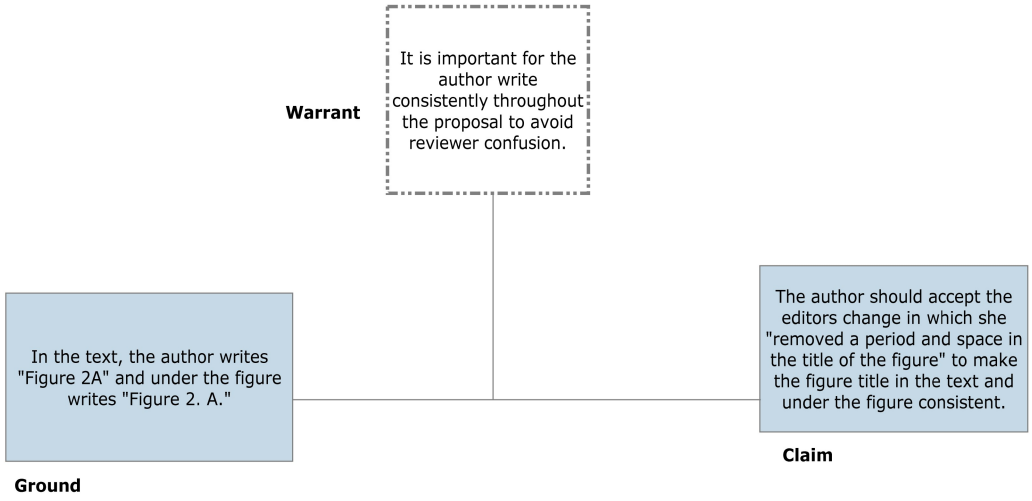

Mae.NIH.2 A3.1
Warrant 1.1
At times, authors become angry when editors make changes throughout the document without their approval.
Warrant 1.2
It is important for the author write consistently throughout the proposal to avoid reviewer confusion.
The editor changed the paragraph indentation to .3" but has to have the author's approval to change them all.
Ground 1
If the author accepts the .3" indentations
Modal
The author should make all indentations .3" throughout the document.
Claim 1
The author doesn't not want to use .3" margins.
Rebuttal
A3.2
Warrant 2
The author does not agree that it is necessary to change the indentations.
The author does not accept the .3" indentations.
Ground 2
The author should ignore the editor's suggestion and leave the indentations alone.
Claim 2


Mae.NIH.2 A4
Warrant
It is important for the author to follow all formatting guidelines.
Ground Unlcear
Ground
The author should "check period usage with citations"
Claim

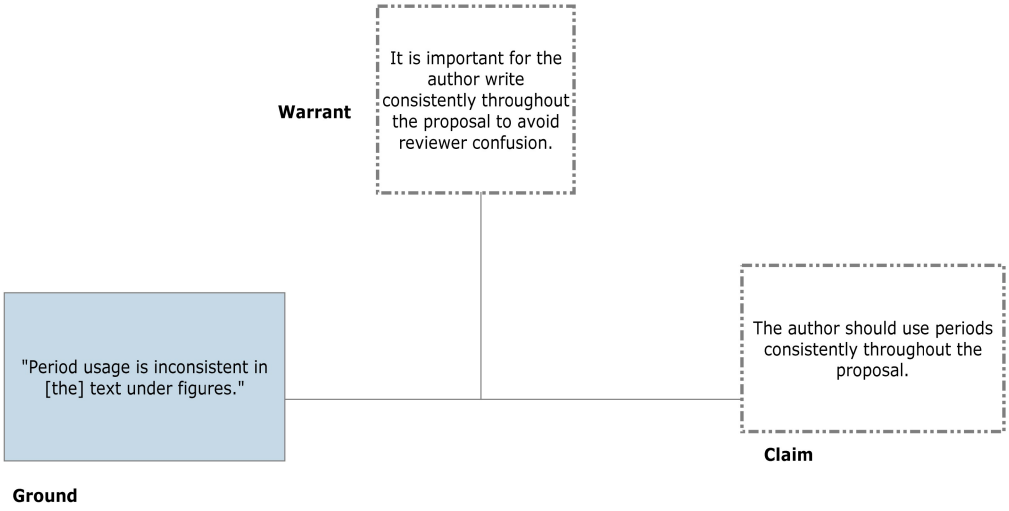
Mae.NIH 2 A5



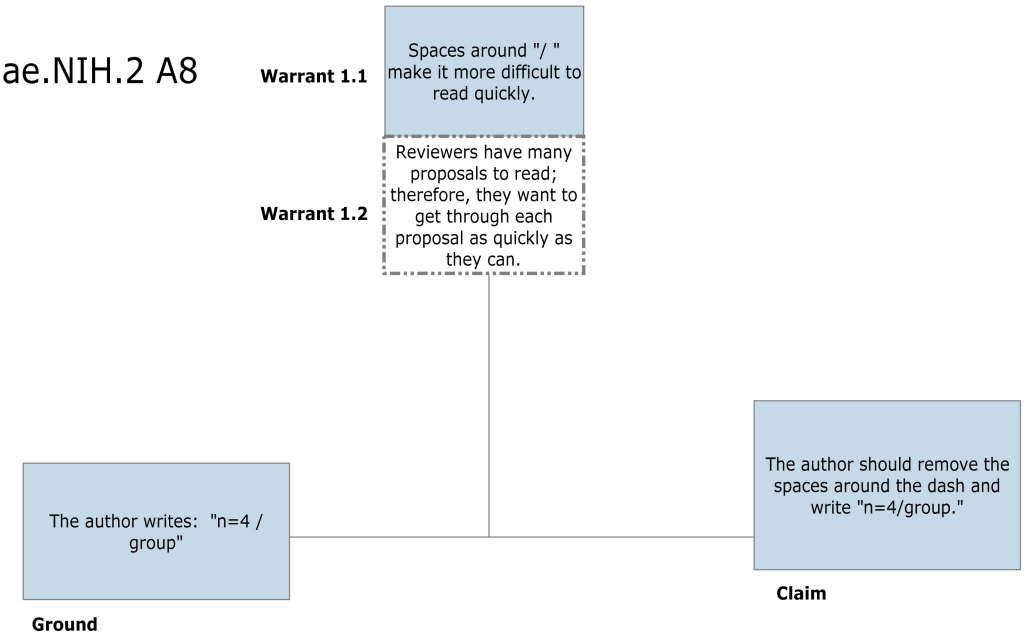
Mae.NIH.2 A6



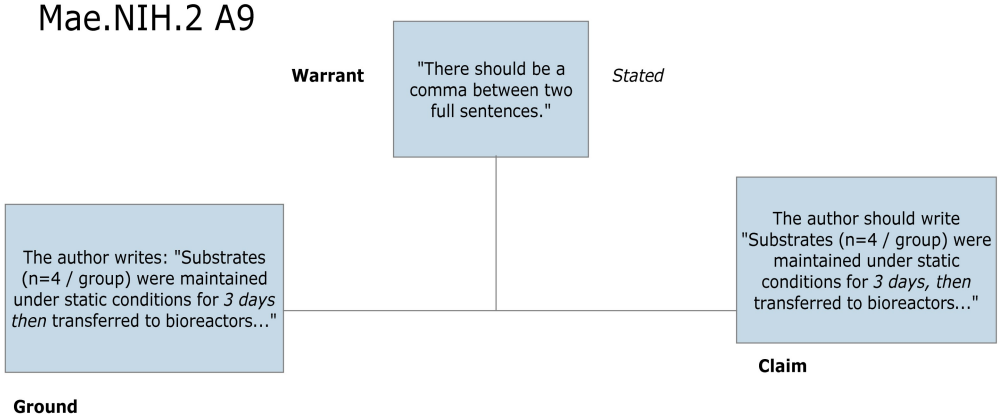
Mae.NIH.2 A7



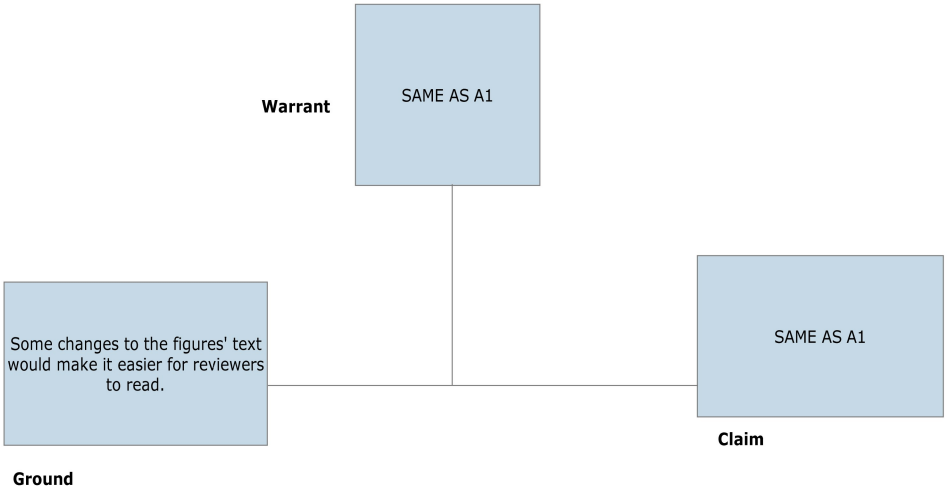
Mae.NIH.2 A8



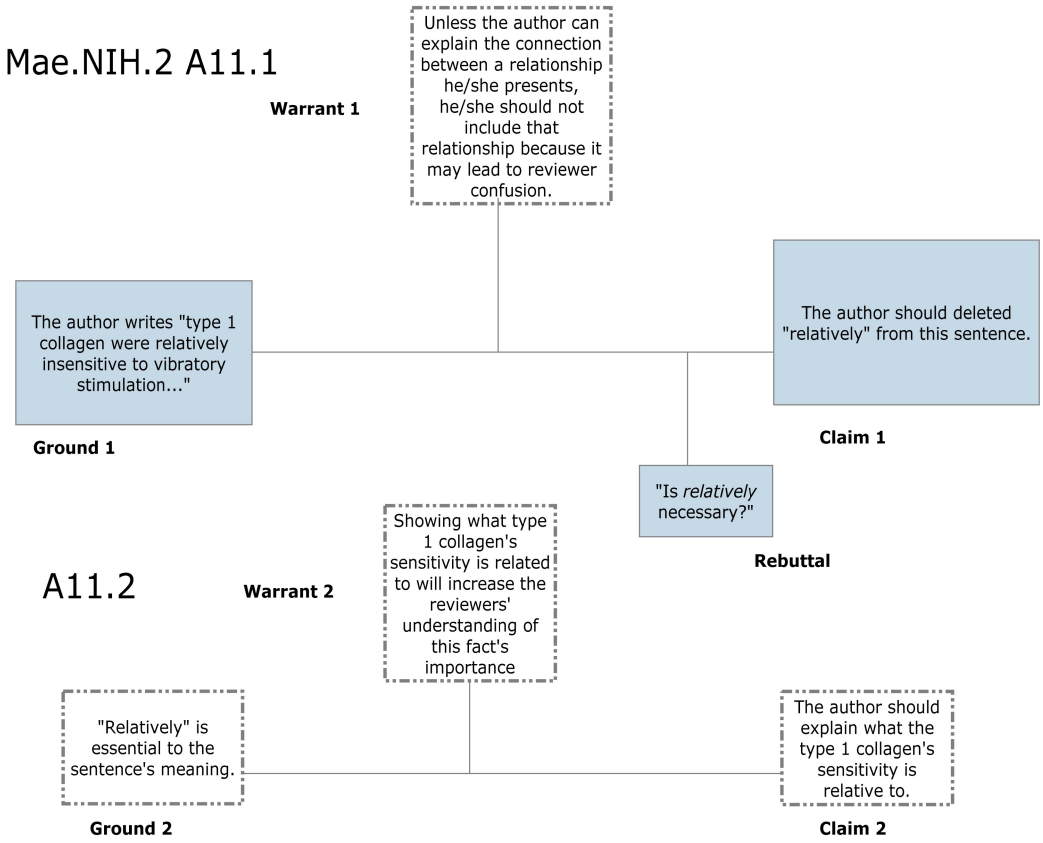
Mae.NIH.2 A9

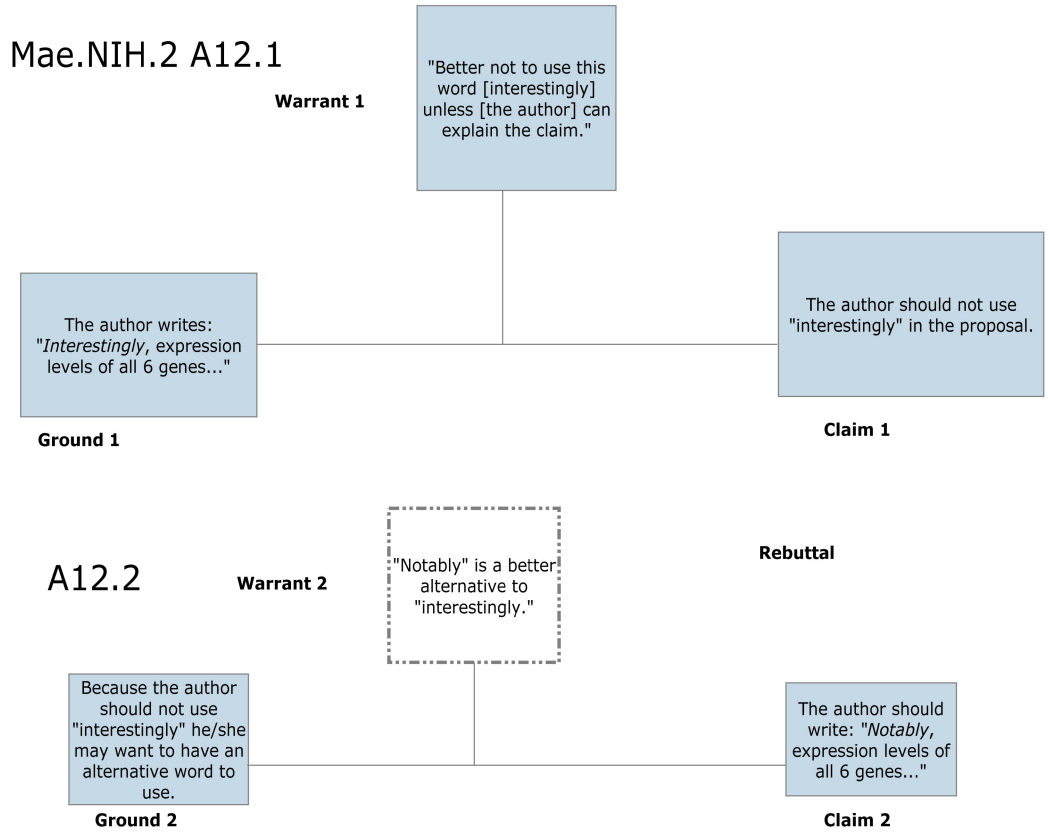


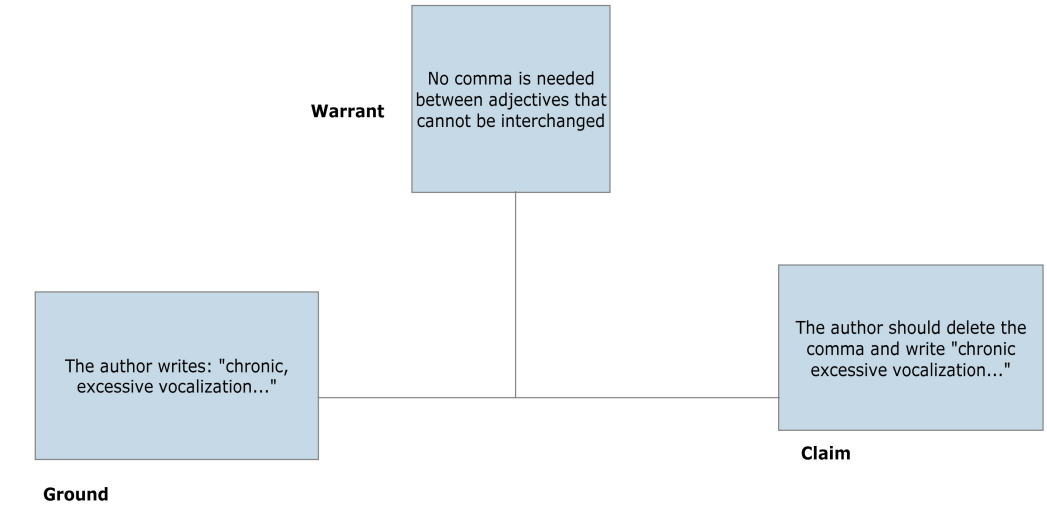
Mae.NIH.2 A10



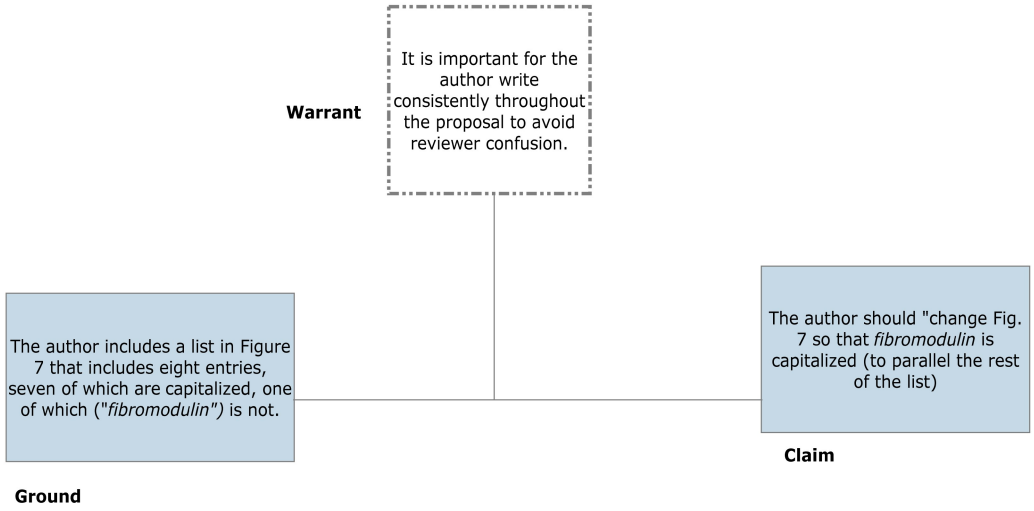
The arguments and reasoning for Mae.NIH 2 A10 are the same as those in Mae.NIH A1 except that they are applied to figures.


Mae.NIH.2 A11.1
Warrant 1
Unless the author can explain the connection between a relationship he/she presents, he/she should not include that relationship because it may lead to reviewer confusion.
The author writes "type 1 collagen were relatively insensitive to vibratory stimulation..."
Ground 1
The author should deleted "relatively" from this sentence.
Claim 1
"Is *relatively* necessary?"
Rebuttal
A11.2
Warrant 2
Showing what type 1 collagen's sensitivity is related to will increase the reviewers' understanding of this fact's importance
"Relatively" is essential to the sentence's meaning.
Ground 2
The author should explain what the type 1 collagen's sensitivity is relative to.
Claim 2

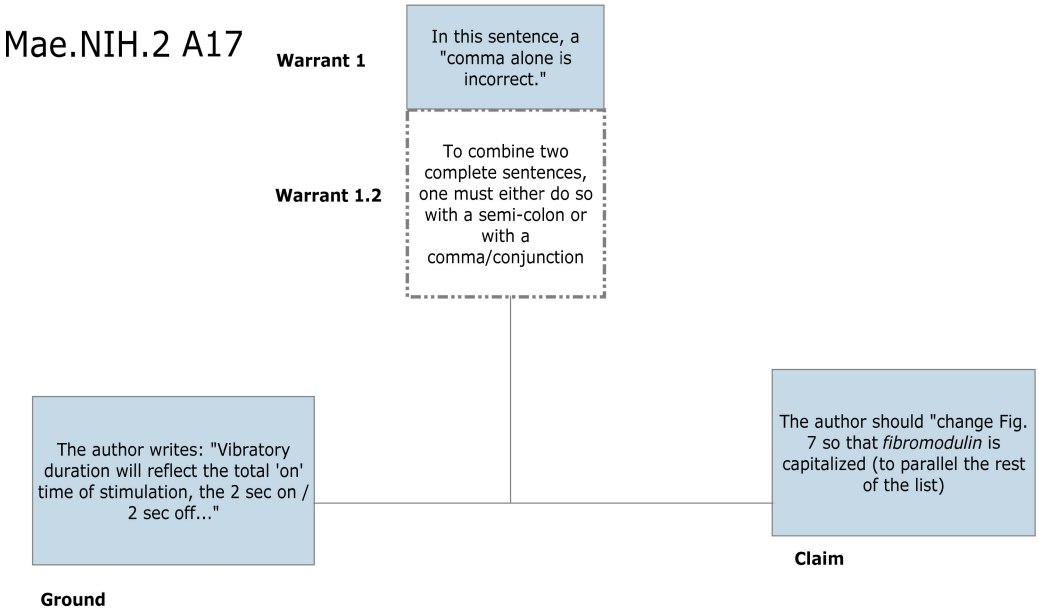

Mae.NIH.2 A12.1
Warrant 1
"Better not to use this word [interestingly] unless [the author] can explain the claim."
The author writes: "*Interestingly*, expression levels of all 6 genes..."
Ground 1
The author should not use "interestingly" in the proposal.
Claim 1
A12.2
Warrant 2
"Notably" is a better alternative to "interestingly."
Rebuttal
Because the author should not use "interestingly" he/she may want to have an alternative word to use.
Ground 2
The author should write: "*Notably*, expression levels of all 6 genes..."
Claim 2


Mae.NIH.2 A14
Warrant
No comma is needed between adjectives that cannot be interchanged
The author writes: "chronic, excessive vocalization..."
Ground
The author should delete the comma and write "chronic excessive vocalization..."
Claim

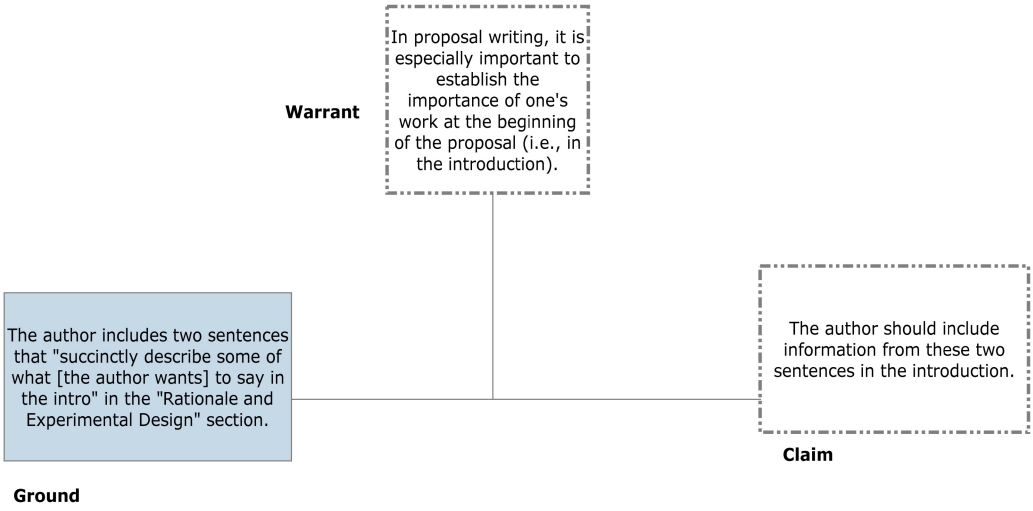
Mae.NIH.2 A16



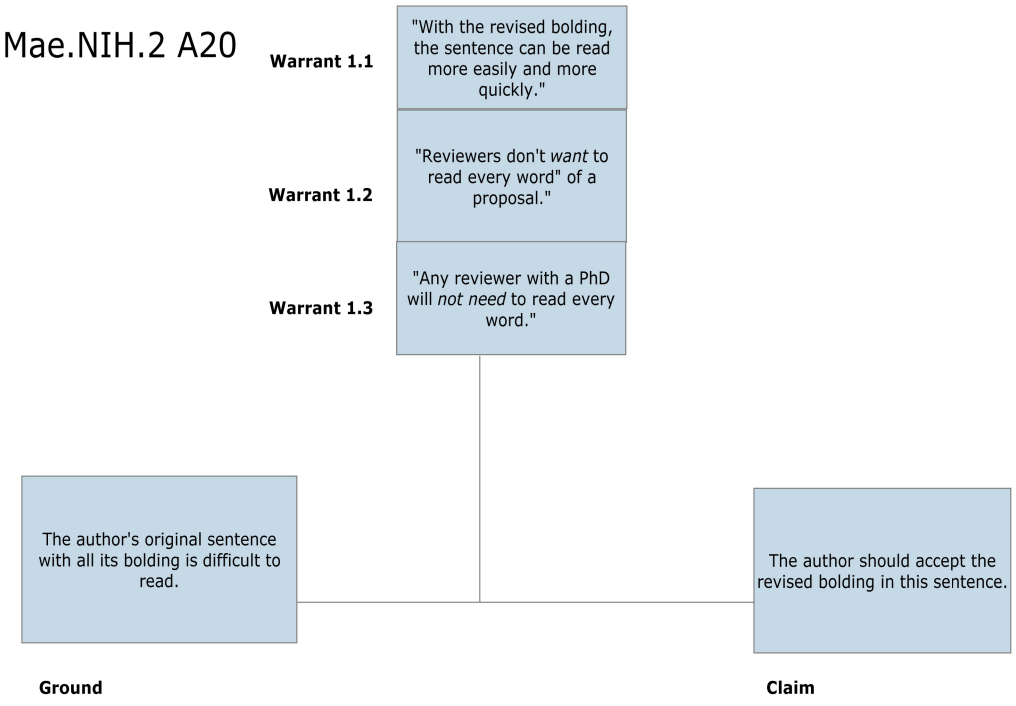
Mae.NIH.2 A17



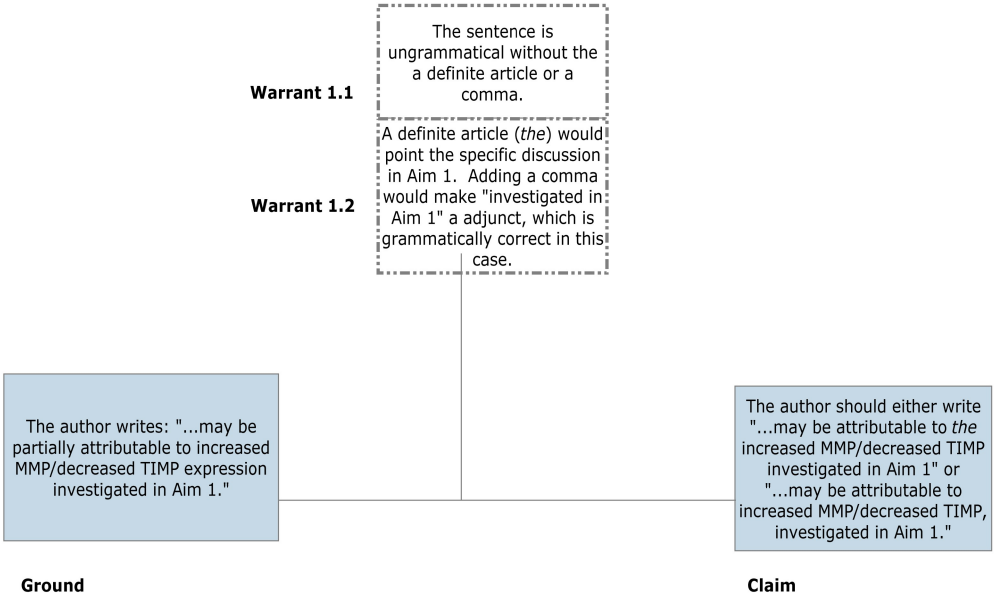
Mae.NIH.2 A19



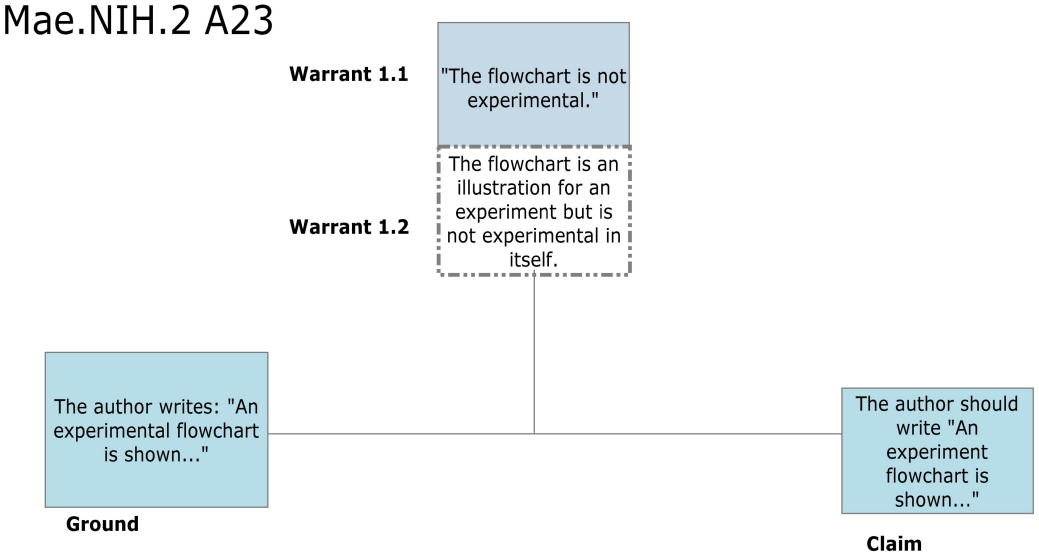
Mae.NIH.2 A20

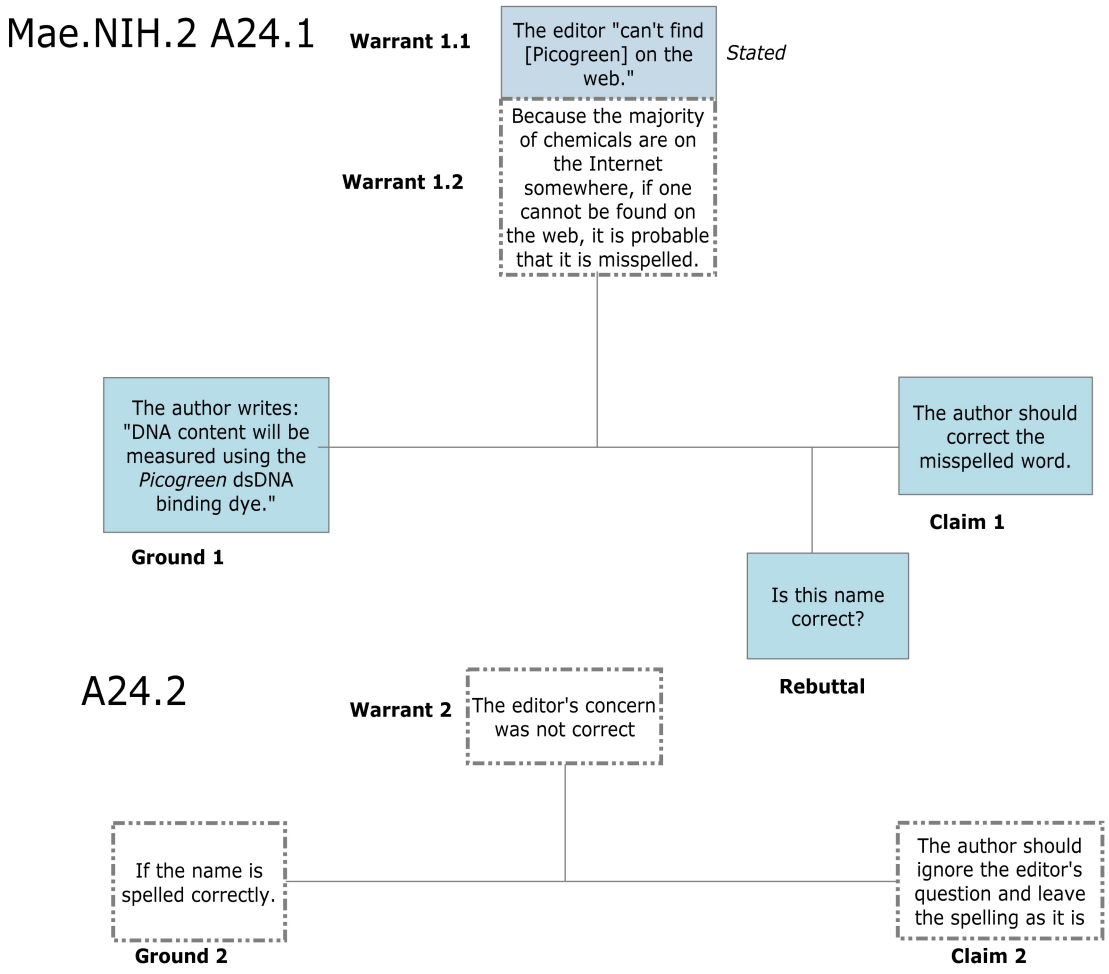


Mae.NIH.2 A21

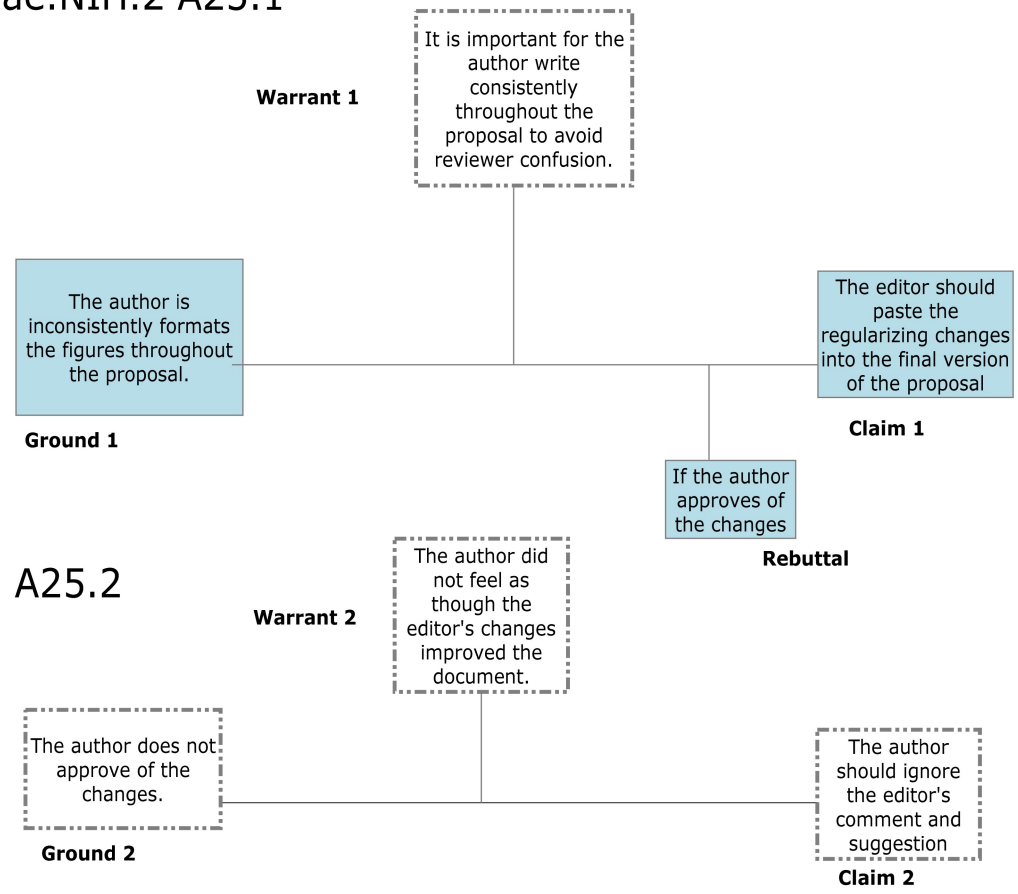


Mae.NIH.2 A23

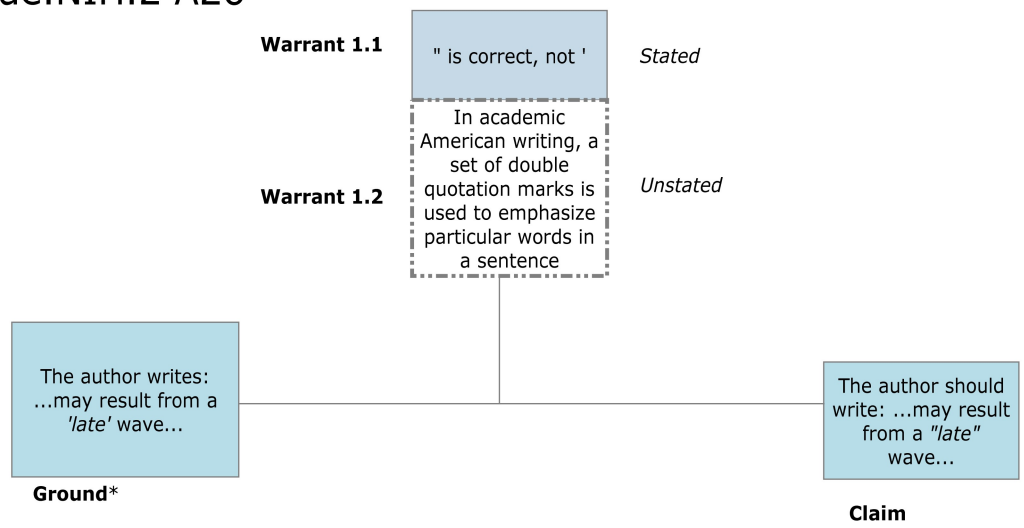



Mae.NIH.2 A24.1
Warrant 1.1
The editor "can't find [Picogreen] on the web."
Stated
Warrant 1.2
Because the majority of chemicals are on the Internet somewhere, if one cannot be found on the web, it is probable that it is misspelled.
The author writes: "DNA content will be measured using the Picogreen dsDNA binding dye."
Ground 1
The author should correct the misspelled word.
Claim 1
Is this name correct?
Rebuttal
A24.2
Warrant 2
The editor's concern was not correct
If the name is spelled correctly.
Ground 2
The author should ignore the editor's question and leave the spelling as it is
Claim 2

Mae.NIH.2 A25.1

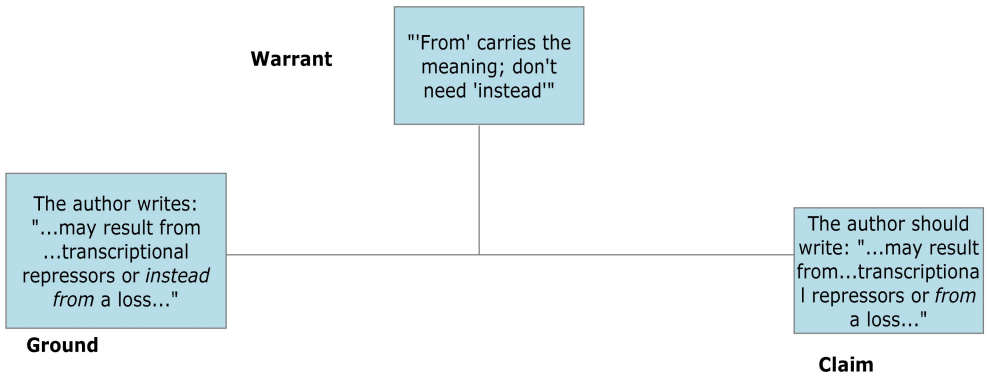


Mae.NIH.2 A26

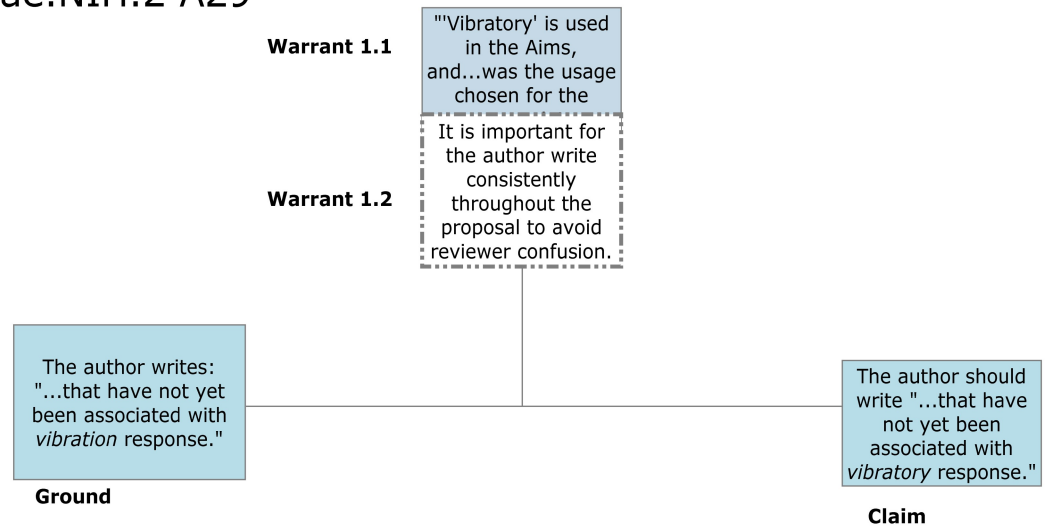


*In this ground, warrant, and claim, the initial quotation marks signaling what the author wrote had to be removed because of the nature of the comment.

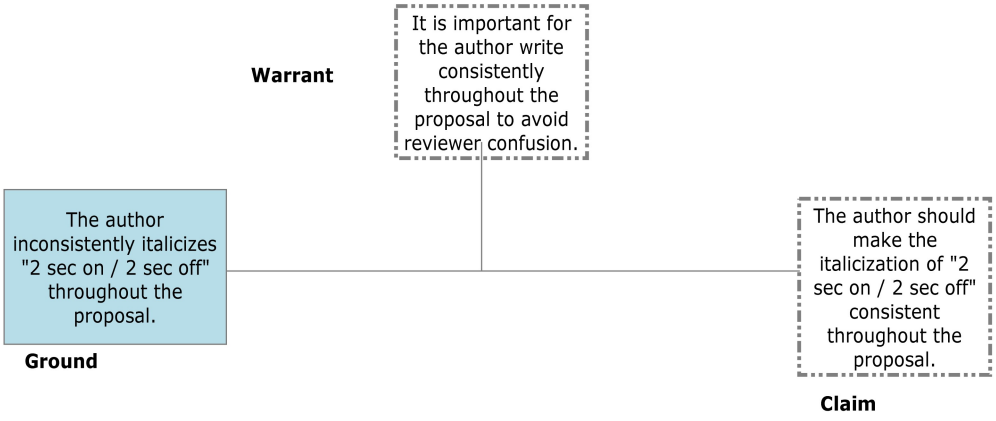
Mae.NIH.2 A27

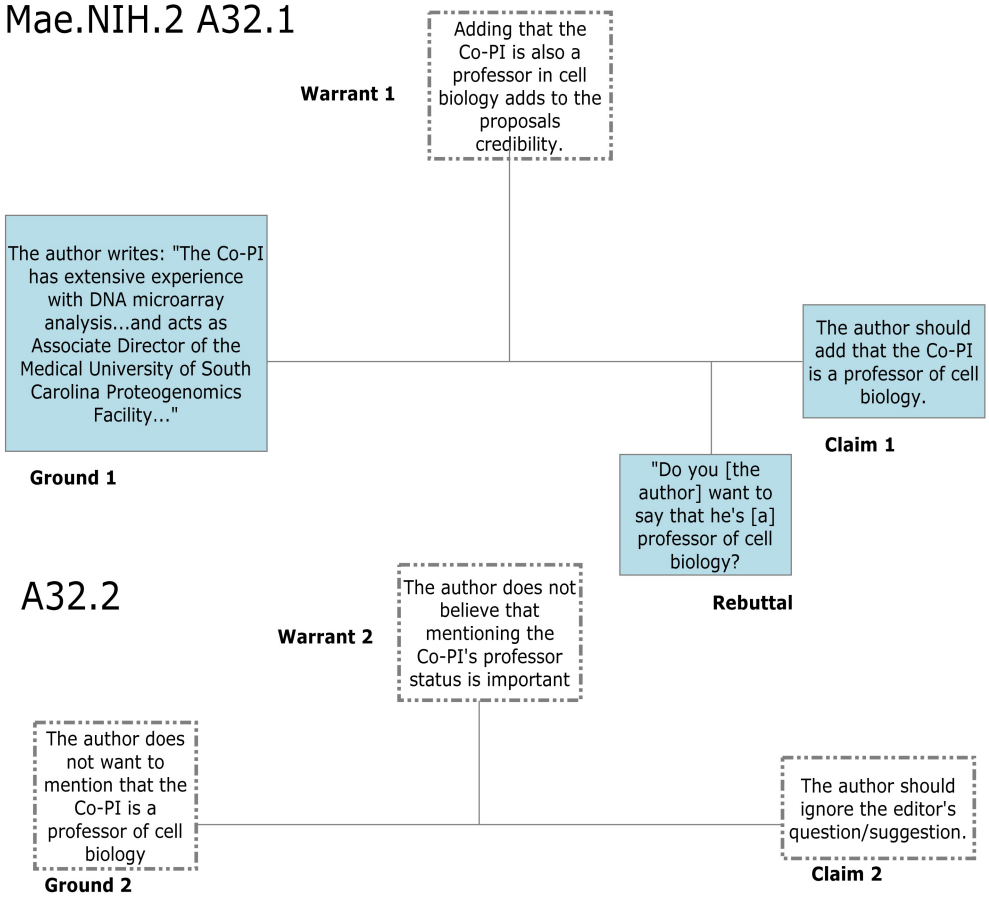


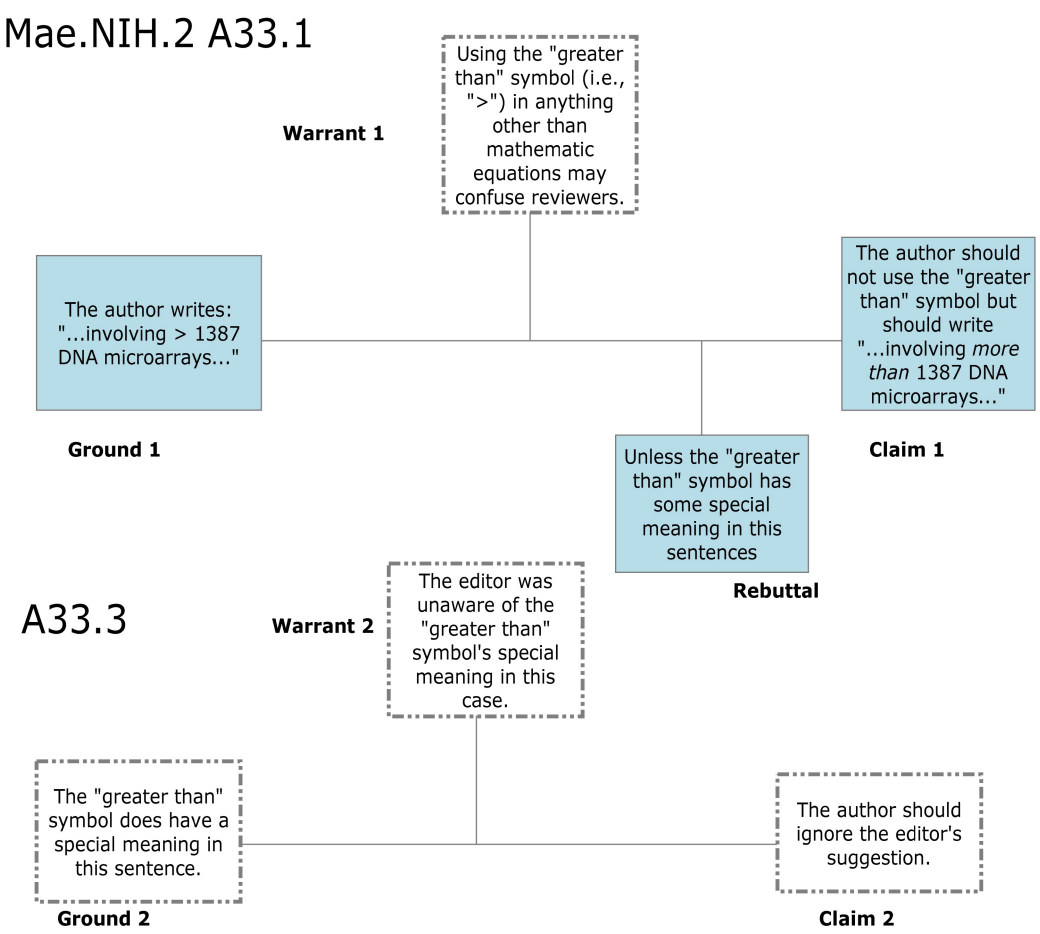
Mae.NIH.2 A29



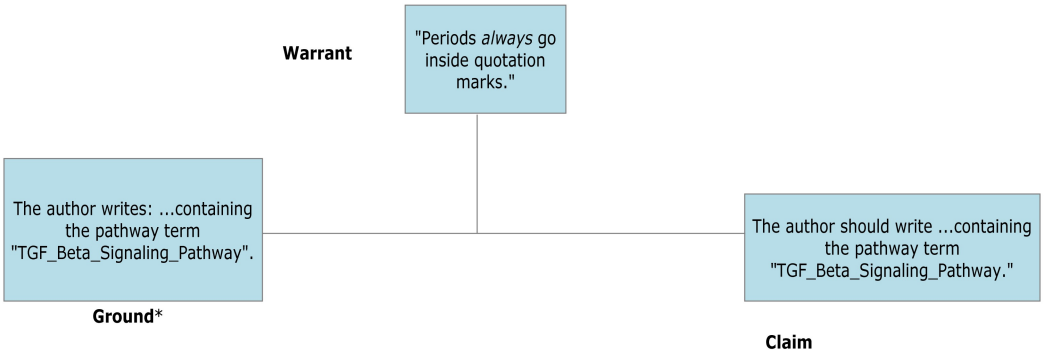
Mae.NIH.2 A30




Mae.NIH.2 A32.1
Warrant 1
Adding that the Co-PI is also a professor in cell biology adds to the proposals credibility.
The author writes: "The Co-PI has extensive experience with DNA microarray analysis...and acts as Associate Director of the Medical University of South Carolina Proteogenomics Facility..."
Ground 1
The author should add that the Co-PI is a professor of cell biology.
Claim 1
"Do you [the author] want to say that he's [a] professor of cell biology?
Rebuttal
A32.2
Warrant 2
The author does not believe that mentioning the Co-PI's professor status is important
The author does not want to mention that the Co-PI is a professor of cell biology
Ground 2
The author should ignore the editor's question/suggestion.
Claim 2

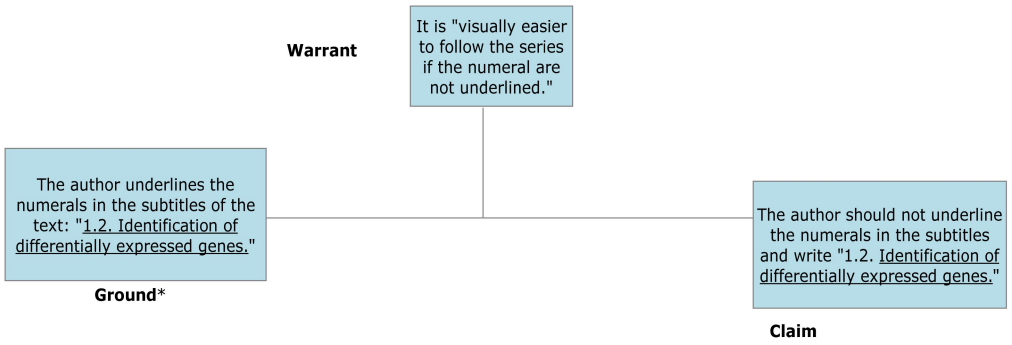

Mae.NIH.2 A33.1
Warrant 1
Using the "greater than" symbol (i.e., ">") in anything other than mathematic equations may confuse reviewers.
The author writes: "...involving > 1387 DNA microarrays..."
Ground 1
The author should not use the "greater than" symbol but should write "...involving more than 1387 DNA microarrays..."
Claim 1
Unless the "greater than" symbol has some special meaning in this sentences
Rebuttal
A33.3
Warrant 2
The editor was unaware of the "greater than" symbol's special meaning in this case.
The "greater than" symbol does have a special meaning in this sentence.
Ground 2
The author should ignore the editor's suggestion.
Claim 2

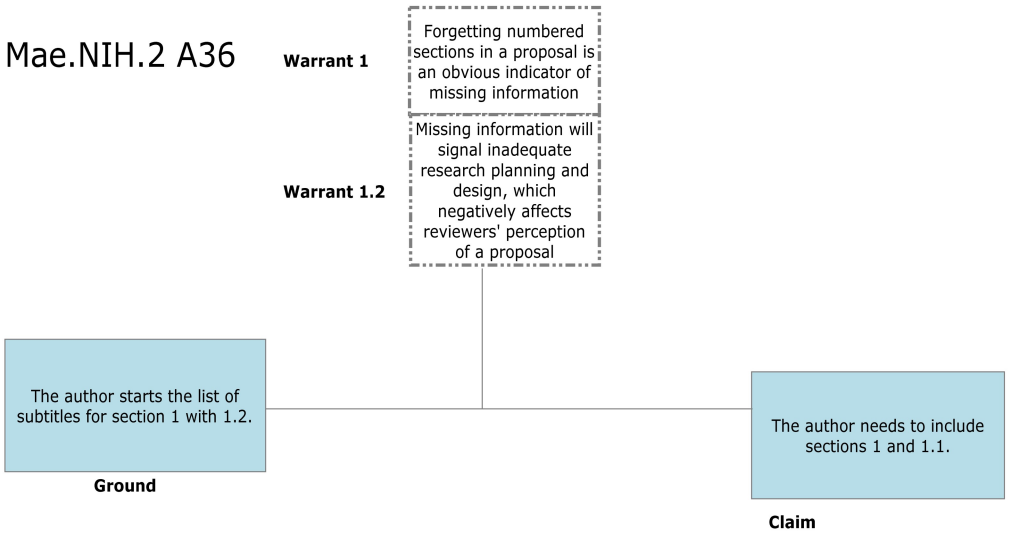
Mae.NIH.2 A34

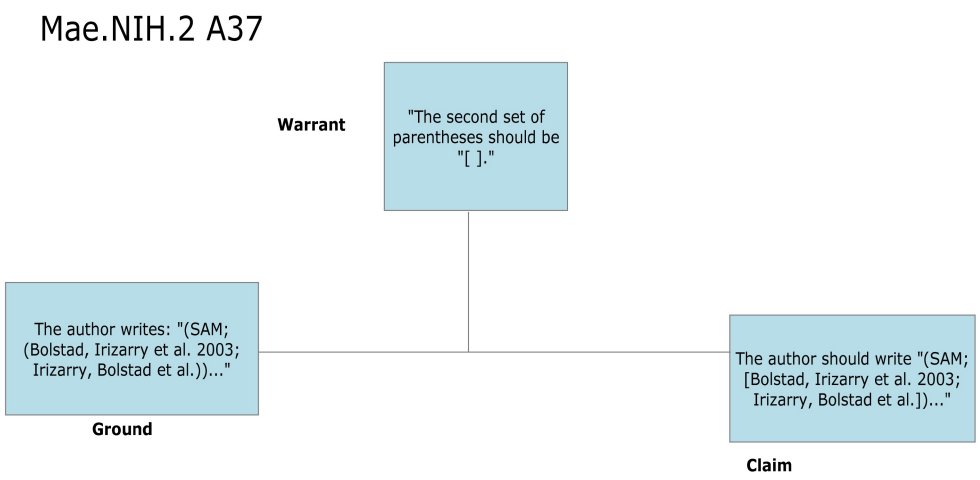


*In this ground and claim, the initial quotation marks signaling what the author wrote had to be removed because of the nature of the comment.

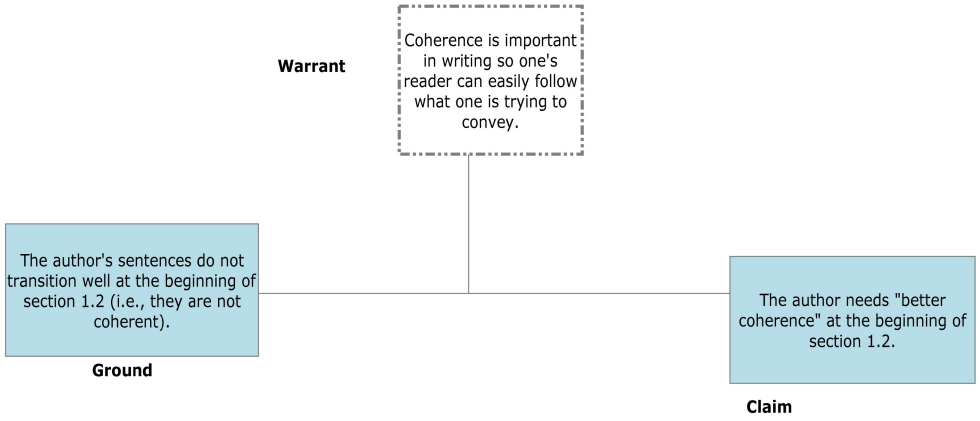
Mae.NIH.2 A35



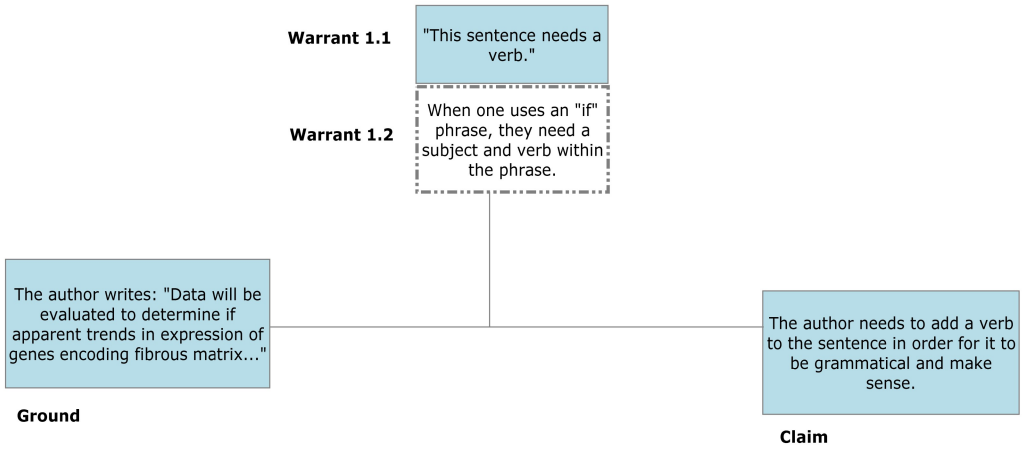

Mae.NIH.2 A36
Warrant 1
Forgetting numbered sections in a proposal is an obvious indicator of missing information
Warrant 1.2
Missing information will signal inadequate research planning and design, which negatively affects reviewers' perception of a proposal
The author starts the list of subtitles for section 1 with 1.2.
Ground
The author needs to include sections 1 and 1.1.
Claim

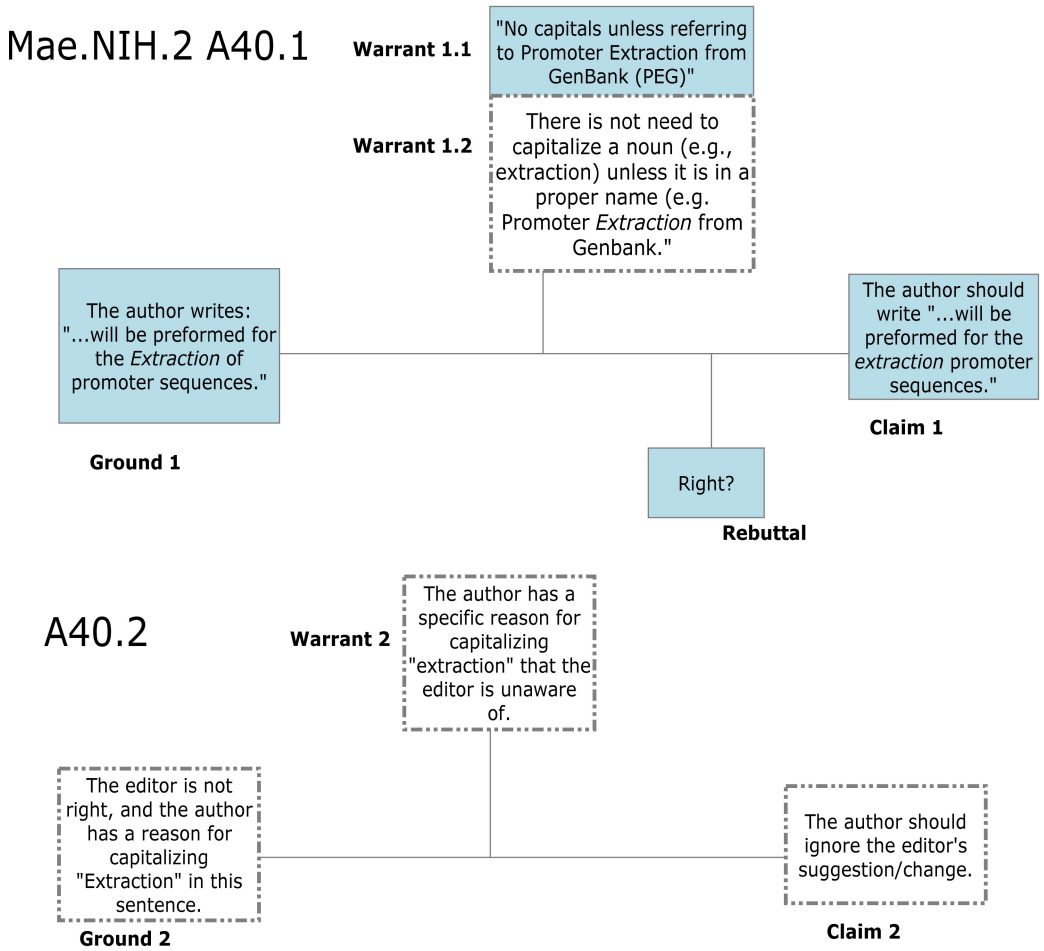

Mae.NIH.2 A37
Warrant
"The second set of parentheses should be "[ ]."
The author writes: "(SAM; (Bolstad, Irizarry et al. 2003; Irizarry, Bolstad et al.))..."
Ground
The author should write "(SAM; [Bolstad, Irizarry et al. 2003; Irizarry, Bolstad et al.])..."
Claim

Mae.NIH.2 A38

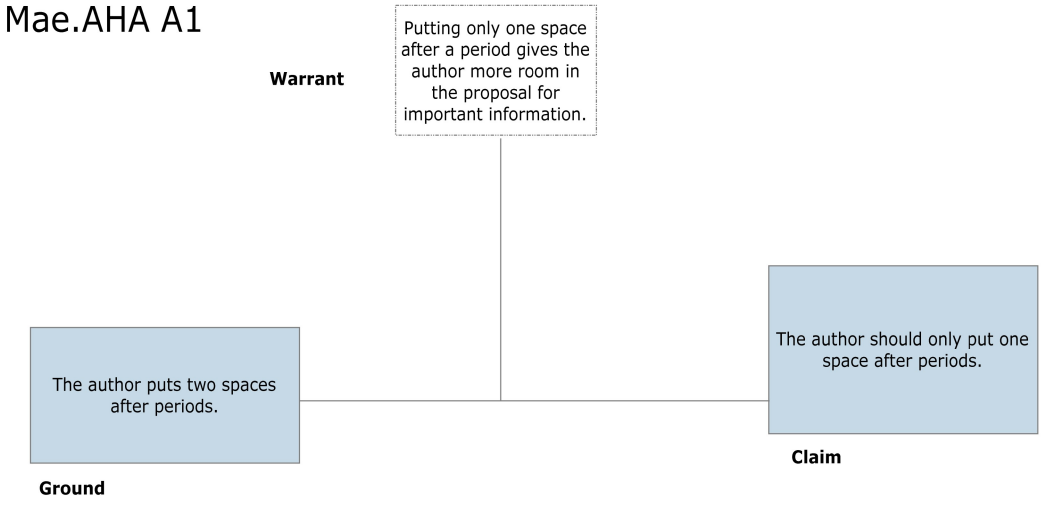


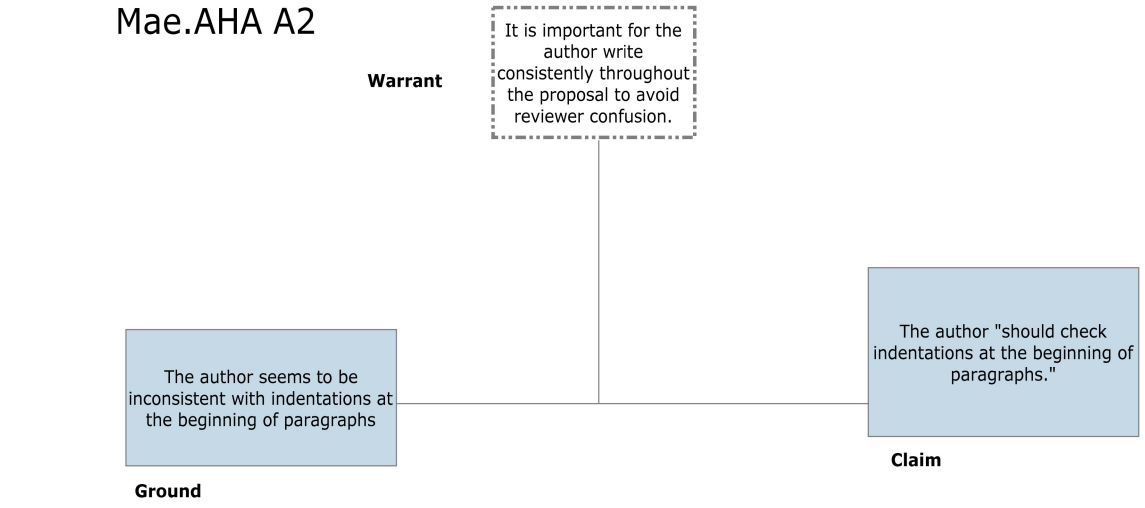
Mae.NIH.2 A39

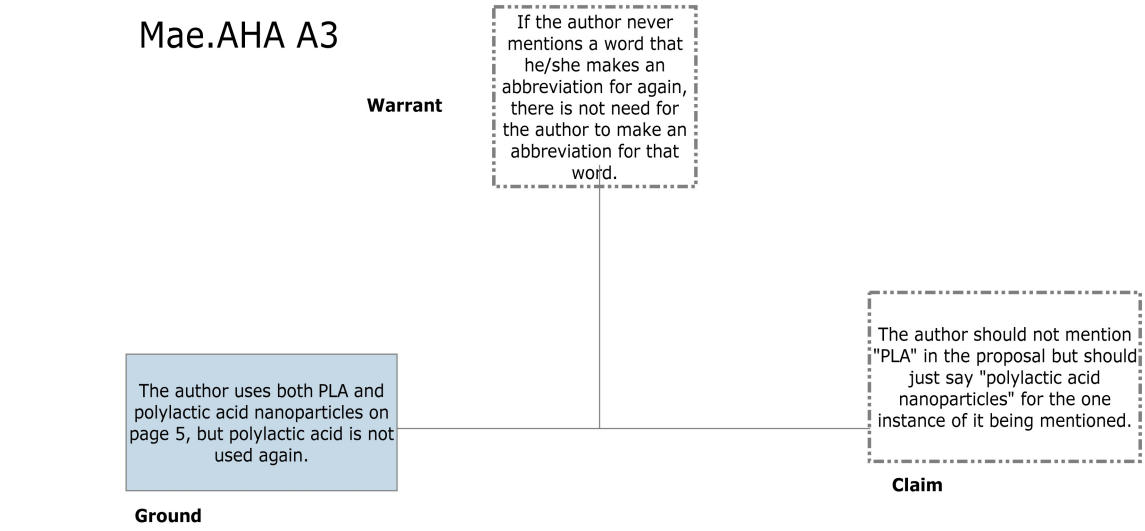



Mae.NIH.2 A40.1
Warrant 1.1
"No capitals unless referring to Promoter Extraction from GenBank (PEG)"
Warrant 1.2
There is not need to capitalize a noun (e.g., extraction) unless it is in a proper name (e.g. Promoter *Extraction* from Genbank."
The author writes: "...will be preformed for the *Extraction* of promoter sequences."
Ground 1
The author should write "...will be preformed for the *extraction* promoter sequences."
Claim 1
Right?
Rebuttal
A40.2
Warrant 2
The author has a specific reason for capitalizing "extraction" that the editor is unaware of.
The editor is not right, and the author has a reason for capitalizing "Extraction" in this sentence.
Ground 2
The author should ignore the editor's suggestion/change.
Claim 2

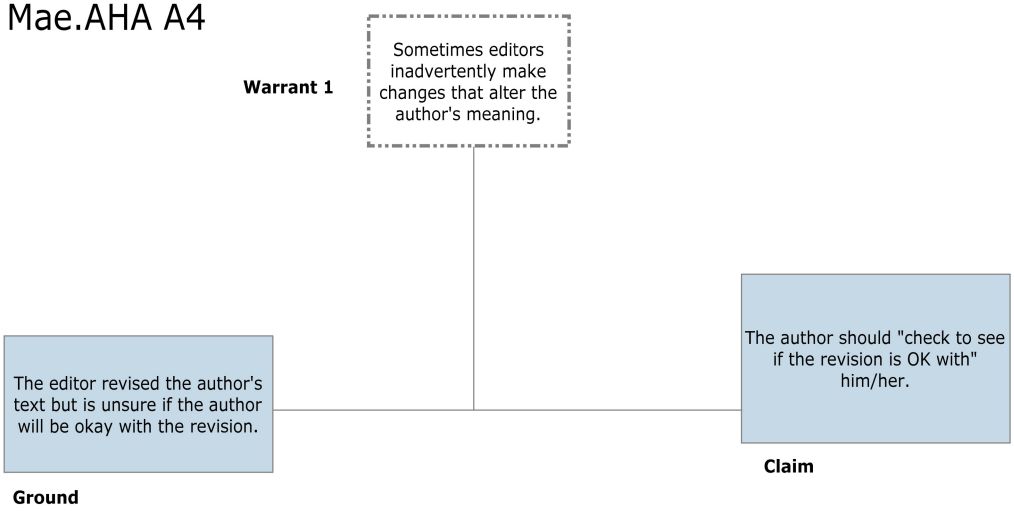
Mae.AHA


Mae.AHA A1
Warrant
Putting only one space after a period gives the author more room in the proposal for important information.
The author puts two spaces after periods.
Ground
The author should only put one space after periods.
Claim

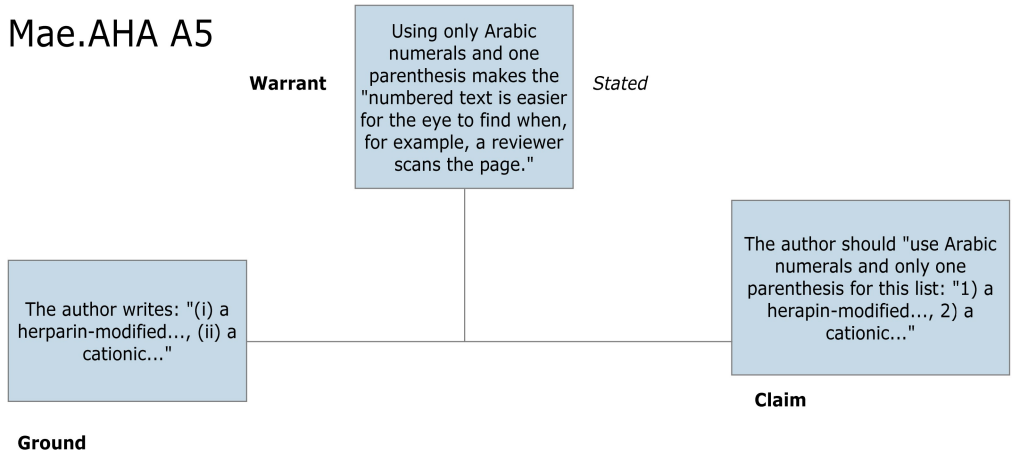

Mae.AHA A2
Warrant
It is important for the author write consistently throughout the proposal to avoid reviewer confusion.
The author seems to be inconsistent with indentations at the beginning of paragraphs
Ground
The author "should check indentations at the beginning of paragraphs."
Claim


Mae.AHA A3
Warrant
If the author never mentions a word that he/she makes an abbreviation for again, there is not need for the author to make an abbreviation for that word.
The author uses both PLA and polylactic acid nanoparticles on page 5, but polylactic acid is not used again.
Ground
The author should not mention "PLA" in the proposal but should just say "polylactic acid nanoparticles" for the one instance of it being mentioned.
Claim

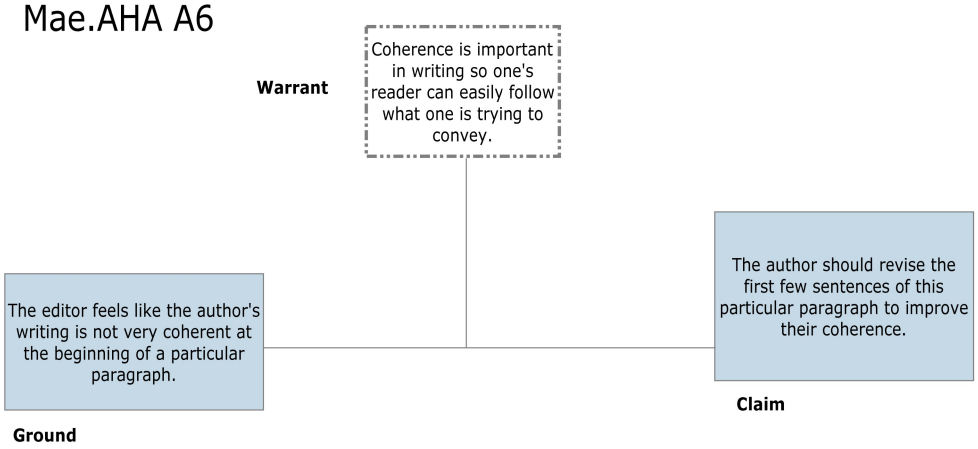
Mae.AHA A4



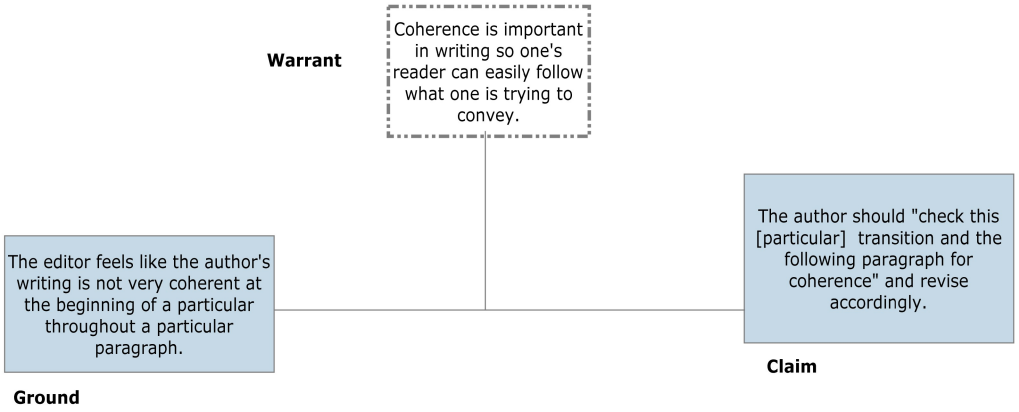
Mae.AHA A5



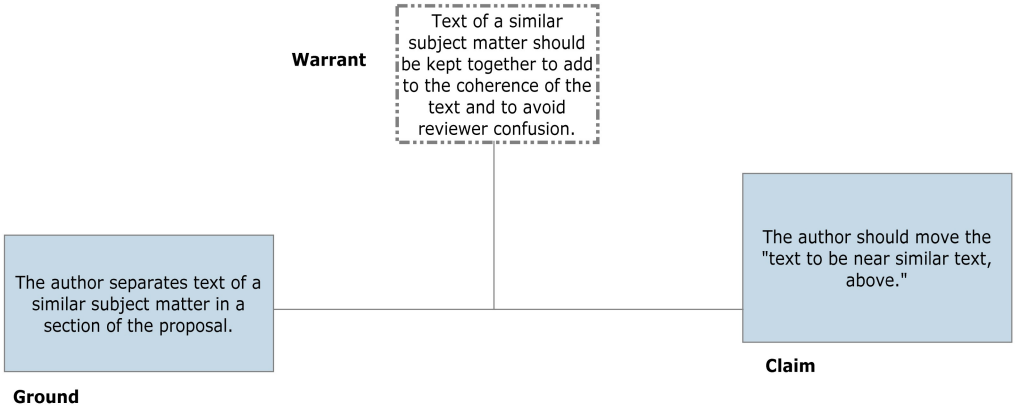
Mae.AHA A6



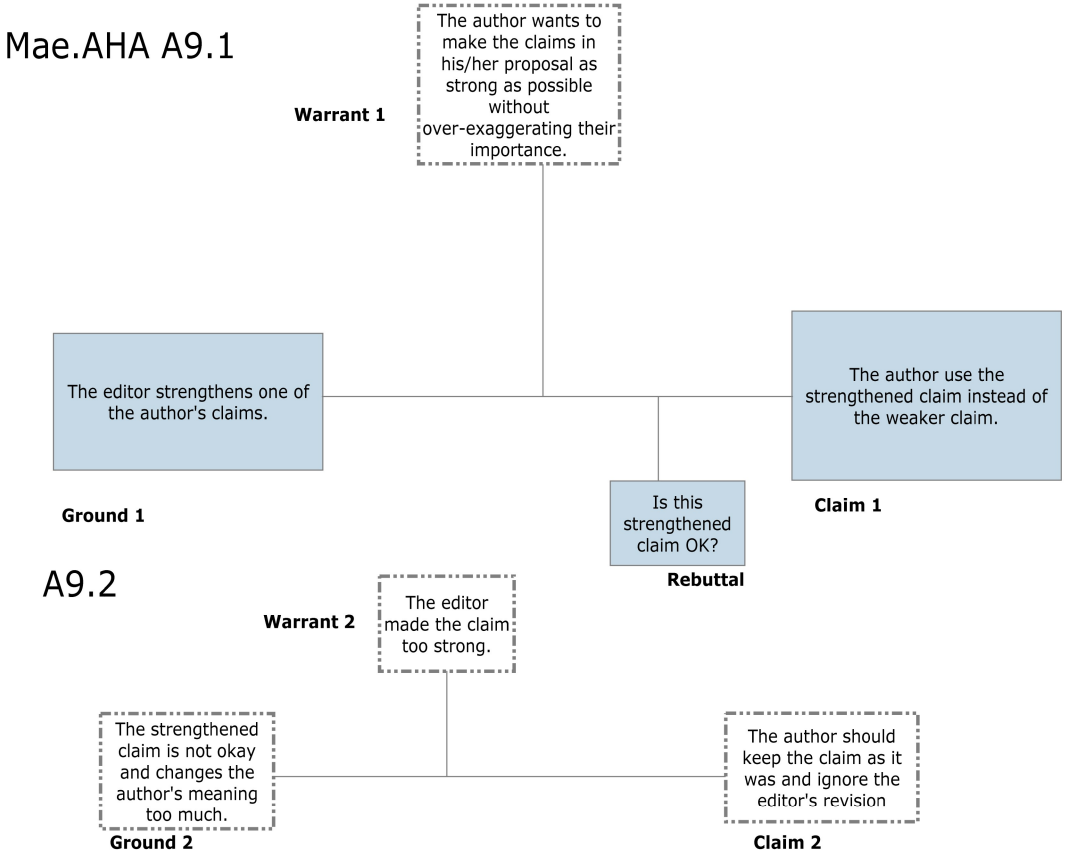
Mae.AHA A7



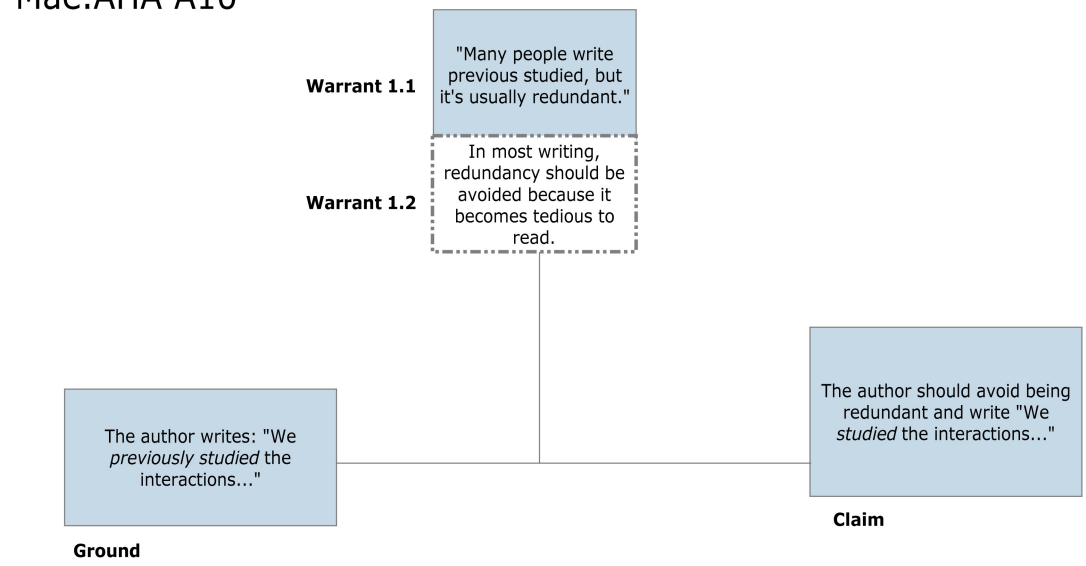
Mae.AHA A8



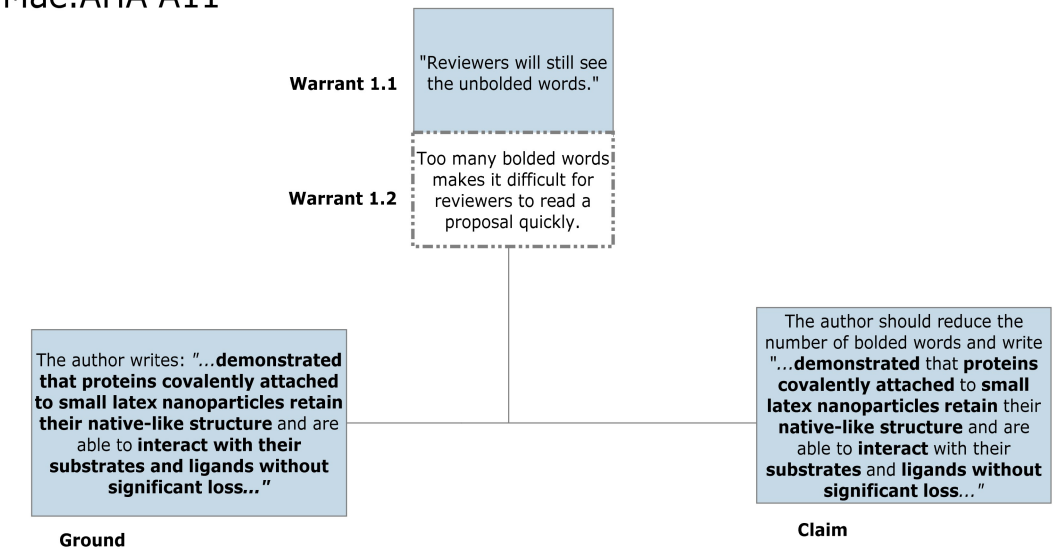
Mae.AHA A9.1



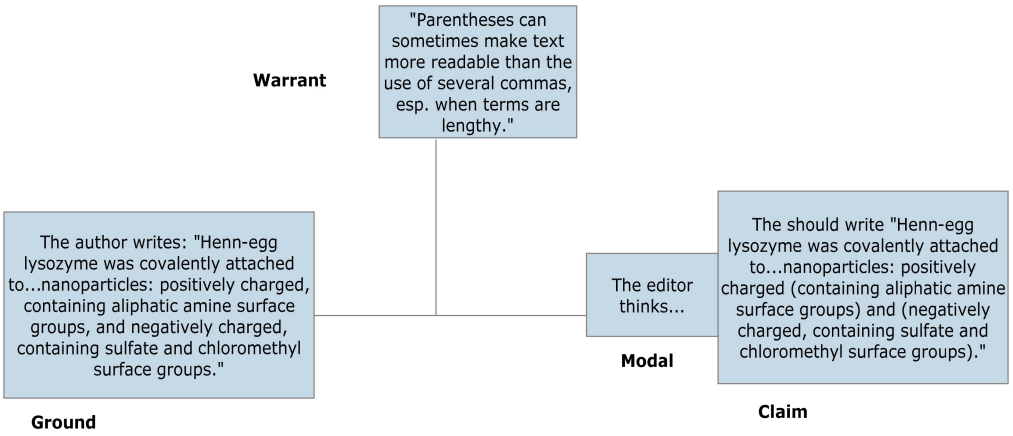
Mae.AHA A10



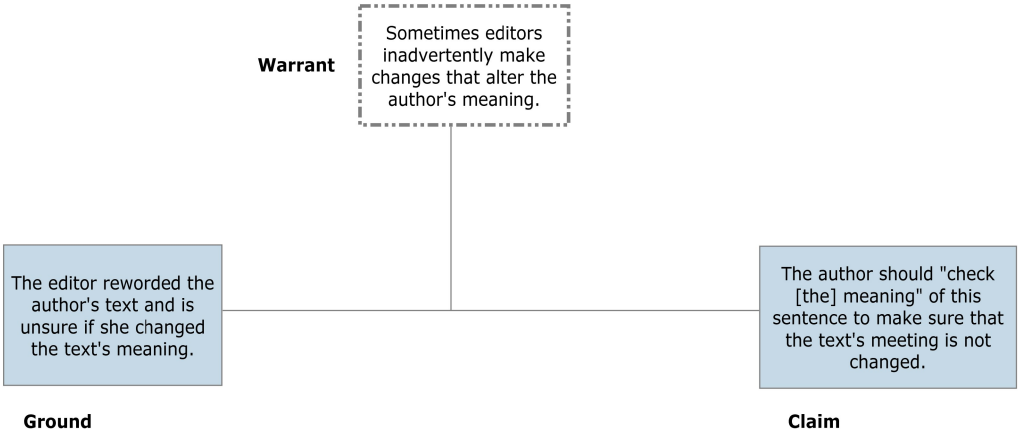
Mae.AHA A11



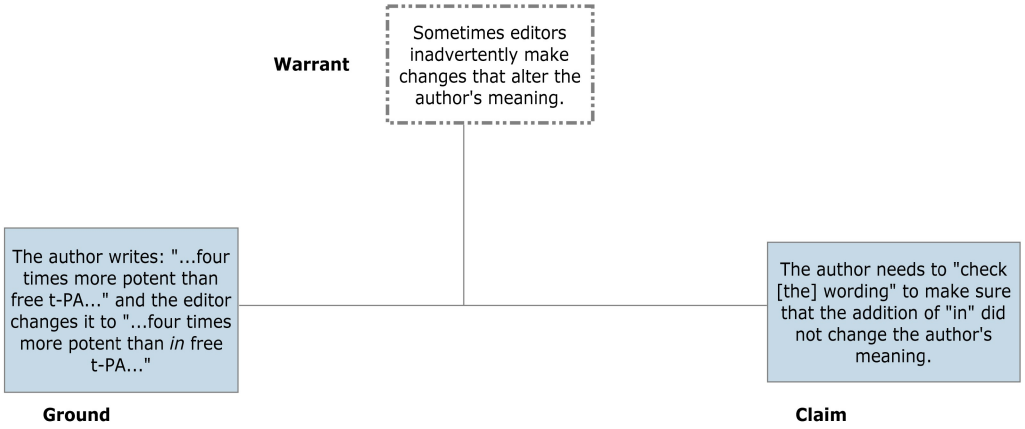
Mae.AHA A12



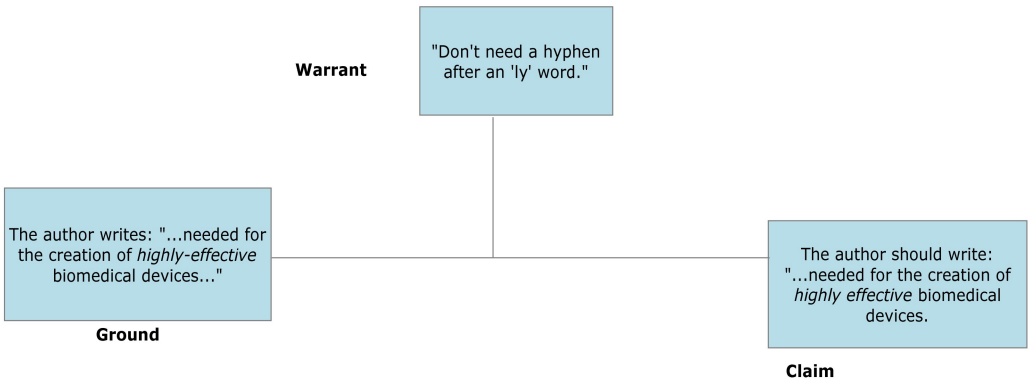
Mae.AHA A14



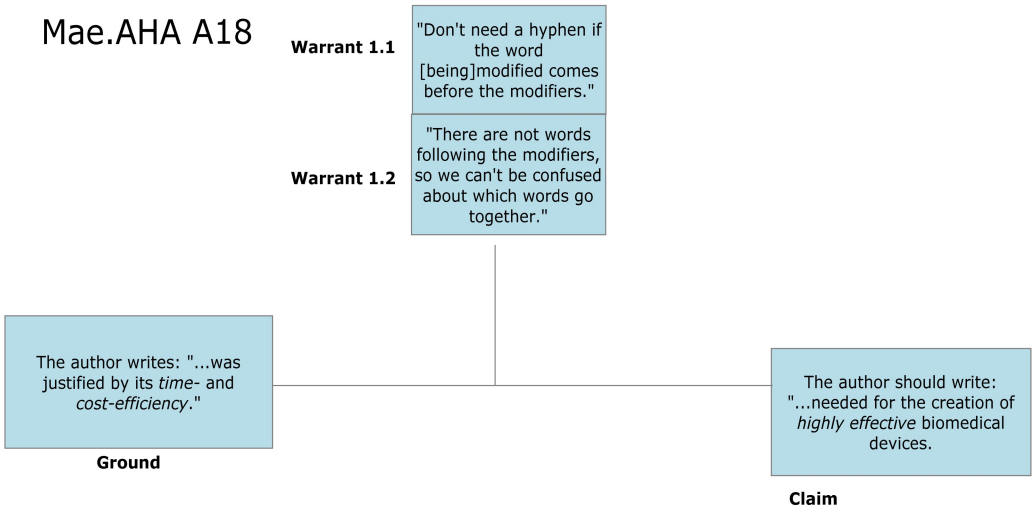
Mae.AHA A15



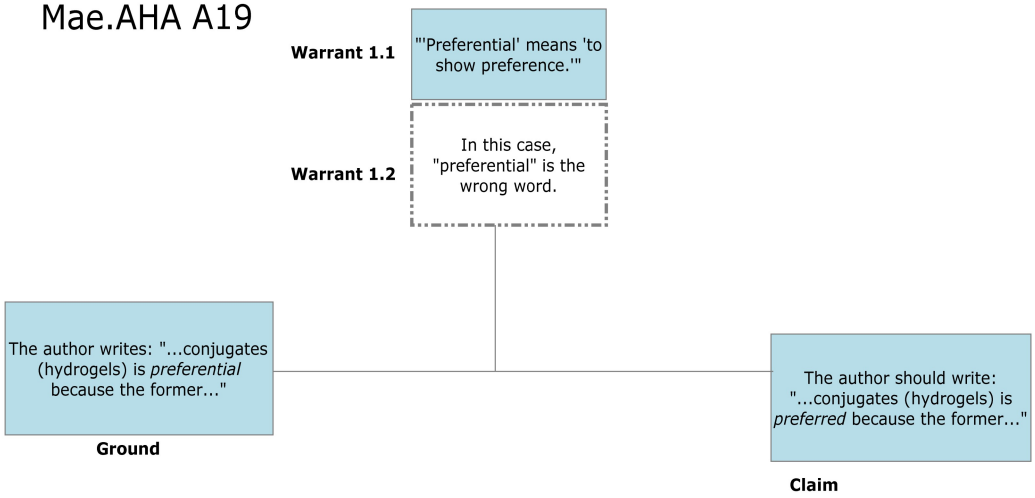
Mae.AHA A17



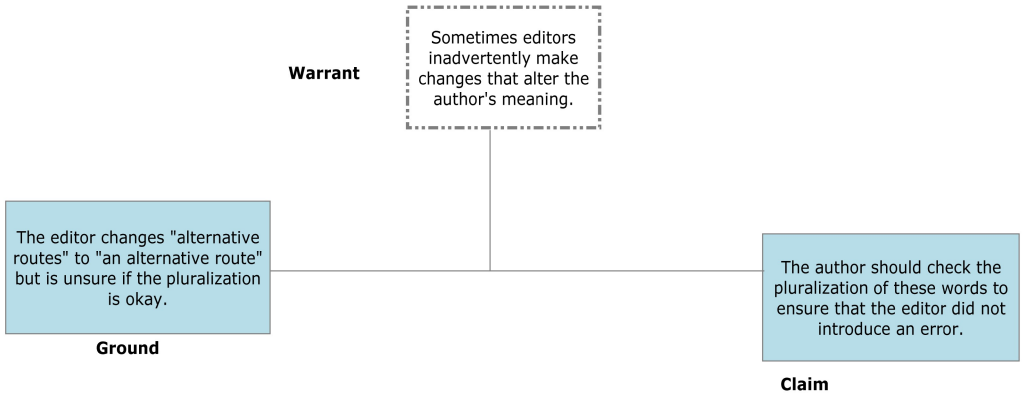
Mae.AHA A18



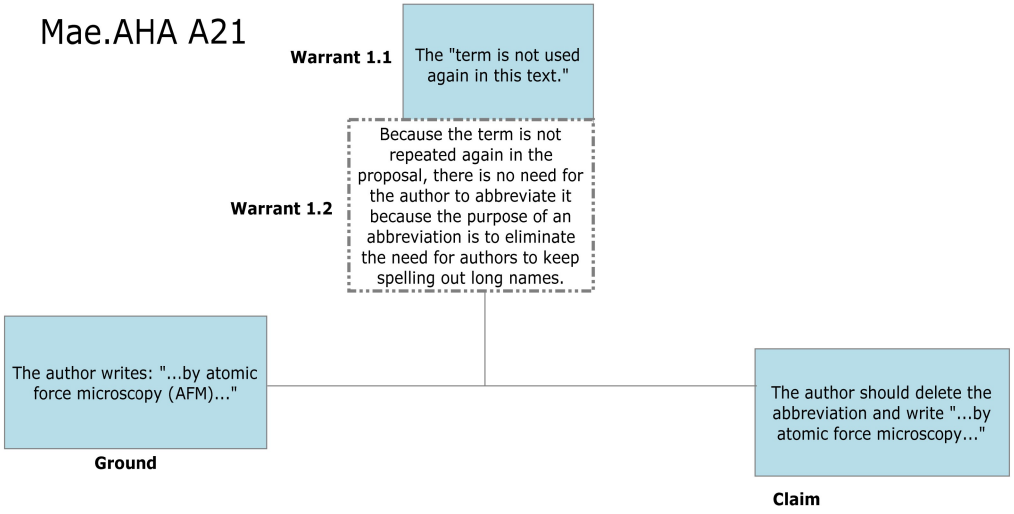
Mae.AHA A19



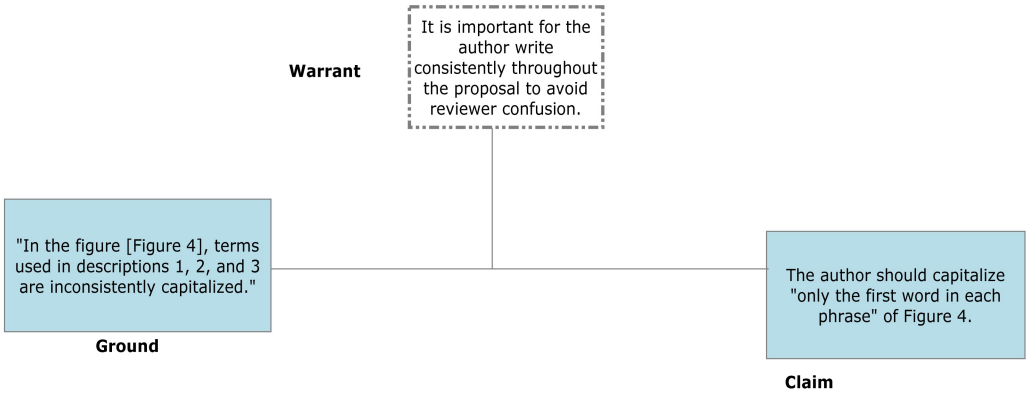
Mae.AHA A20



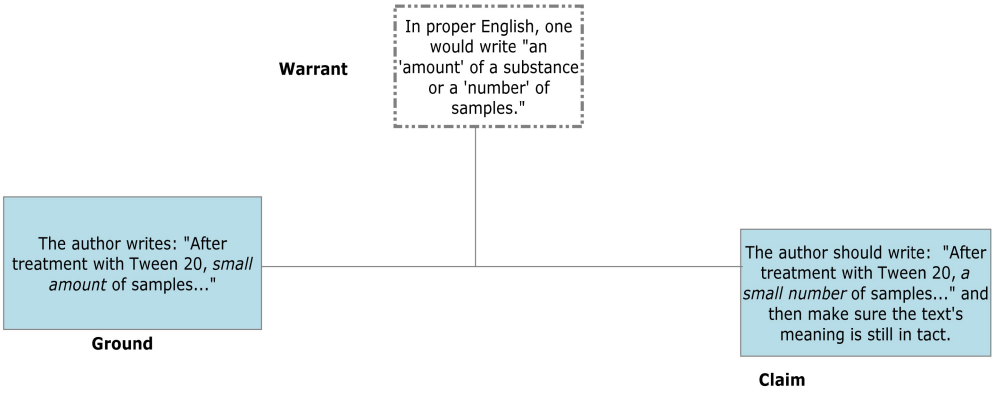
Mae.AHA A21

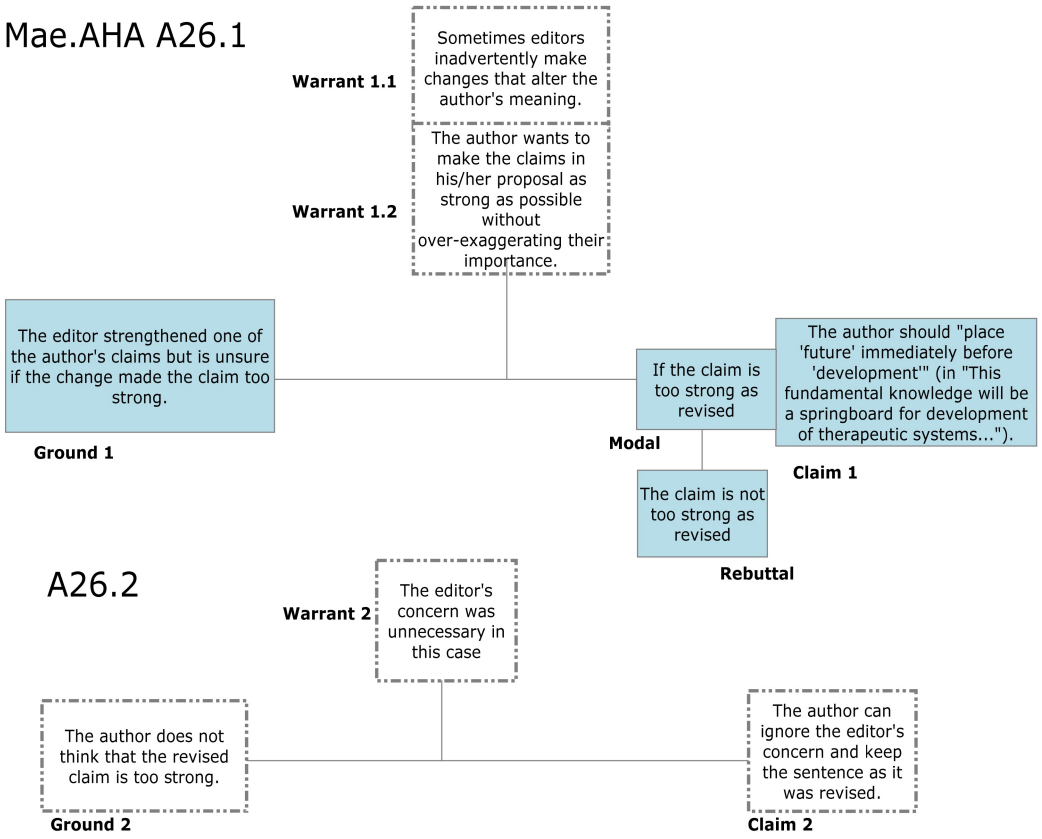


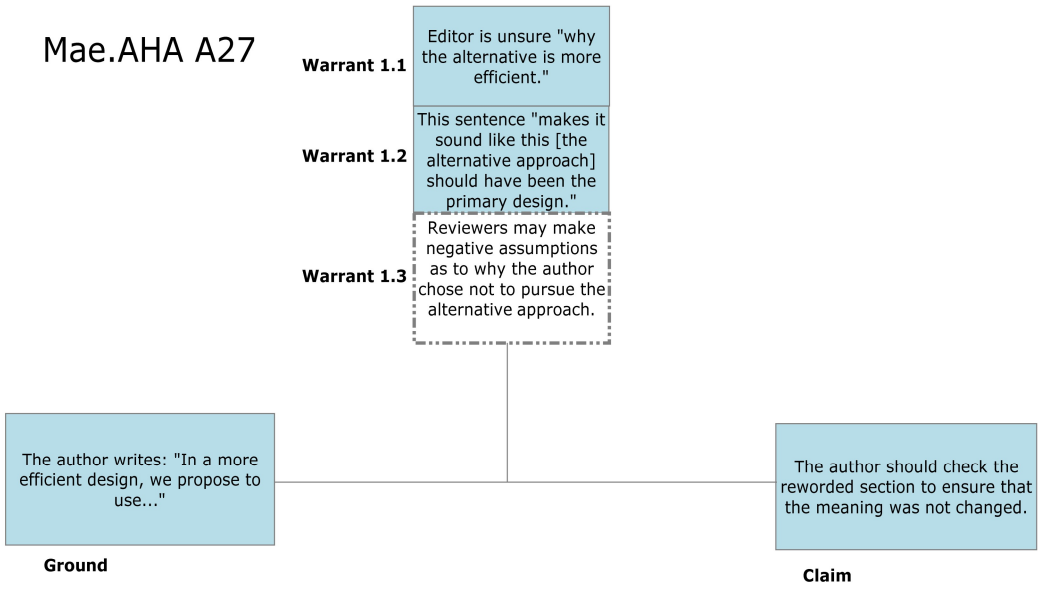
Mae.AHA A23



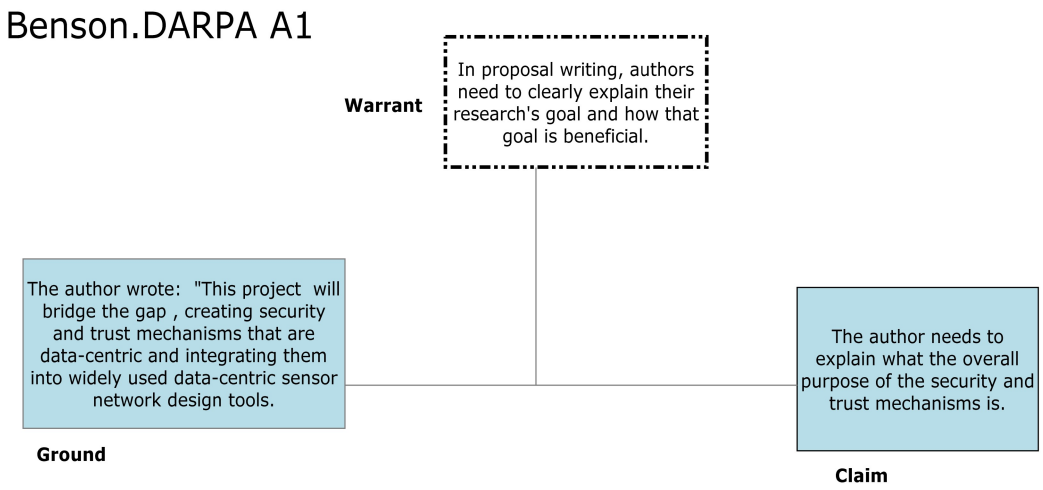
Mae.AHA A24

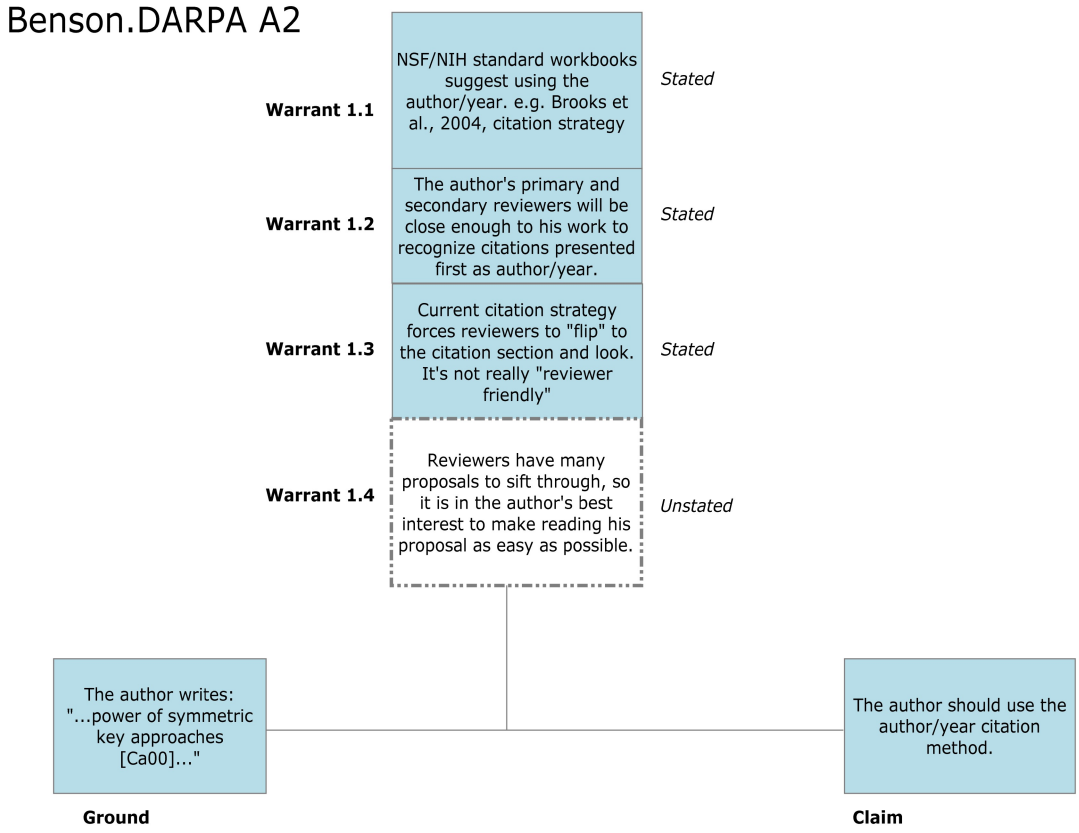


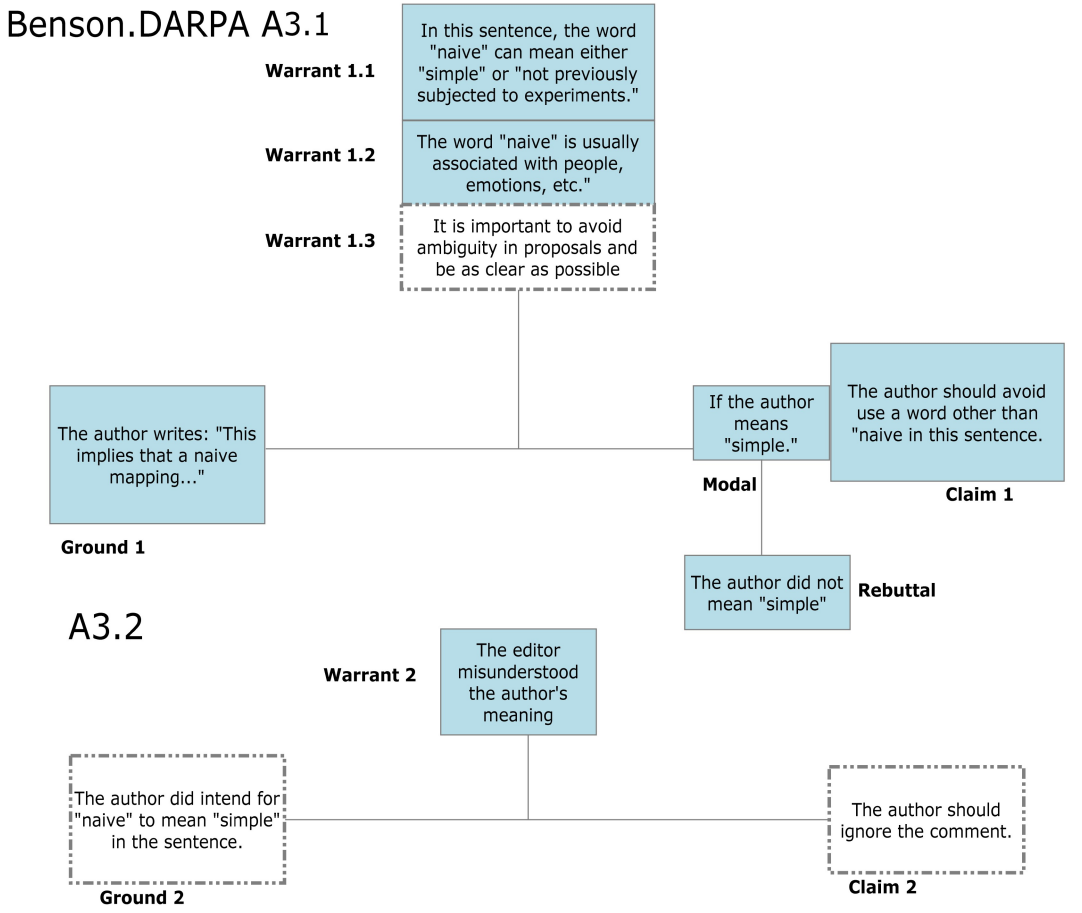

Mae.AHA A26.1
Warrant 1.1
Sometimes editors inadvertently make changes that alter the author's meaning.
Warrant 1.2
The author wants to make the claims in his/her proposal as strong as possible without over-exaggerating their importance.
The editor strengthened one of the author's claims but is unsure if the change made the claim too strong.
Ground 1
If the claim is too strong as revised
Modal
The author should "place 'future' immediately before 'development'" (in "This fundamental knowledge will be a springboard for development of therapeutic systems...").
Claim 1
The claim is not too strong as revised
Rebuttal
A26.2
Warrant 2
The editor's concern was unnecessary in this case
The author does not think that the revised claim is too strong.
Ground 2
The author can ignore the editor's concern and keep the sentence as it was revised.
Claim 2

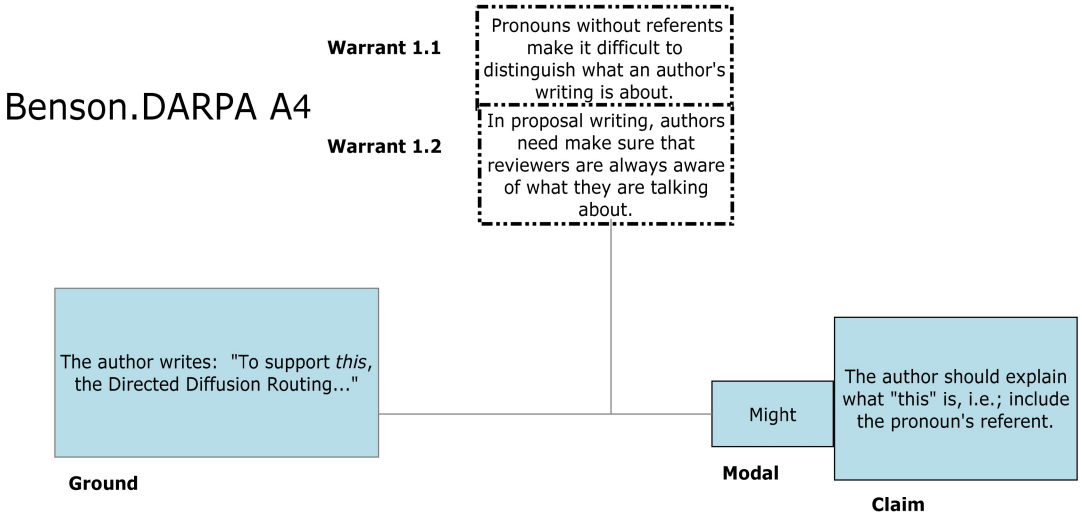

Mae.AHA A27
Warrant 1.1
Editor is unsure "why the alternative is more efficient."
Warrant 1.2
This sentence "makes it sound like this [the alternative approach] should have been the primary design."
Warrant 1.3
Reviewers may make negative assumptions as to why the author chose not to pursue the alternative approach.
The author writes: "In a more efficient design, we propose to use..."
Ground
The author should check the reworded section to ensure that the meaning was not changed.
Claim

Benson.DARPA

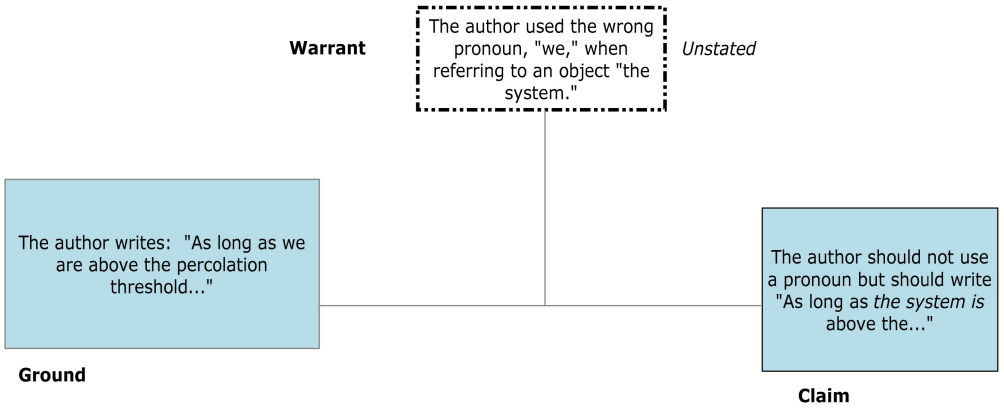




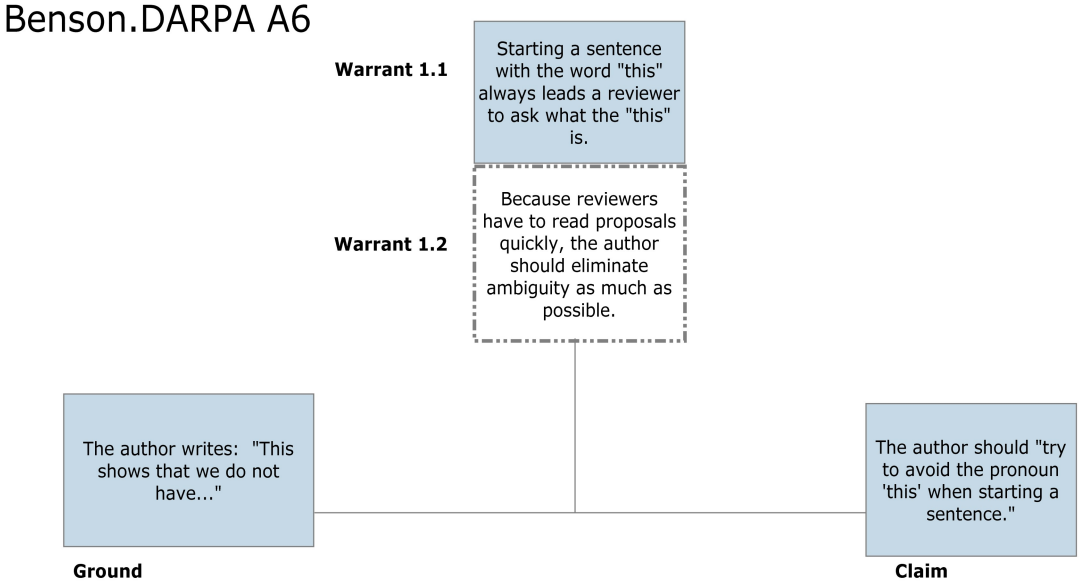

Benson.DARPA A3.1
Warrant 1.1
In this sentence, the word "naive" can mean either "simple" or "not previously subjected to experiments."
Warrant 1.2
The word "naive" is usually associated with people, emotions, etc."
Warrant 1.3
It is important to avoid ambiguity in proposals and be as clear as possible
The author writes: "This implies that a naive mapping..."
Ground 1
If the author means "simple."
Modal
The author should avoid use a word other than "naive in this sentence.
Claim 1
The author did not mean "simple"
Rebuttal
A3.2
Warrant 2
The editor misunderstood the author's meaning
The author did intend for "naive" to mean "simple" in the sentence.
Ground 2
The author should ignore the comment.
Claim 2


Benson.DARPA A4
Warrant 1.1
Pronouns without referents make it difficult to distinguish what an author's writing is about.
Warrant 1.2
In proposal writing, authors need make sure that reviewers are always aware of what they are talking about.
The author writes: "To support *this*, the Directed Diffusion Routing..."
Ground
Might
Modal
The author should explain what "this" is, i.e.; include the pronoun's referent.
Claim

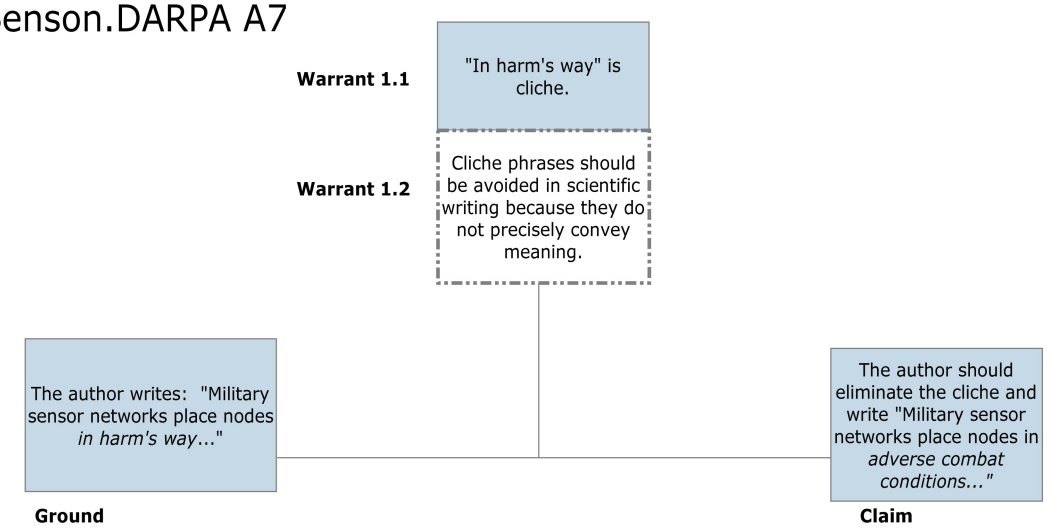
Benson.DARPA A5



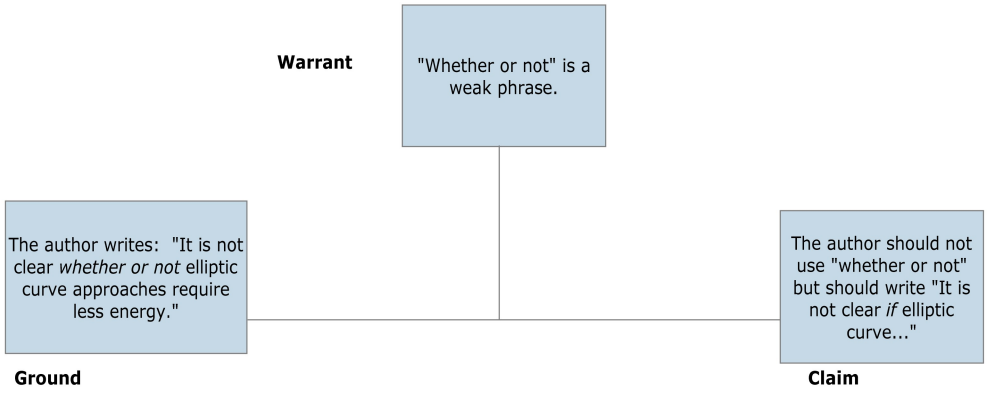
Benson.DARPA A6



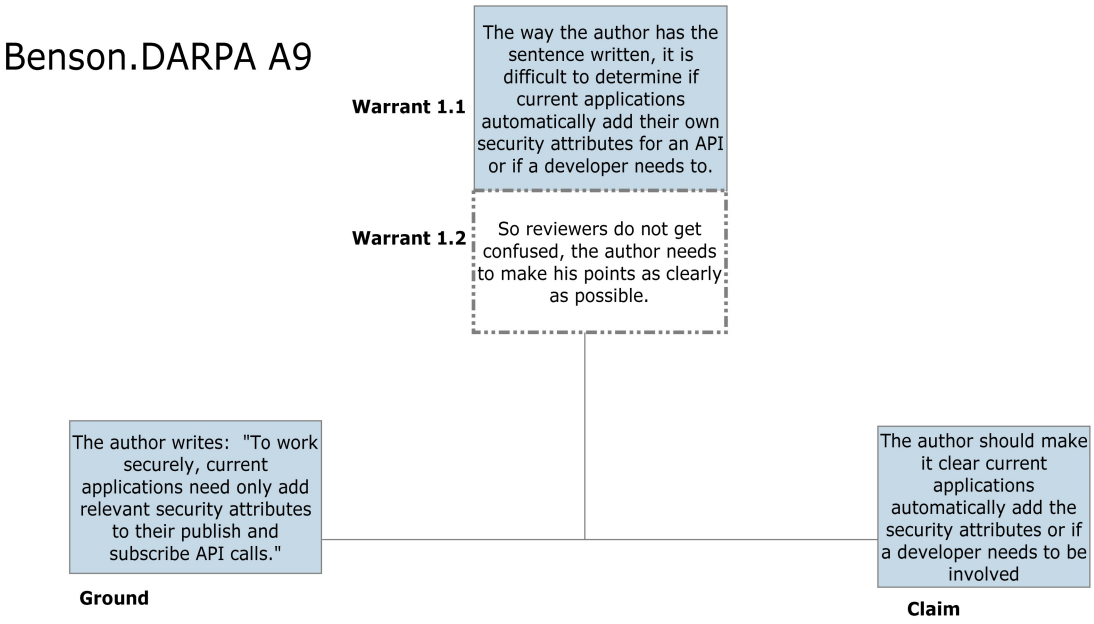
Benson.DARPA A7



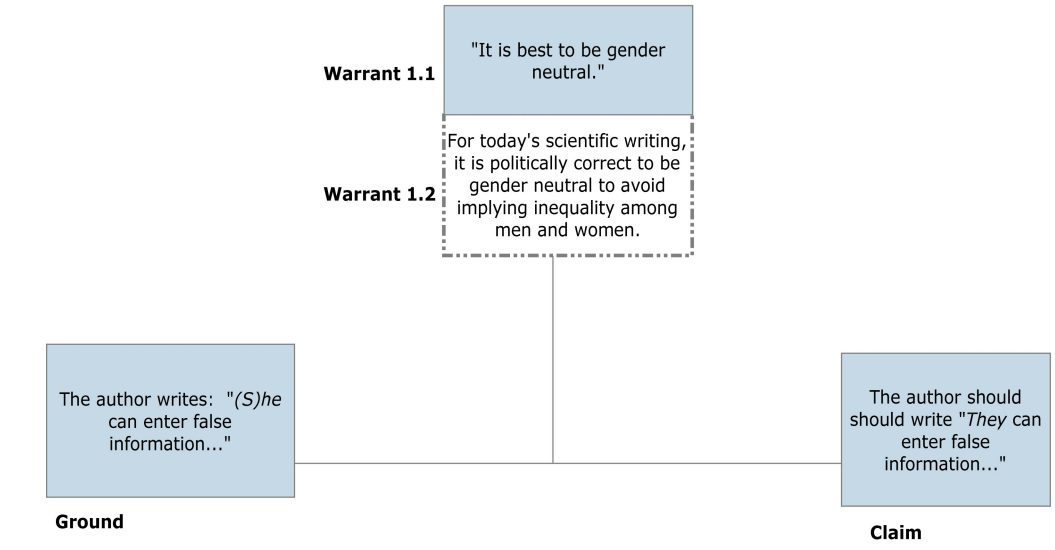
Benson.DARPA A8



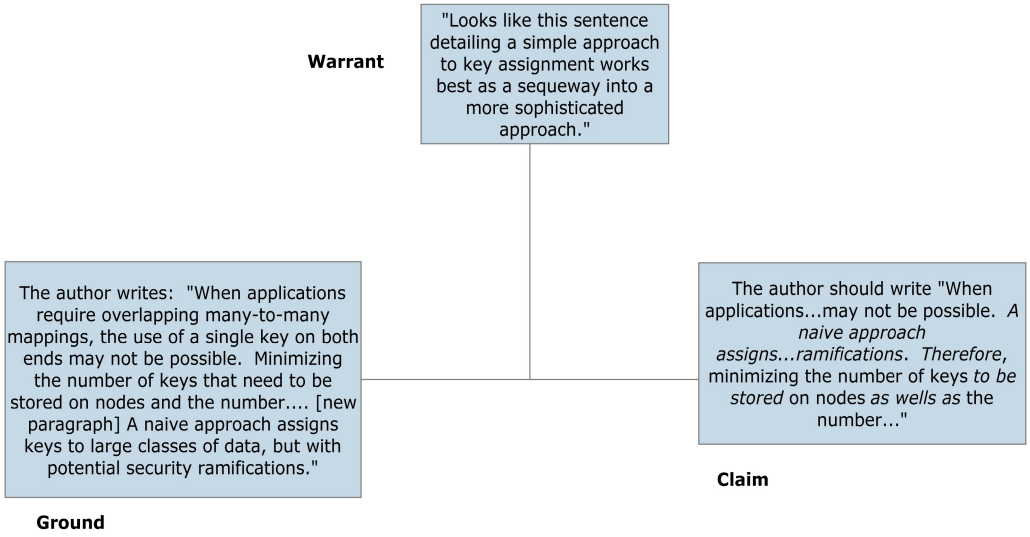
Benson.DARPA A9



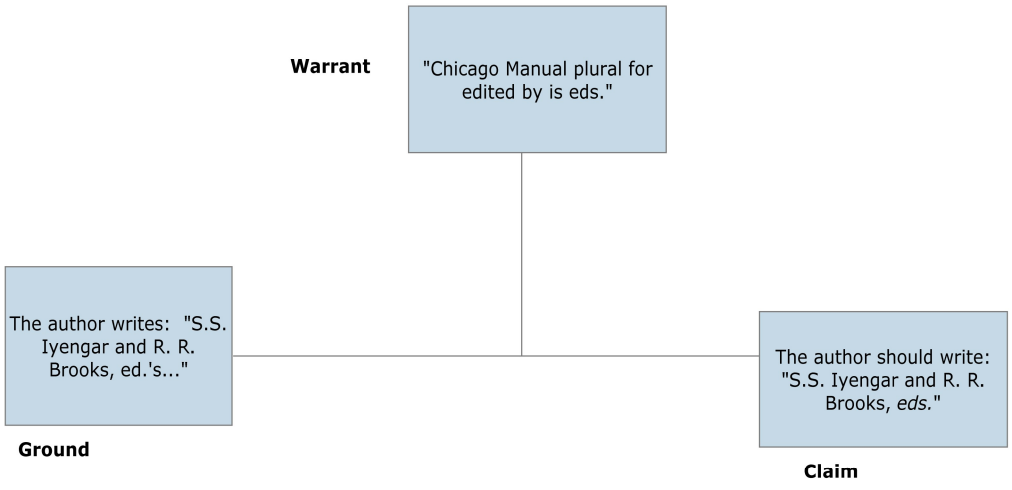
Benson.DARPA A10

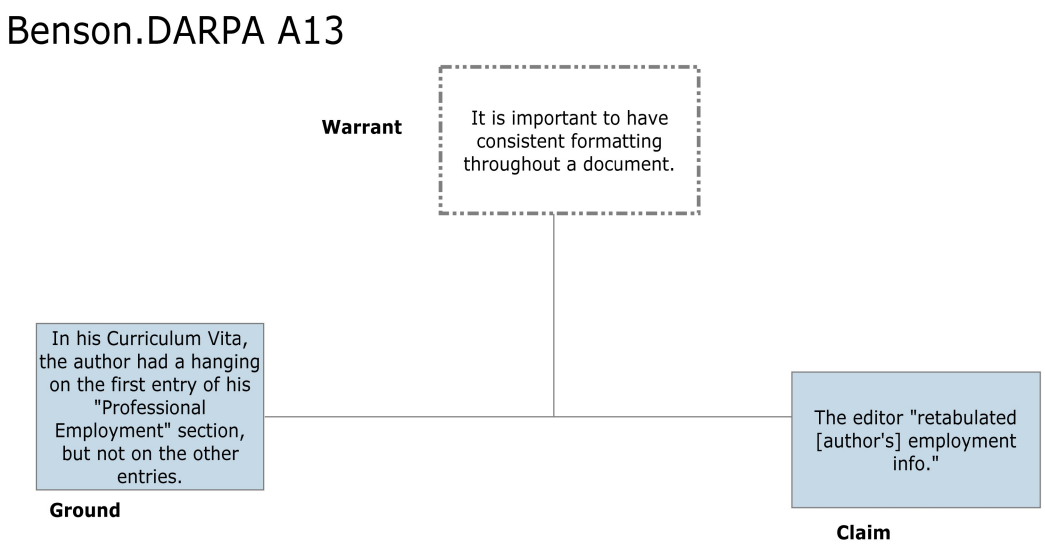


Benson.DARPA A11

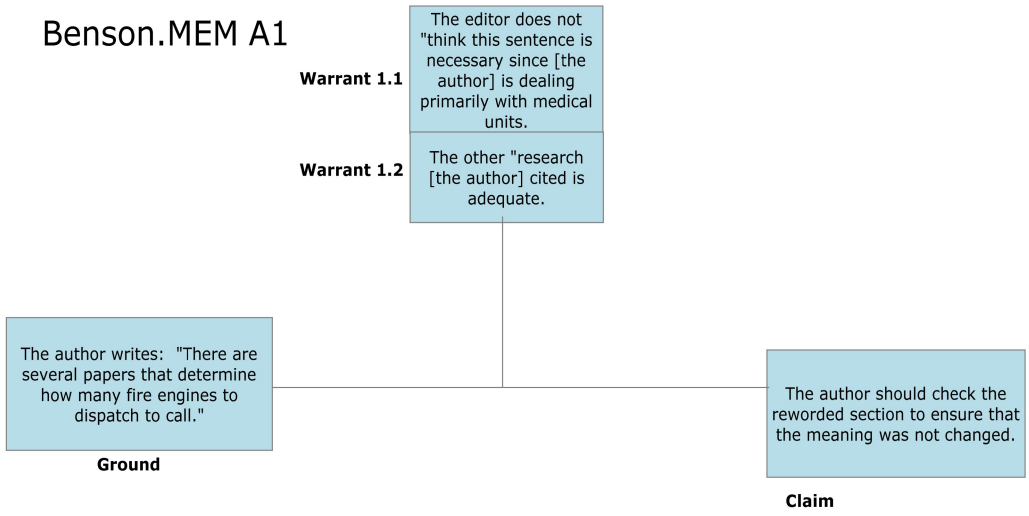


Benson.DARPA A12

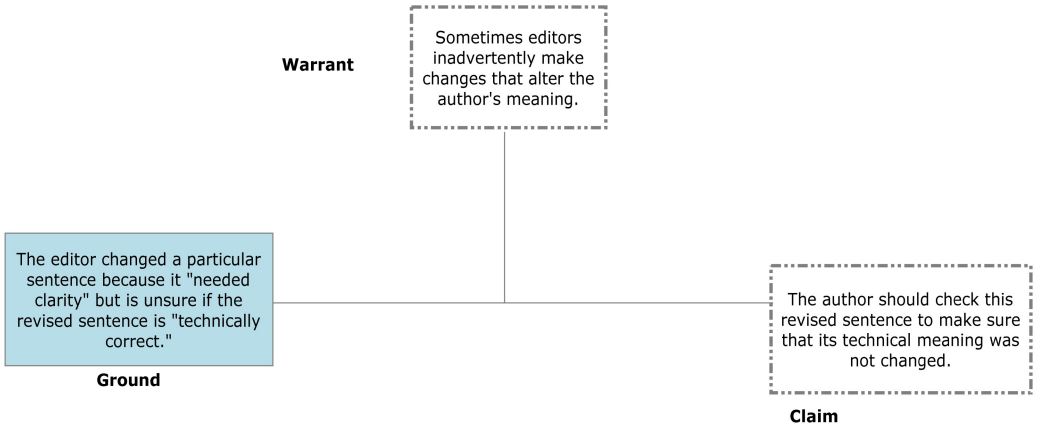



Benson.DARPA A13
Warrant
It is important to have consistent formatting throughout a document.
In his Curriculum Vita, the author had a hanging on the first entry of his "Professional Employment" section, but not on the other entries.
Ground
The editor "retabulated [author's] employment info."
Claim

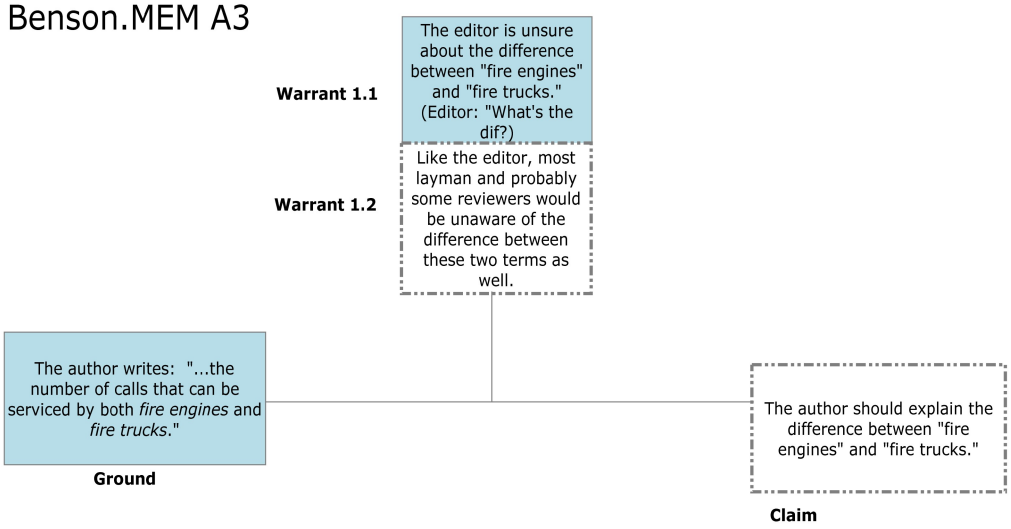
Benson.MEM

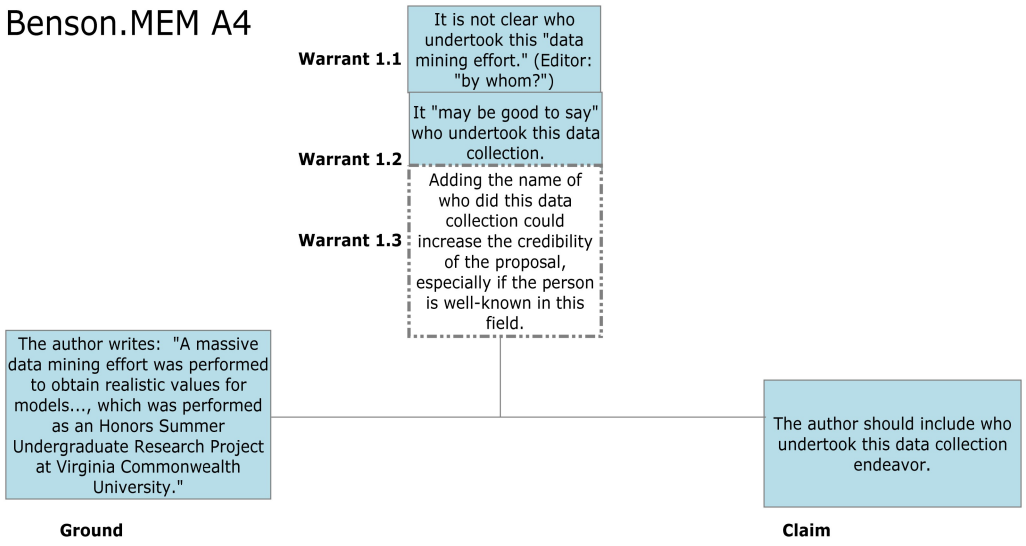

Benson.MEM A1
Warrant 1.1
The editor does not "think this sentence is necessary since [the author] is dealing primarily with medical units.
Warrant 1.2
The other "research [the author] cited is adequate.
The author writes: "There are several papers that determine how many fire engines to dispatch to call."
Ground
The author should check the reworded section to ensure that the meaning was not changed.
Claim

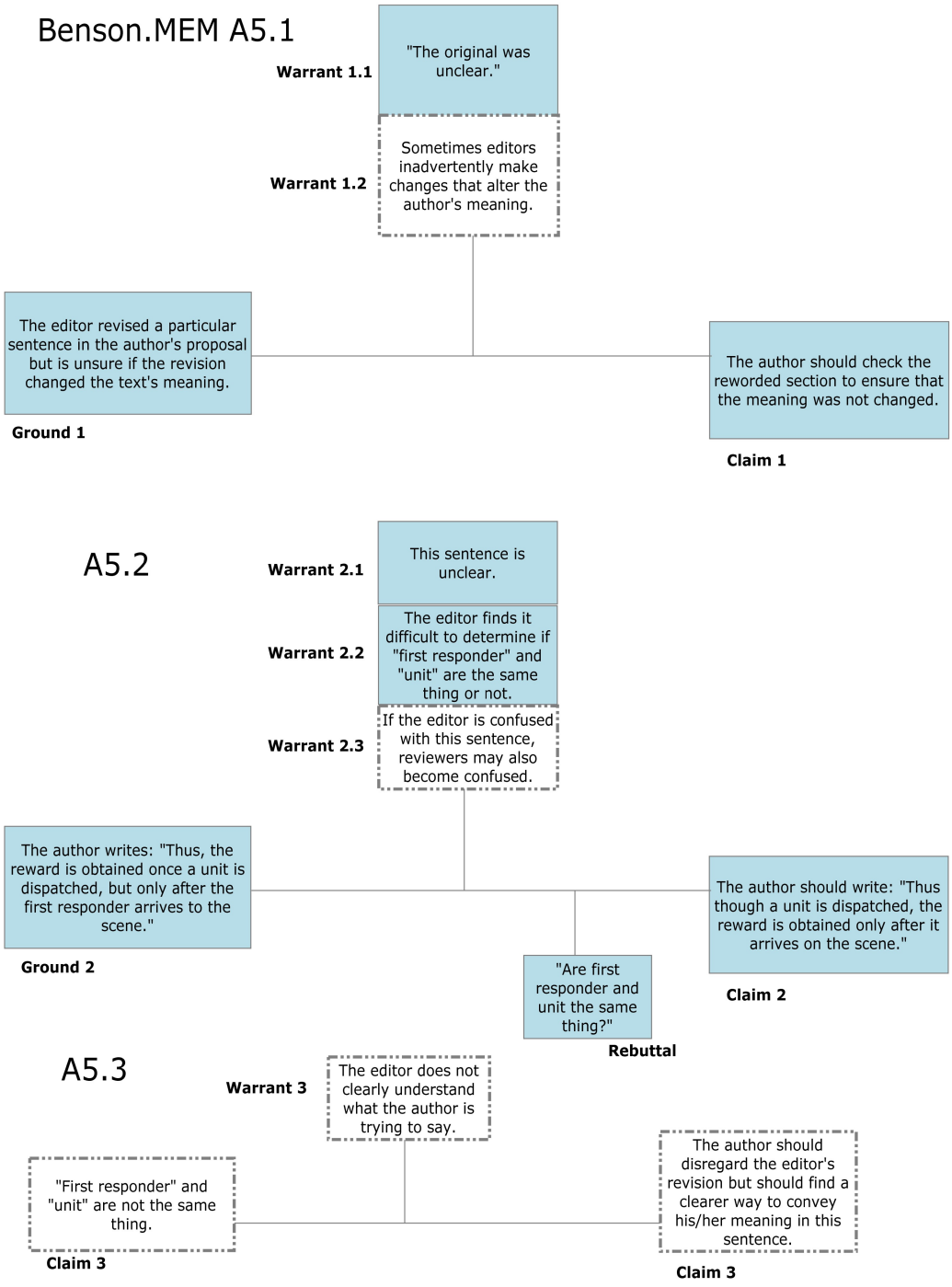
Benson.MEM A2



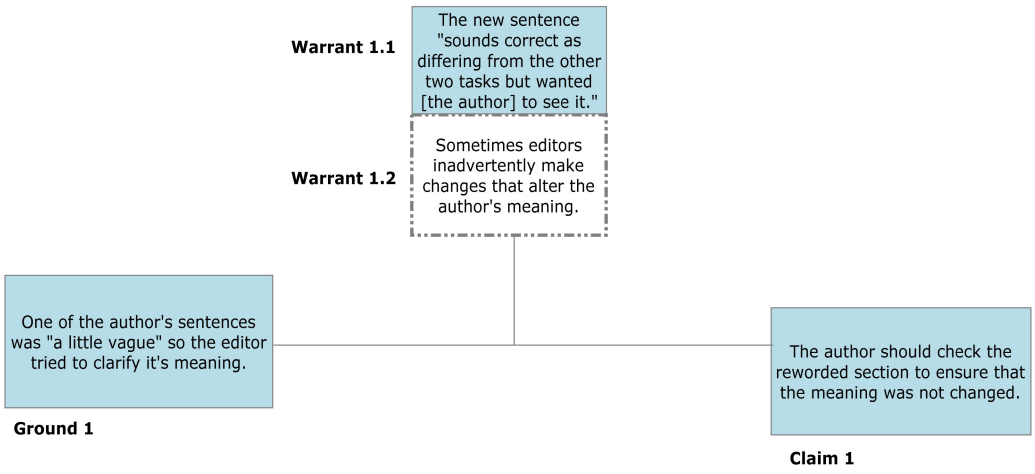
Benson.MEM A3



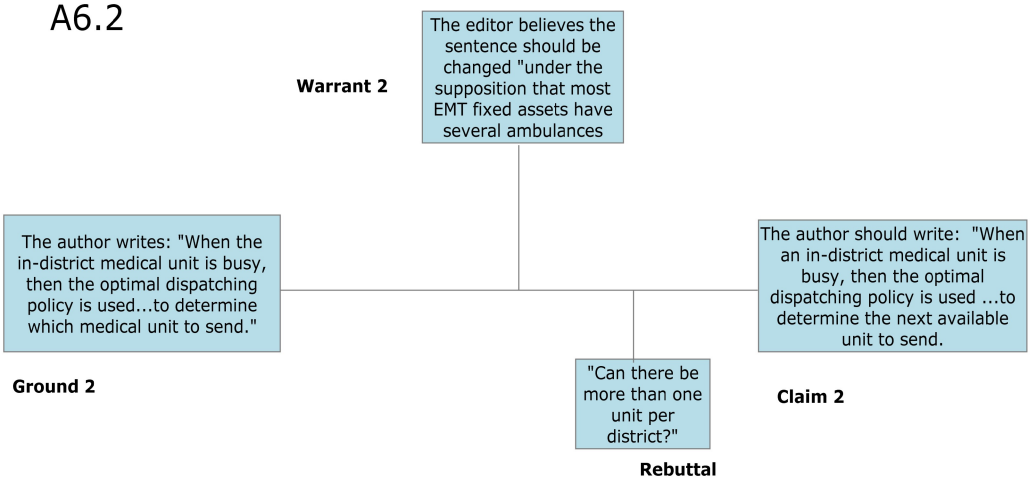

Benson.MEM A4
Warrant 1.1
It is not clear who undertook this "data mining effort." (Editor: "by whom?")
Warrant 1.2
It "may be good to say" who undertook this data collection.
Warrant 1.3
Adding the name of who did this data collection could increase the credibility of the proposal, especially if the person is well-known in this field.
The author writes: "A massive data mining effort was performed to obtain realistic values for models..., which was performed as an Honors Summer Undergraduate Research Project at Virginia Commonwealth University."
Ground
The author should include who undertook this data collection endeavor.
Claim


Benson.MEM A5.1
Warrant 1.1
"The original was unclear."
Warrant 1.2
Sometimes editors inadvertently make changes that alter the author's meaning.
The editor revised a particular sentence in the author's proposal but is unsure if the revision changed the text's meaning.
Ground 1
The author should check the reworded section to ensure that the meaning was not changed.
Claim 1
A5.2
Warrant 2.1
This sentence is unclear.
Warrant 2.2
The editor finds it difficult to determine if "first responder" and "unit" are the same thing or not.
Warrant 2.3
If the editor is confused with this sentence, reviewers may also become confused.
The author writes: "Thus, the reward is obtained once a unit is dispatched, but only after the first responder arrives to the scene."
Ground 2
The author should write: "Thus though a unit is dispatched, the reward is obtained only after it arrives on the scene."
Claim 2
"Are first responder and unit the same thing?"
Rebuttal
A5.3
Warrant 3
The editor does not clearly understand what the author is trying to say.
"First responder" and "unit" are not the same thing.
Claim 3
The author should disregard the editor's revision but should find a clearer way to convey his/her meaning in this sentence.
Claim 3

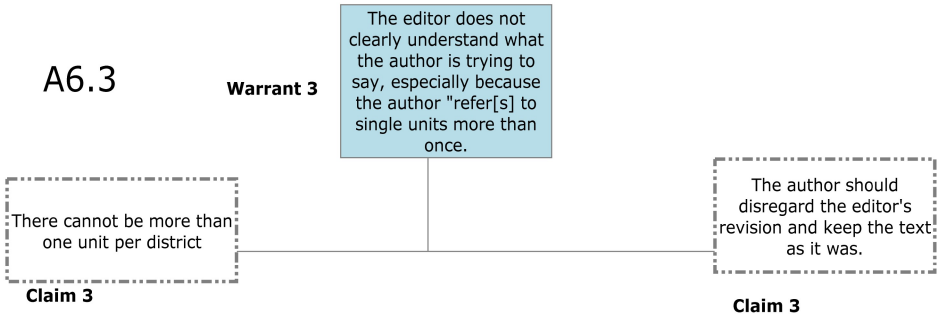
Benson.MEM A6.1

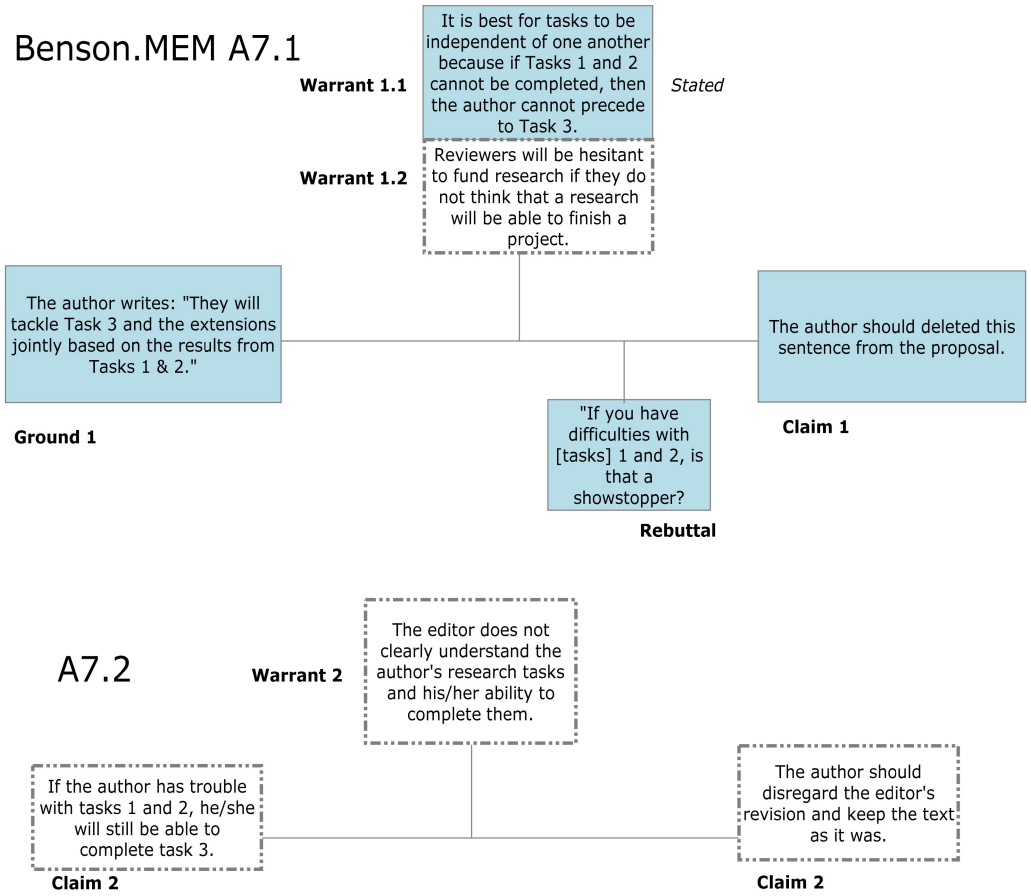


A6.2

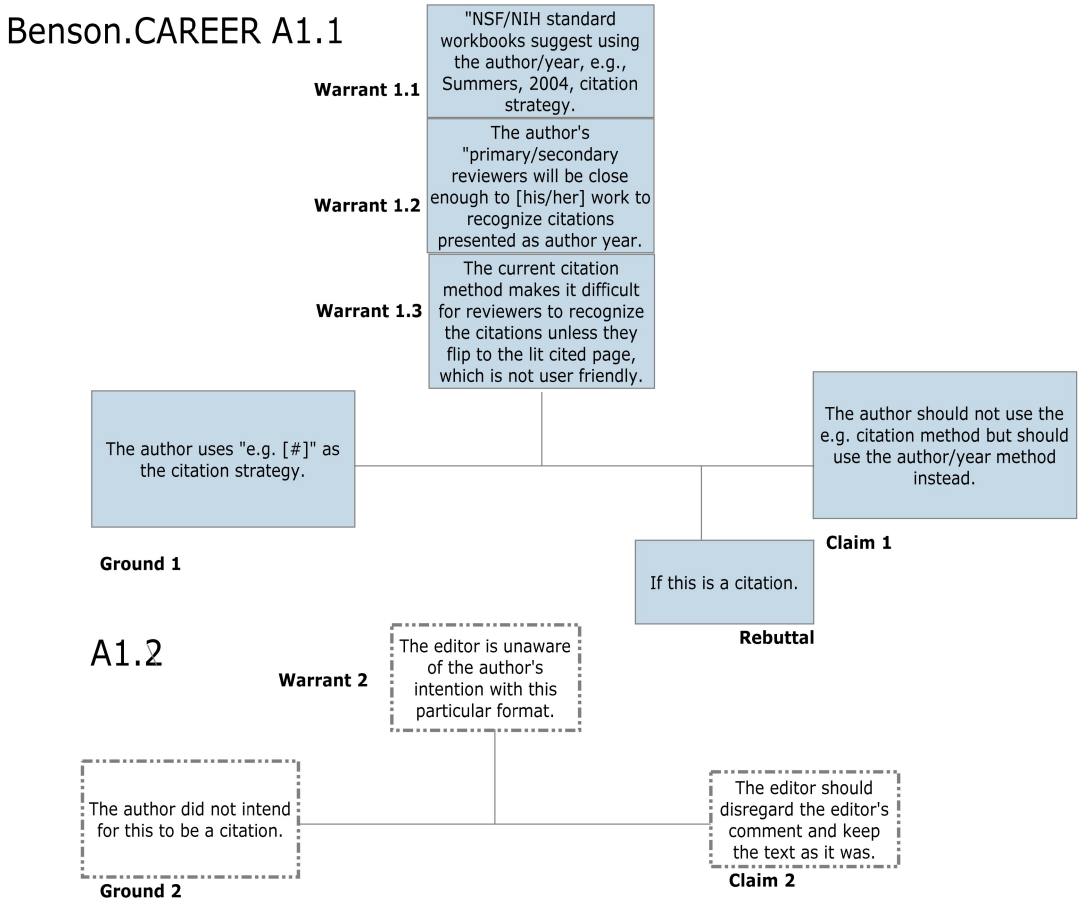


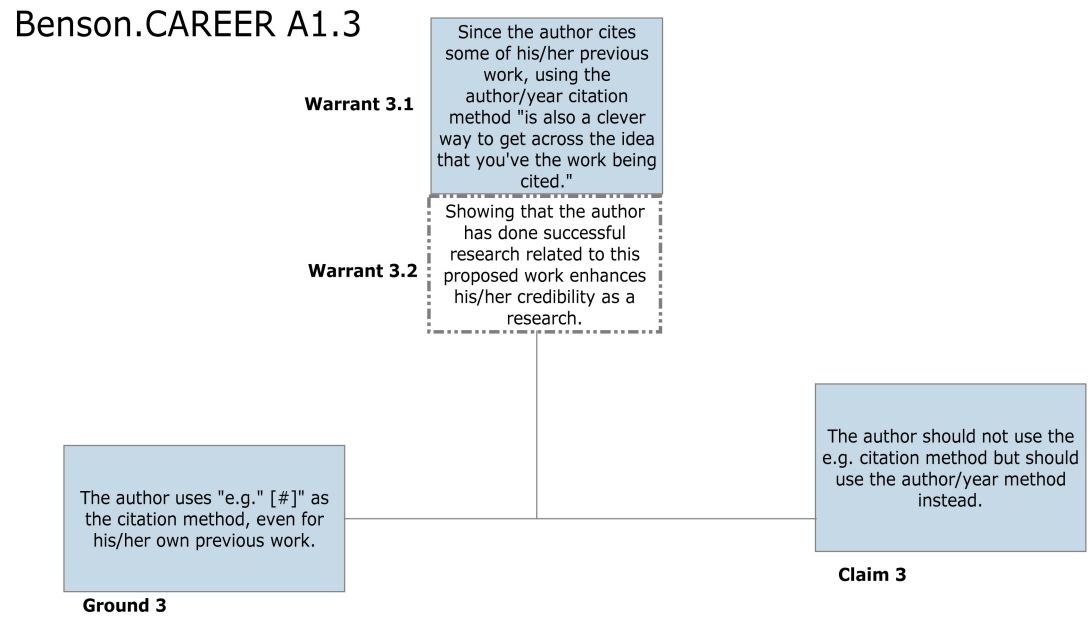
A6.3

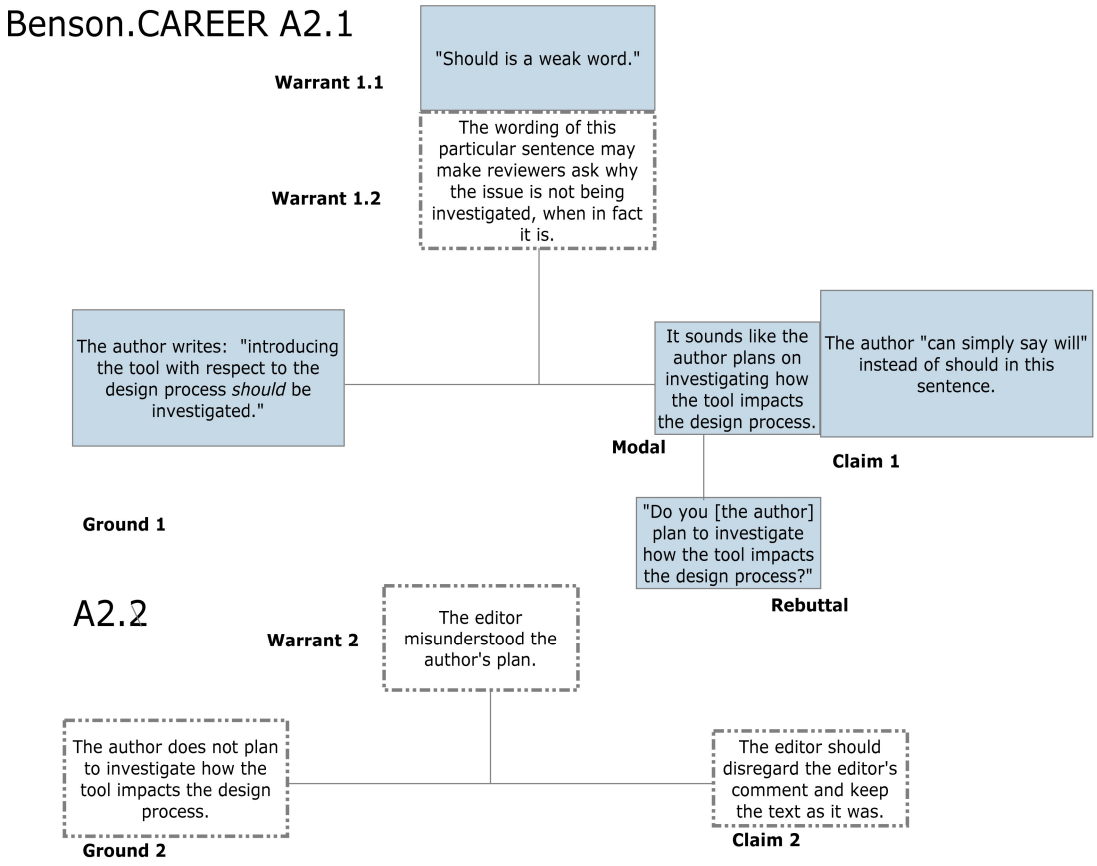



Benson.MEM A7.1
Warrant 1.1
It is best for tasks to be independent of one another because if Tasks 1 and 2 cannot be completed, then the author cannot precede to Task 3.
Stated
Warrant 1.2
Reviewers will be hesitant to fund research if they do not think that a research will be able to finish a project.
The author writes: "They will tackle Task 3 and the extensions jointly based on the results from Tasks 1 & 2."
Ground 1
The author should deleted this sentence from the proposal.
Claim 1
"If you have difficulties with [tasks] 1 and 2, is that a showstopper?
Rebuttal
A7.2
Warrant 2
The editor does not clearly understand the author's research tasks and his/her ability to complete them.
If the author has trouble with tasks 1 and 2, he/she will still be able to complete task 3.
Claim 2
The author should disregard the editor's revision and keep the text as it was.
Claim 2

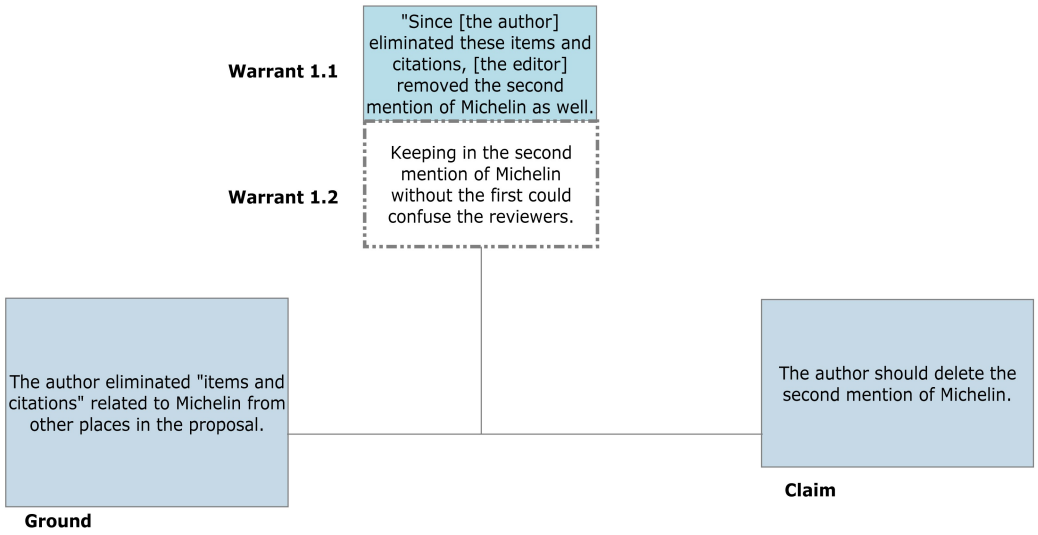
Benson.CAREER




Benson.CAREER A1.3
Since the author cites some of his/her previous work, using the author/year citation method "is also a clever way to get across the idea that you've the work being cited."
Warrant 3.1
Showing that the author has done successful research related to this proposed work enhances his/her credibility as a research.
Warrant 3.2
The author should not use the e.g. citation method but should use the author/year method instead.
Claim 3
The author uses "e.g." [#]" as the citation method, even for his/her own previous work.
Ground 3

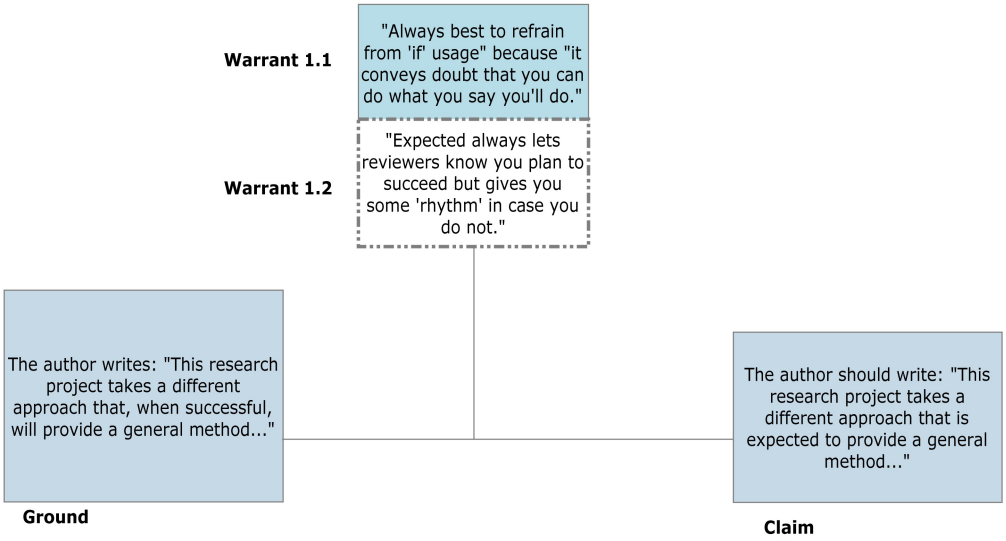

Benson.CAREER A2.1
"Should is a weak word."
Warrant 1.1
The wording of this particular sentence may make reviewers ask why the issue is not being investigated, when in fact it is.
Warrant 1.2
The author writes: "introducing the tool with respect to the design process *should* be investigated."
It sounds like the author plans on investigating how the tool impacts the design process.
Modal
The author "can simply say will" instead of should in this sentence.
Claim 1
Ground 1
"Do you [the author] plan to investigate how the tool impacts the design process?"
Rebuttal
A2.2
Warrant 2
The editor misunderstood the author's plan.
The author does not plan to investigate how the tool impacts the design process.
Ground 2
The editor should disregard the editor's comment and keep the text as it was.
Claim 2

Benson.CAREER A3

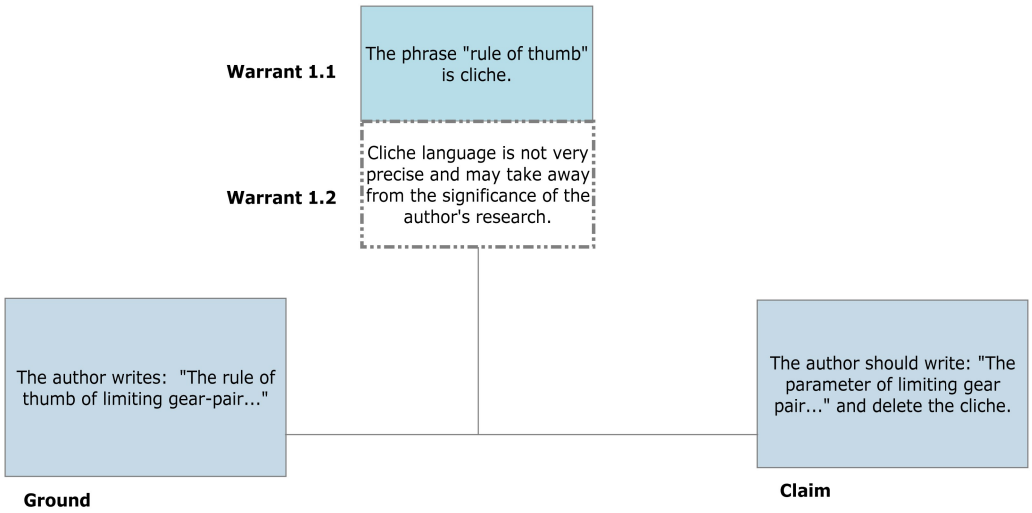


Benson.CAREER A4

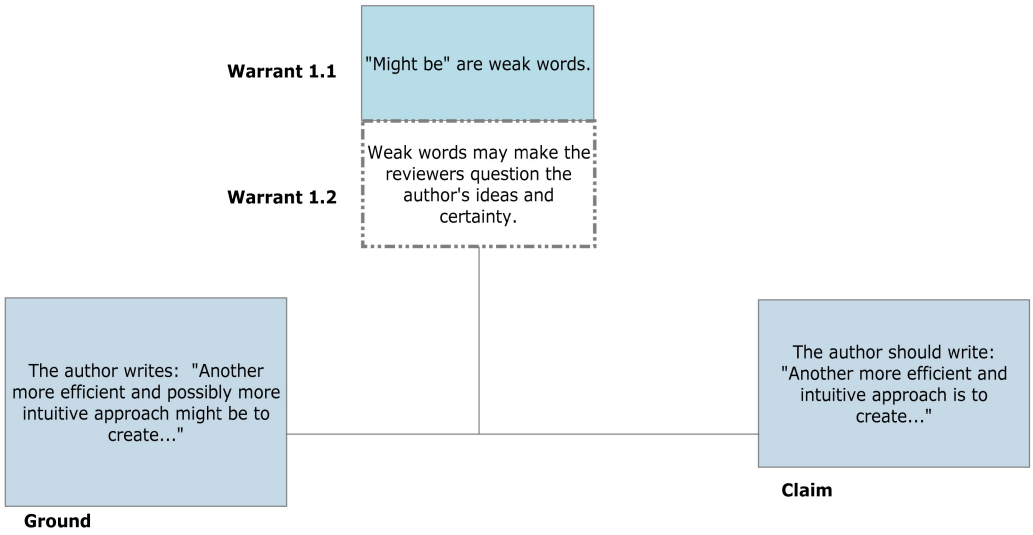
Benson.CAREER A5



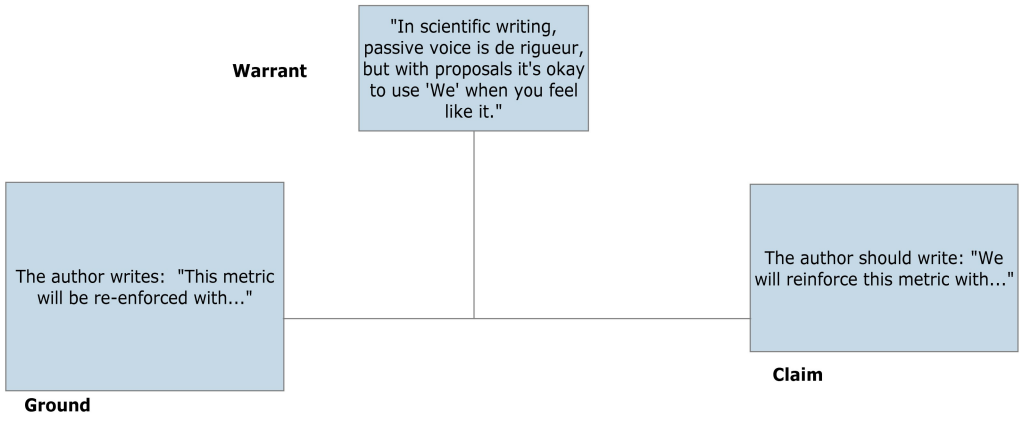
Benson.CAREER A6

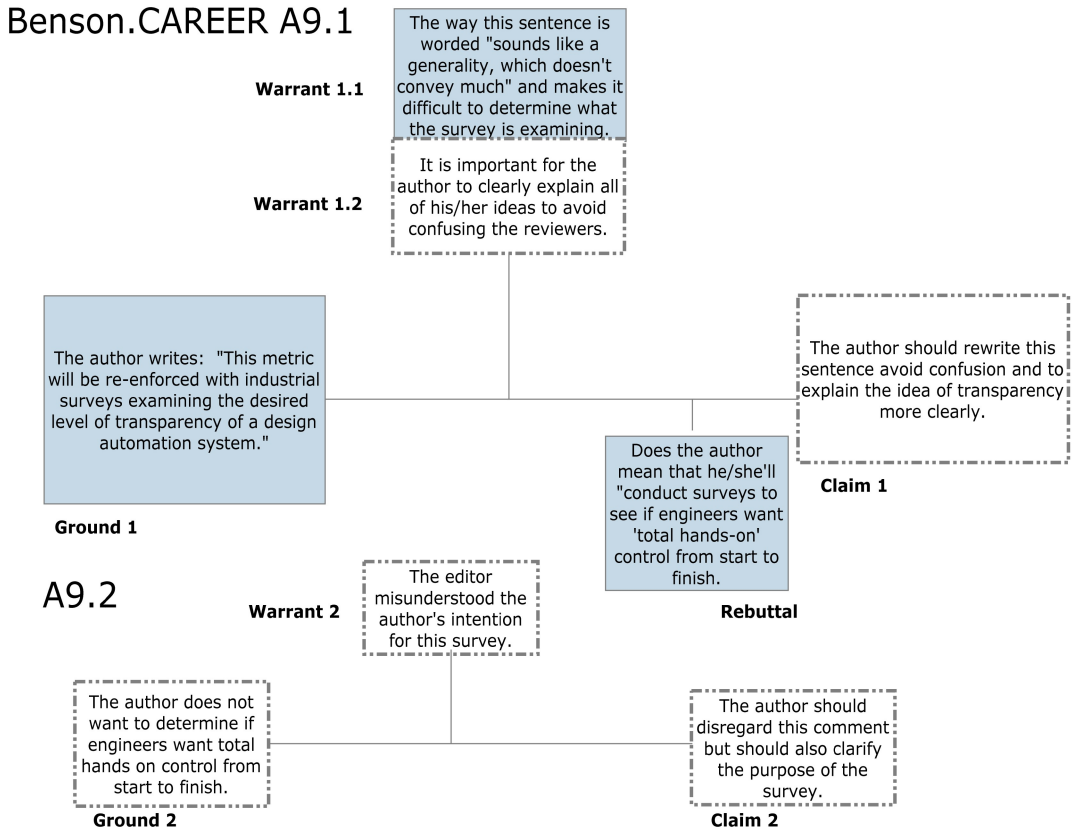


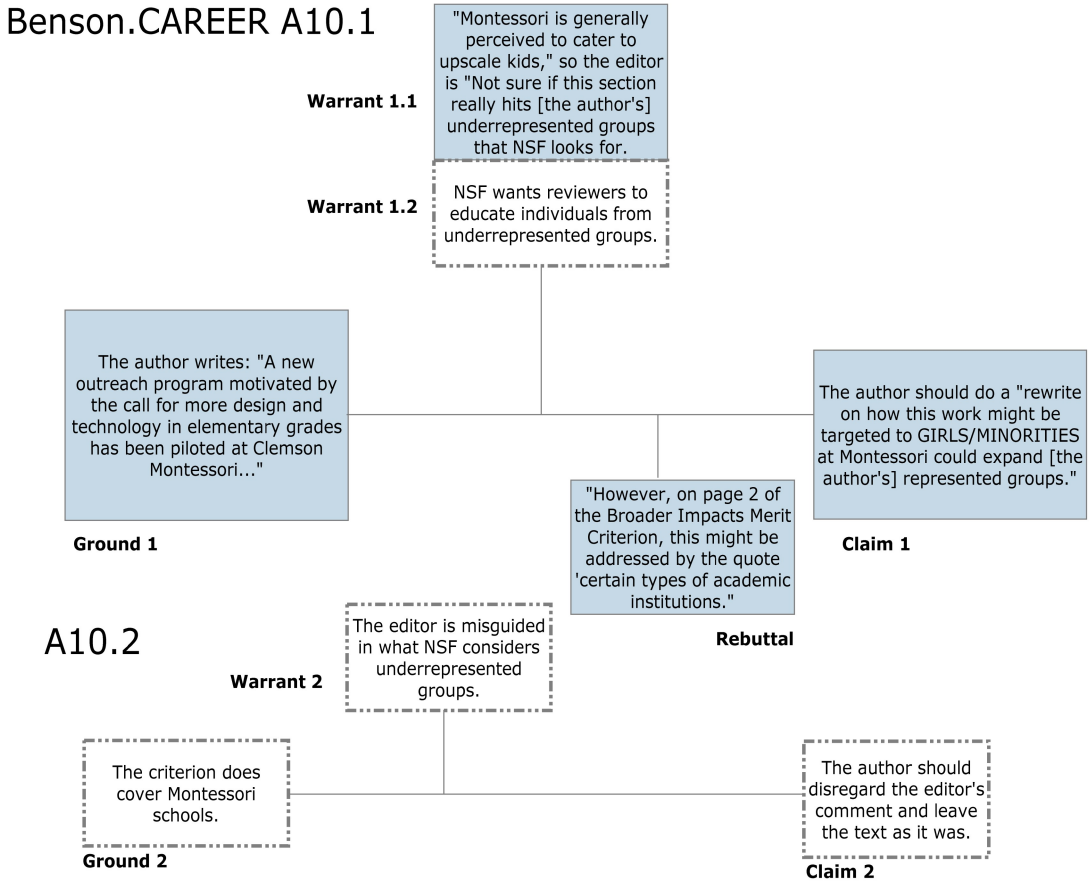
Benson.CAREER A7



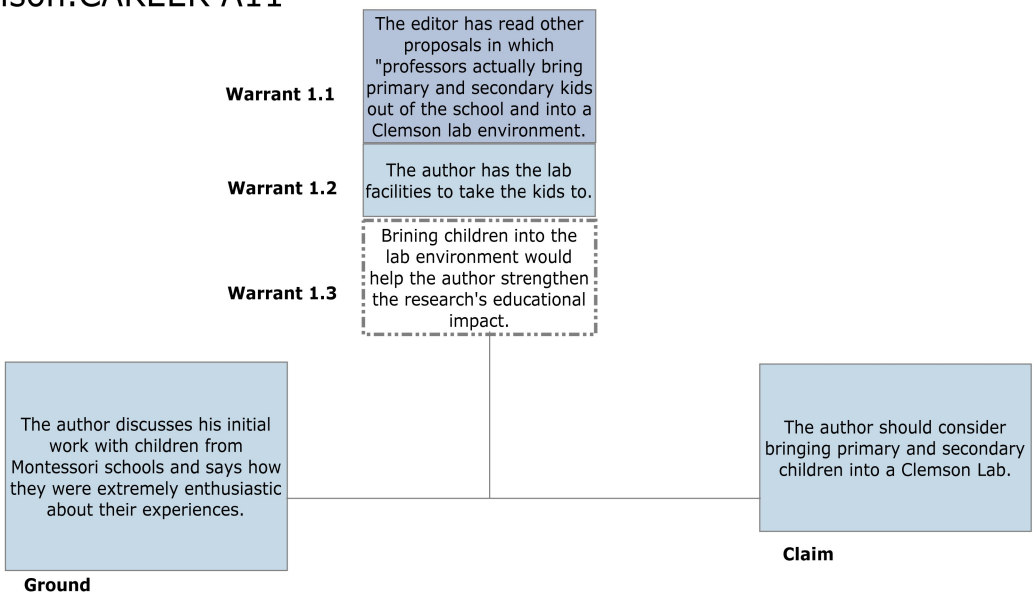
Benson.CAREER A8



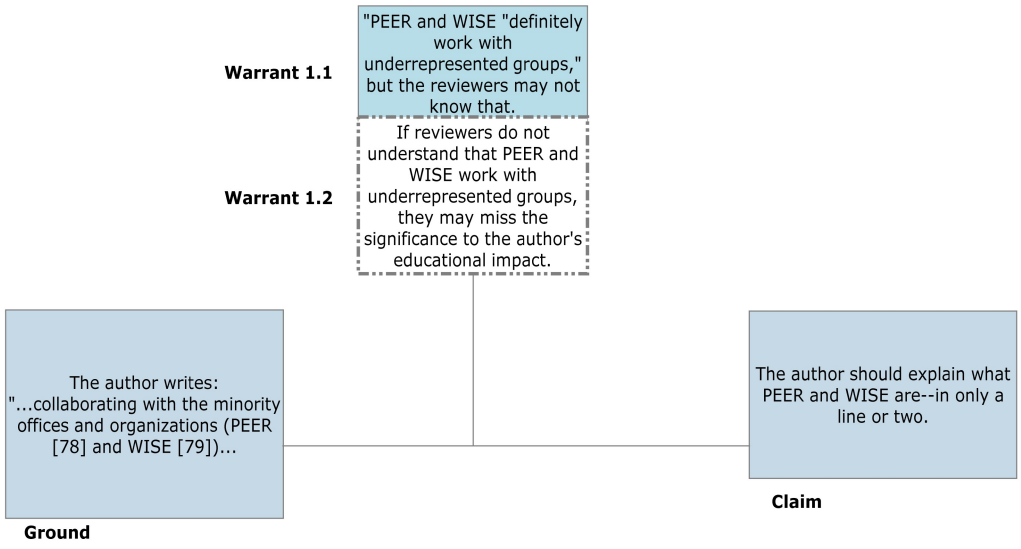

Benson.CAREER A9.1
The way this sentence is worded "sounds like a generality, which doesn't convey much" and makes it difficult to determine what the survey is examining.
Warrant 1.1
It is important for the author to clearly explain all of his/her ideas to avoid confusing the reviewers.
Warrant 1.2
The author writes: "This metric will be re-enforced with industrial surveys examining the desired level of transparency of a design automation system."
Ground 1
The author should rewrite this sentence avoid confusion and to explain the idea of transparency more clearly.
Claim 1
Does the author mean that he/she'll "conduct surveys to see if engineers want 'total hands-on' control from start to finish.
Rebuttal
A9.2
The editor misunderstood the author's intention for this survey.
Warrant 2
The author does not want to determine if engineers want total hands on control from start to finish.
Ground 2
The author should disregard this comment but should also clarify the purpose of the survey.
Claim 2


Benson.CAREER A10.1
"Montessori is generally perceived to cater to upscale kids," so the editor is "Not sure if this section really hits [the author's] underrepresented groups that NSF looks for.
Warrant 1.1
NSF wants reviewers to educate individuals from underrepresented groups.
Warrant 1.2
The author writes: "A new outreach program motivated by the call for more design and technology in elementary grades has been piloted at Clemson Montessori..."
Ground 1
The author should do a "rewrite on how this work might be targeted to GIRLS/MINORITIES at Montessori could expand [the author's] represented groups."
Claim 1
"However, on page 2 of the Broader Impacts Merit Criterion, this might be addressed by the quote 'certain types of academic institutions."
Rebuttal
A10.2
The editor is misguided in what NSF considers underrepresented groups.
Warrant 2
The criterion does cover Montessori schools.
Ground 2
The author should disregard the editor's comment and leave the text as it was.
Claim 2

Benson.CAREER A11

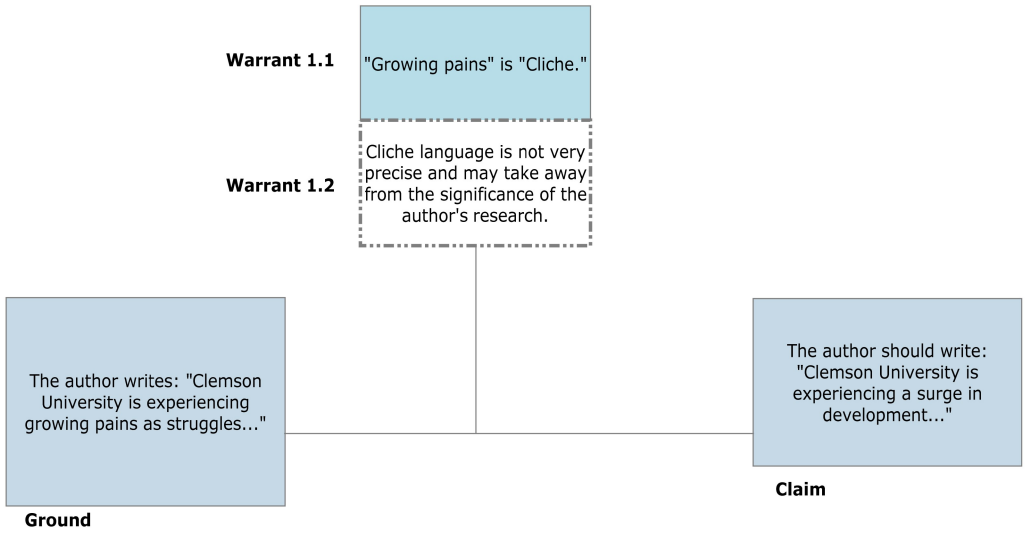


Benson.CAREER A12

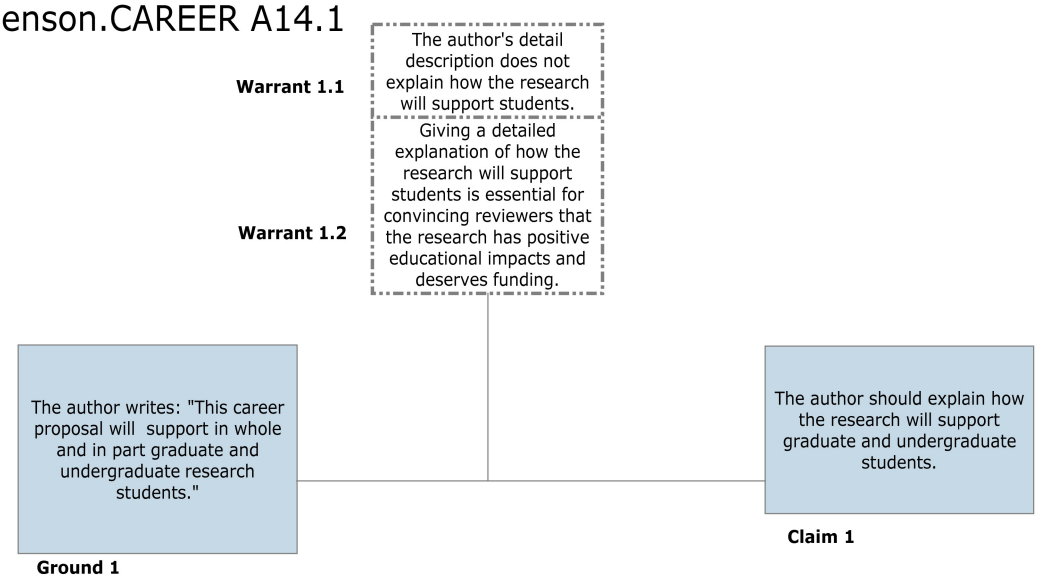


PEER: Programs for Educational Enrichment and Retention
WISE: Women in Science and Engineering

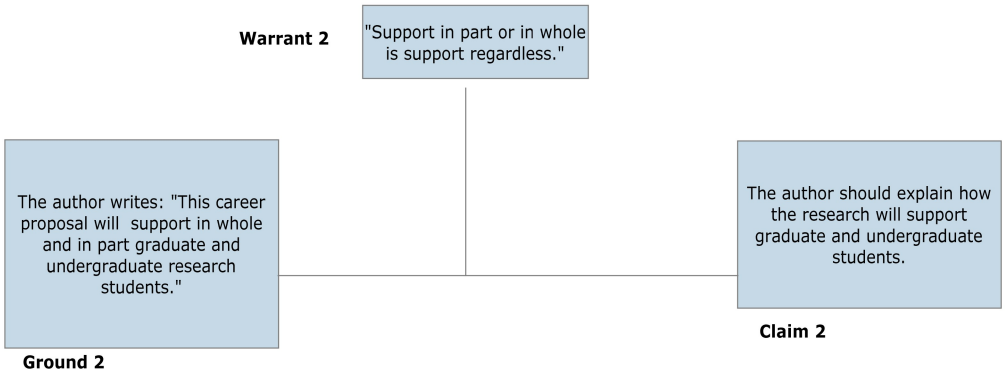
Benson.CAREER A13



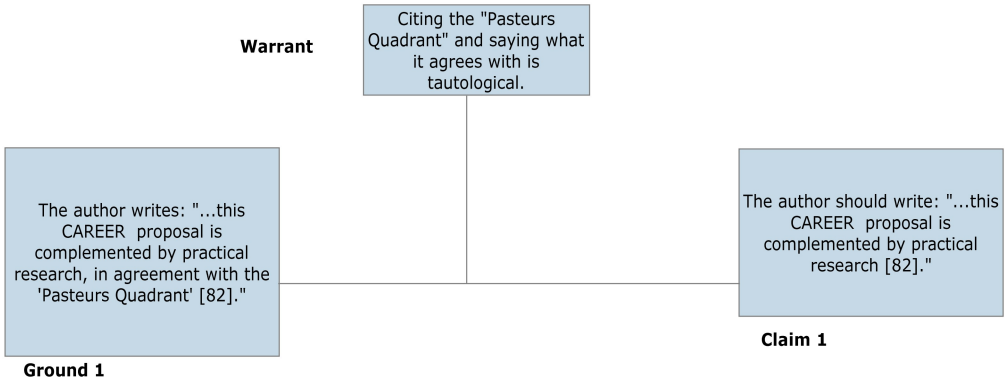
Benson.CAREER A14.1



Benson.CAREER A14.2



Benson.CAREER A15



Appendix C

Gibson Analysis Tables

Mae.NIH.1—Total word count: 289

Category	Number of Words for Category	Percentage of Total Word Count	Style
1. Monosyllables	202	69	Sweet
2. Words of 3 syllables or more	35	12.1	Sweet
3. 1st and 2nd person pronouns	1st: 9 2nd: 2		Tough/Sweet
4. Subjects: neuter vs. people	Neuter: 18 People: 27		Tough/Sweet
5. Finite verbs	44	15.2	Tough/Sweet
6. *To be* forms as finite verbs	11	*Percentage of total finite verb:* 25	Sweet/Stuffy
7. Passives	0		Sweet
8. True adjectives	11	3.8	Tough
9. Adjectives modified	6		Sweet
10. Noun adjuncts	15	5.2	Stuffy
11. Average length of clauses	6.4 *words per clause*		Tough/Sweet
12. Clauses, proportion of total words	77	26.6	Sweet
13. "Embedded" words	7		Tough/Sweet
14. *The*	15	5.2	Sweet
15. Contractions and Fragments	Contractions: 4 Fragments: 6		Tough/Sweet
16. Parentheses, italics, dashes, question marks, exclamation marks	Parentheses: 1 Italics: 1 Dashes: 1 Questions Marks: 6 Exclamation Marks: 1		Sweet

Sweet: 14

Tough: 7

Stuffy: 2

Mae.NIH2—Total word count: 556

Category	Number of Words for Category	Percentage of Total Word Count	Style
1. Monosyllables	335	60.3	Sweet
2. Words of 3 syllables or more	75	13.5	Sweet
3. 1st and 2nd person pronouns	1st: 9 2nd: 7		Tough/Sweet
4. Subjects: neuter vs. people	Neuter: 31 People: 41		Tough/Sweet
5. Finite verbs	66	11.9	Tough/Sweet
6. *To be* forms as finite verbs	21	*Percentage of total finite verb:* 31.8	Tough
7. Passives	7		Tough
8. True adjectives	8	1.4	Tough
9. Adjectives modified	0		Tough/Stuffy
10. Noun adjuncts	52	9.4	Stuffy
11. Average length of clauses	5.7 *words per clause*		Tough/Sweet
12. Clauses, proportion of total words	115	20.7	Tough
13. "Embedded" words	17		Tough/Sweet
14. *The*	25	4.5	Sweet
15. Contractions and Fragments	Contractions: 8 Fragments: 17		Tough/Sweet
16. Parentheses, italics, dashes, question marks, exclamation marks	Parentheses: 4 Italics: 12 Dashes: 0 Questions Marks: 6 Exclamation Marks: 0		Sweet

Sweet: 10

Tough: 11

Stuffy: 2

Mae.AHA—Total word count: 306

Category	Number of Words for Category	Percentage of Total Word Count	Style
1. Monosyllables	201	65.7	Sweet
2. Words of 3 syllables or more	54	17.	Sweet
3. 1st and 2nd person pronouns	1st: 5 2nd: 4		Tough/Sweet
4. Subjects: neuter vs. people	Neuter: 19 People: 31		Stuffy
5. Finite verbs	45	14.7	Tough/Sweet
6. *To be* forms as finite verbs	14	*Percentage of total finite verb:* 31.1	Tough
7. Passives	3		Tough
8. True adjectives	10	3.3	Tough
9. Adjectives modified	5		Sweet
10. Noun adjuncts	16	5.2	Stuffy
11. Average length of clauses	6.9 *words per clause*		Tough/Sweet
12. Clauses, proportion of total words	83	27.1	Sweet
13. "Embedded" words	10		Tough/Sweet
14. *The*	15	4.9	Sweet
15. Contractions and Fragments	Contractions: 5 Fragments: 7		Tough/Sweet
16. Parentheses, italics, dashes, question marks, exclamation marks	Parentheses: 1 Italics: 0 Dashes: 0 Questions Marks: 1 Exclamation Marks: 0		Sweet

Sweet: 11

Tough: 8

Stuffy: 3

Benson.DARPA—Total word count: 205

Category	Number of Words for Category	Percentage of Total Word Count	Style
1. Monosyllables	117	57	Stuffy
2. Words of 3 syllables or more	43	21	Stuffy
3. 1st and 2nd person pronouns	1st: 0 2nd: 2		Sweet
4. Subjects: neuter vs. people	Neuter: 11 People: 10		Tough/Sweet
5. Finite verbs	23	11.2	Tough/Sweet
6. *To be* forms as finite verbs	6	*Percentage of total finite verb:* 26.1	Tough
7. Passives	0		Sweet
8. True adjectives	17	8.3	Tough/Stuffy
9. Adjectives modified	5		Sweet
10. Noun adjuncts	21	2.4	Sweet
11. Average length of clauses	6.7 *words per clause*		Tough/Sweet
12. Clauses, proportion of total words	20	9.8	Tough
13. "Embedded" words	4		Tough/Sweet
14. *The*	6	2.9	Sweet
15. Contractions and Fragments	Contractions: 1 Fragments: 10		Tough/Sweet
16. Parentheses, italics, dashes, question marks, exclamation marks	Parentheses: 1 Italics: 0 Dashes: 1 Questions Marks: 3 Exclamation Marks: 0		Sweet

Sweet: 11

Tough: 8

Stuffy: 3

Benson.MEM—Total word count: 150

Category	Number of Words for Category	Percentage of Total Word Count	Style
1. Monosyllables	96	64	Sweet
2. Words of 3 syllables or more	19	12.7	Sweet
3. 1st and 2nd person pronouns	1st: 1 2nd: 6		Tough/Sweet
4. Subjects: neuter vs. people	Neuter: 14 People: 12		Tough/Sweet
5. Finite verbs	24	16	Tough/Sweet
6. *To be* forms as finite verbs	12	*Percentage of total finite verb:* 50	Tough
7. Passives	0		Sweet
8. True adjectives	7	4.7	Tough
9. Adjectives modified	1		Tough
10. Noun adjuncts	6	4	Sweet/Stuffy
11. Average length of clauses	5.5 *words per clause*		Tough/Sweet
12. Clauses, proportion of total words	33	22	Tough/Sweet
13. "Embedded" words	2		Tough/Sweet
14. *The*	7	4.7	Stuffy
15. Contractions and Fragments	Contractions: 4 Fragments: 6		Tough/Sweet
16. Parentheses, italics, dashes, question marks, exclamation marks	Parentheses: 1 Italics: 0 Dashes: 1 Questions Marks: 6 Exclamation Marks: 0		Sweet

Sweet: 10

Tough: 10

Stuffy: 2

Benson.CAREER—Total word count: 398

Category	Number of Words for Category	Percentage of Total Word Count	Style
1. **Monosyllables**	259	65	Sweet
2. **Words of 3 syllables or more**	45	11.3	Sweet
3. **1st and 2nd person pronouns**	1st: 1 2nd: 19		Sweet
4. **Subjects: neuter vs. people**	Neuter: 22 People: 28		Tough/Sweet
5. **Finite verbs**	50	12.6	Tough/Sweet
6. ***To be* forms as finite verbs**	9	*Percentage of total finite verb:* 18.4	Sweet/Stuffy
7. **Passives**	1		Tough
8. **True adjectives**	18	4.5	Tough
9. **Adjectives modified**	4	22.2	Sweet
10. **Noun adjuncts**	39	9.8	Stuffy
11. **Average length of clauses**	6.4 *words per clause*		Tough/Sweet
12. **Clauses, proportion of total words**	102	25.6	Sweet
13. **"Embedded" words**	21		Tough/Sweet
14. ***The***	11	2.7	Sweet
15. **Contractions and Fragments**	Contractions: 9 Fragments: 10		Tough/Sweet
16. **Parentheses, italics, dashes, question marks, exclamation marks**	Parentheses: 0 Italics: 0 Dashes: 2 Questions Marks: 4 Exclamation Marks: 0		Sweet

Sweet: 12

Tough: 7

Stuffy: 2