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Accommodating Death: An Examination of the Role of Scientific Accommodation in Forensic Anthropology

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ACCOMMODATING DEATH: AN EXAMINATION OF THE ROLE OF SCIENTIFIC
ACCOMMODATION IN FORENSIC ANTHROPOLOGY

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
Profession Communication

by
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May 2009

Accepted by:
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ABSTRACT

Scientists have strong motivations to communicate with the public, yet this communication is often ineffective. As Ann Penrose and Steven Katz explain in *Writing in the Sciences*, there are three major reasons why scientists communicate with the public: moral, economic, and political (177). Despite these reasons for scientists to communicate with the public, it is not always easy for this communication to take place, due to divisions of audience and discourse community, as well as the scientists' biases against communicating with the public. Scientific accommodation helps to bridge this gap.

In some fields, like forensic anthropology, scientists write their own accommodation. This analysis, unlike others, will include these accommodations and seeks to determine the role the author plays in accommodation. If the scientist is the accommodator, does the text still undergo the same changes? With a combination of Fahnestock's analysis of scientific communication, Latour and Woolgar's Statement Types, and Toulmin et al.'s method of diagramming scientific arguments, this analysis examines the discourse of forensic anthropology to determine what effect the author and the accommodator (or author/accommodator), have on the text and how these changes relate to forensic anthropology as a discipline.

DEDICATION

This thesis is dedicated to my family, whose patience and support kept me going through the long writing process. Special appreciation goes to Bryan, whose constant question of “Shouldn’t you be working on your thesis?” kept me on task.

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I would like to extend special thanks to Dr. Katz, my committee chair, for his constant encouragement over my two years at Clemson. His willingness to put his energy and enthusiasm into my work helped me create something that I couldn't have accomplished without him. I would also like to thank my committee members, Dr. Temesvari and Dr. Walters, for not only providing me with excellent feedback and critique, but also for being so supportive and kind. Last but not least, I would like to thank my friends for putting up with me as I muddled through the writing process.

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CHAPTER ONE

INTRODUCTION

Prologue

[EXT. - NIGHT]

(The camera moves low to the ground. The leaves on the floor are rustling in the night wind. The camera catches up to a pair of legs walking; a flashlight casting a beam on the ground.)

CUT TO:

(Man with flashlight looking for something.)

CUT TO:

(Fog on the surface of the lake. Flashlight beams on a body partially in the water, partially on the shore. The light beams on the dead body's face. GRISSOM kneels in for a closer look. His flashlight catches some bugs on the dead body's arm. Without a backward glance, he moves on.)

CUT TO:

(GRISSOM moves toward an old white pick-up truck. He looks into the carriage and sees a dead body behind the driver's wheel, a rodent on the cadaver's left shoulder.)

CUT TO:

(GRISSOM walks along and sees something. He kneels down for a closer look. Behind him, a figure of another man makes his way toward GRISSOM. GRISSOM examines the dead body on the ground. The figure behind GRISSOM approaches. The flashlight clutched in his right hand turned off and swinging ominously.)

(GRISSOM doesn't move and continues to examine the body on the ground, his back to the approaching figure. The figure behind reaches GRISSOM and kneels down. He looks at the dead body over GRISSOM'S shoulder.)

EDWARD CORMIER: That one's not ours.

GRISSOM: You sure?

EDWARD CORMIER: I authorize all cadavers and associated research. He's not ours.

WHITE FLASH CUT TO:

[EXT. BODY FARM - NIGHT]

(Sign on the fence reads: "University of Western Nevada / Anthropology Department / Private Property / KEEP OUT / All persons in violation will be prosecuted under section 4204-325.5470 of the Nevada State Penal Code.")

(BRASS and CATHERINE walk toward the body. GRISSOM is already there with DAVID PHILLIPS.)

BRASS: People donate their body to science end up submerged in a pond? Crammed in a car?

CATHERINE: Body Farm; creepy.

GRISSOM: A Body Farm is not creepy. It's a controlled study of situational decomposition. All in all, a very healthy place.

CATHERINE: Tell that to Slim hanging from the tree.

(CATHERINE looks over at the skeleton hanging from the tree not too far away from the one they were called in to examine.)

BRASS: Whoever placed our victim here knew that the body farm existed. What they didn't know is each body is tracked by a bunch of scientists.

—*C.S.I: Crime Scene Investigation*, “Burden of Proof”

In 1981, when Dr. William Bass created the Anthropology Research Facility at the University of Tennessee, he probably never thought that his lab, more commonly known as the “Body Farm,” would be the setting for an episode of one of the most popular shows on television. He had a hard enough time convincing the citizens of Knoxville that purposely leaving human bodies out in the open to decompose was a worthwhile endeavor. Luckily for Dr. Bass, the administration at the University of Tennessee understood the importance of his work, its value to law enforcement, and allowed it to continue. The Body Farm was born.

Introduction to Accommodation

Dr. Bass’s struggle to establish the Body Farm illustrates the need for the public communication of science. He needed to persuade the public that the research was important enough to be conducted in their backyards. He needed an administration that could understand and support his project. Without the support of non-scientists, the Body Farm may not have been created. This situation is an example of why it is imperative that

scientists communicate with non-expert audiences—the social sphere of science can impact us all.

As Ann Penrose and Steven Katz explain in *Writing in the Sciences*, there are three major reasons why scientists communicate with the public: moral, economic, and political (177). First of all, scientists face a moral imperative to warn the public of any potential impact their discovery may have on society. Although the impact of a discovery is not always immediately foreseeable, the National Academy of Sciences asserts “the scientific community must recognize the potential for such discoveries and be prepared to address the questions that they raise” (quoted in Penrose and Katz 177). Scientists also face economic reasons to communicate with the public. In many ways, public dollars fund science, both through private contributions and through government funds. The public is much more likely to support scientific endeavors they understand; for this reason it behooves scientists to explain their work. The third reason scientists communicate with the public is also government-related—in a democratic society the public must be educated in order to make informed decisions about what scientific programs to support.

Despite these reasons for scientists to communicate with the public, it is not always easy for this communication to take place. Often the language of their discourse community is different from the language non-experts use.¹ For this reason, scientists must understand the importance of accommodation. Accommodation is really a matter of

¹ In this thesis, expert audiences will be defined as the audience that requires the information contained within a text as part of their profession. Non-expert audiences will include those who are interested in the information, but not at a professional level.

audience analysis—the same information scientists understand can be transformed rhetorically into something a non-expert audience can understand. This transformation can change a text in a number of ways and, although it may seem unexpected, it is not only the vocabulary that changes.

In her analysis of accommodation, “Accommodating Science: The Rhetorical Life of Scientific Facts,” Jeanne Fahnestock discovered that texts undergo changes in genre, certainty, and stasis.² In other words, accommodation is not a simple process of substituting “technical” words with more common ones; it is a substantial change that impacts the meaning of the text. Often these changes are made by a writer, someone who works for a scientific publication for general audiences (magazines like *Scientific American* or *National Geographic*). These writers are presumably quite educated, but are not necessarily scientists working in the field. Fahnestock’s analysis deals with these types of accommodations. In some fields, like forensic anthropology, scientists write their own accommodation. This analysis, unlike others, will include these accommodations. What happens when the scientists responsible for the research writes the accommodation? Does the text still undergo the same changes? Is the researcher less willing (or capable) to make these changes for a general audience? Fahnestock’s work has inspired me to take a closer look at the impact the accommodator has on a text.

My source material will be coming from the scientific field of forensic anthropology. As MacNealy writes in her chapter on discourse analysis in *Strategies for Empirical Research in Writing*, “it is absolutely essential that you are familiar with the

² Stasis theory is a classical rhetorical technique of invention used to define and organize the topics relevant to a court of law. For a more detailed explanation, see page 23.

context of the discourse you analyze if that context will make a difference in the way you count data or interpret your findings” (135). As an undergraduate, I majored in forensic anthropology, which included courses at both the graduate and undergraduate level, and assisted a doctoral candidate with her research. The combination of these roles gave me a chance to understand the “textbook” aspects of the field, while the time I spent working with experts in the lab gave me insight into the inner workings and communication of the field. My experience in forensic anthropology provides me with an appropriate background to pursue this study and may allow me to observe subtleties in language and meaning that others may miss.

In my research, I examine the discourse of forensic anthropology to determine what effect the author and the accommodator (or author/accommodator), have on the text and how these changes relate to forensic anthropology as a discipline.

A Brief Introduction to Forensic Anthropology

In a broad sense, forensic anthropology can be defined as “the application of the theory and methods of anthropology to forensic problems” (James and Nordby 79). More specifically, forensic anthropology deals with the identification and analysis of human remains that have decomposed to the point that traditional, tissue-based means of identification are no longer possible.

Forensic anthropology provides an interesting background to this analysis because it is a fairly new discipline that has only recently established itself as a science. Forensic anthropology was established when physical anthropologists began to lend their expertise

to law enforcement. The techniques of forensic anthropology were used as early as 1849, but forensic anthropology did not become a section in the American Academy of Forensic Science, and thus a formally recognized branch of forensic science, until 1972 (Byers). Five years later, the American Board of Forensic Anthropology (ABFA) was introduced to provide certification for forensic anthropologists (Byers 7).

Forensic anthropology is a new enough discipline that many of its “pioneers” are still alive and publishing. It is also a rather small field—there are currently 63 ABFA-certified forensic anthropologists working in the United States (<http://www.theabfa.org>). The small nature of the field gives it a much stronger sense of individuality than most other scientific disciplines. Forensic anthropology is also a discipline with very strong connections to public audiences: Forensic anthropologists are often asked to present their evidence in court, and therefore must be very capable of explaining and justifying their work to a non-expert audience. As demonstrated by the Prologue, forensic anthropology has also become incredibly popular in the past few years—shows such as *C.S.I* and *Bones* have brought a new forensic spin to the traditional crime drama, and introduced forensic anthropology to a wide public audience.

Introduction to the Sources

The two sets of source materials I chose for this analysis have a great deal of public appeal. The first set of source materials I chose for this analysis deals with a common aspect of forensic anthropology—the identification of a single set of remains. Often forensic anthropologists are called in to help identify unknown sets of remains. The

analysis revolves around a historical case, the identification of the remains of Francisco Pizarro by Dr. Maples, a forensic anthropologist known for his work at the University of Florida. For years, a mummy had been on display in a cathedral in Lima that was assumed to be Pizarro, but the discovery of a box containing skeletal remains in one of the cathedral's alcoves called this identification into question. After examining the remains, Maples and his coauthors realized that the newly discovered skeleton displayed a great deal of perimortem and antimortem damage, which was consistent with historical descriptions of Pizarro's life and death. Comparatively, the mummy was completely unscathed. From this evidence, Maples and his fellow scientists were able to determine that the skeleton, not the mummy, was Pizarro's. This set of sources will also be identified as "Set I" throughout.

The other set of materials, which I briefly introduced in the Prologue, deals with the Anthropology Research Facility at the University of Tennessee, which I will refer to by its more common name, the Body Farm. This set will be identified as "Set II." Dr. William Bass began the Body Farm at the University of Tennessee when he began to realize that most people, even experts, did not even have a basic knowledge of the timeline of human decomposition. The different stages that a body goes through as it decomposes can provide investigators with a concrete idea of when a person deceased. "Time since death" can make or break alibis, narrow down the potential victims from a list of missing persons, and provide investigators with other valuable information that can break a case.

Research is conducted at the Body Farm with corpses donated to science, unclaimed bodies from local morgues, and even donors who have willed their remains to the Body Farm. The bodies are placed in different conditions to imitate the common and uncommon places corpses are found. As the remains decompose, the professors and graduate students in the program record observations and photograph the remains. Factors such as temperature, insect activity, and trauma all affect the rate at which a body decomposes. For example, a corpse placed in a wooded area during the middle of winter in the northern part of the country would barely decompose over even months; a corpse placed in a remote part of sunny Florida, however, could be reduced to a skeleton in about a week. Once the remains have skeletonized, they are collected and used as teaching tools in the anthropology department's osteology lab.

The Body Farm is a key resource for law enforcement. Members of the FBI have trained there and many of Dr. Bass's students have gone on to head their own forensic anthropology labs. Although the work done at the Body Farm is somewhat disgusting, and contrary to our cultural taboos about the handling of the dead, the information it has provided is indispensable to forensic science.

Using these sources, I will analyze how information is transformed as it is adapted from one audience to another (not only from expert to non-expert audience, but also to hybrid audiences). These cases represent two different functions of the field of forensic anthropology—field research and remains identification—which broadens the analysis and gives me a better understanding of the role accommodation can play in different aspects of the field.

CHAPTER TWO

LITERATURE REVIEW

The Uneasy Relationship Between Expert and Non-Expert Audiences

Many studies (e.g., Latour, Fahnestock, Myers) have been dedicated to the study of accommodation. On first glance it seems that accommodation can be a simple thing to define; although it can't be divided by subject matter, it can be divided by publication type. In some ways, it seems easier to define accommodation by what it is not. Unlike other discourses where the subject is a means of definition, the discourse of accommodation is more a matter of context, since a technical subject like stem cell research is just as appropriate for an academic journal as it is for *Time*. If the subject is the same, where does one draw the line between popular and professional?

This line is often drawn based on audience—dividing “expert” from “non-expert.” As a result of the division, Stephen Hilgartner explains, accommodation can be seen, at worst, as “pollution”: “the ‘distortion’ of science by such outsiders as journalists, and by a public that misunderstands much of what it reads” (519). Helena Calsamiglia also deals with this bias against accommodations. She points out that while popular science writing can receive varied levels of respect from scientists—and although accommodation can be interpreted as “‘vulgarization’, ‘debasement’, ‘translation’, ‘transposition’, or ‘reformulation’ of scientific content” (142)—accommodation really should be “rethought to include the process of *recontextualization*...of all scientific communication activity in its different degrees and levels” (142). To Calsamiglia, the process of accommodation is exposed to the same tension and conflicts of interest as other “social phenomena” (143)

and, therefore, it is important for research into popular science writing practices to include the different dimensions of the context change. These dimensions are the cognitive dimension (“the game that is initiated between established knowledge and new knowledge” [143], or, to borrow from Thomas Kuhn, the tension that exists in paradigm shifts); the situational dimension (the interests, purposes, and intentions of involved parties); and the social dimension (“the setting for the social practices themselves” [143], e.g., the carrying over of research practices into the practices of journalism).

One of the first steps towards understanding the role of accommodation is to identify the assumptions that are inherent in the creation of accommodation. The “dominant view” of accommodation often considers the division between “real” science and “popular” science as a hard and fast rule. In “Discourse Studies of Scientific Popularization,” Greg Myers summarizes the assumptions that contribute to this view:

- Scientists and their institutions are “the authorities on what constitutes science” (266).
- The public sphere, when it comes to science, is a “blank state of ignorance on which scientists write knowledge” (146).
- Knowledge only travels one way, from scientists to the public.
- Scientific content is contained in written statements and that as this information “not only changes textual form, but is simplified, distorted, hyped up, and dumbed down” (266).

Many researchers have previously uncovered similar assumptions in their research (Katz and Miller). And yet, scientific accommodation is crucial to scientific progress. Danette

Paul, in her study of the effect of accommodations, has pinpointed the importance of accommodation (especially to scientists):

- Popularizations are a necessary bridge for the “increasing gap between the specialized knowledge of scientists and the common knowledge of the general public” (32).
- Popularizations are intended to promote science by generating interest in the public.
- Scientists’ involvement with popularizations is recent and “primarily to gain more public support in times of shrinking budgets” (33).

With the reasons Paul gives, it seems as if scientists and the public have an equal need for open communication. And yet it seems, with such strong biases against the merits of communicating with the public, this communication seems stilted—a chore rather than a relationship.

The Birth of the “Layperson”

This troubled relationship has not always been a part of scientific communication. In fact, the division between the “layperson” and the scientist is fairly recent; as Bernadette Bensaude-Vincent reports, in the 18th century, “there were no clear-cut demarcations between amateurs and scientists” (102). Paul also studied the historical status of accommodation and concluded that the division of “gentleman amateurs and of men of science into two distinct social groups” began as a result of two trends at the end of the 18th century (35). First, the “professionalization of science” began separating, as

Paul puts it, “insiders and outsiders” (35). Secondly, the rise of the middle class, “along with increasing literacy and the promotion of science as an extension of common sense” (Paul 35) created a new demand for accessible scientific thought.

Not all of this demand was an accidental phenomenon. S. Sheets-Pyenson contributes another reason for the rise of popularizations: they fit into the goals of social reformers. Since popular science periodicals were inexpensive, they provided “‘improving’ information at prices low enough to reach readers who might otherwise purchase potentially dangerous political tracts” (550). In other words, the science periodicals kept the masses from unrest. As one of these periodicals stated, scientific knowledge gives the lower classes “a direct interest in the peace and good order of the community, and renders them solicitous to avoid whatever may disturb it” (*Penny Mechanic* 305). Although this paternalistic sentiment is not overtly expressed in modern scientific accommodation, the divide between science and the populace is still assumed to be vast.

Redefining the Perceptions of Accommodations

This separation between experts and “lay people” does have its advantages for scientists. In a paper researching the political uses of the “dominant view,” Hilgartner noticed a key way accommodation becomes a “useful political tool for scientific experts” (530). By setting aside “genuine scientific knowledge” as inaccessible to the public, accommodation “buttresses the epistemic authority of scientists against challenges by

outsiders” (530). Thus, scientists are able to protect themselves from attacks by becoming the gatekeepers of information.

This control of information is assisted, as Paul points out, by the conventions of science that severely restrict the public’s ability to participate. Limits such as “specialized language, expensive equipment, and counterintuitive theories” lead to a “conflation of accessibility, quality, and insider social status” (Paul 35). But are the readers of accommodations truly as ignorant of science as the “dominate view” dictates? Myers believes that the assumptions concerning experts and non-experts can be deceiving and takes steps to refute this concept:

...despite being apparently so self-evident, the distinctions between expert and lay audiences breaks down almost as soon as we try to apply it more widely...Experts become less expert as soon as they step out of their limited expertise. (“Discourse” 267-68)

Scientists themselves rely on accommodation to disseminate their ideas across fields. Other scientists, working in related fields would need to understand this research, even if their technical expertise is different. Thus, the intended audience for accommodation is not just the ignorant masses, but also scientists who are working outside of their specialty. Accommodation once again becomes a matter of context.

Although it may not be called accommodation, scientists also amend their work constantly to fit the constraints of different journals. As Myers explores in “Texts as Knowledge Claims: The Social Construction of Two Biology Articles”, one of the major boundaries to publication is determining “appropriateness” for a journal. For example, a

specialist in radiation oncology would have to modify her manuscript if she wanted to publish in a more general medical journal like the *New England Journal of Medicine*, rather a specialized journal like the *International Journal of Radiation Oncology*Biology*Physics*. The readership of the *New England Journal of Medicine* includes all types of doctors—an audience that would understand the general concepts of radiation oncology, but not the finer points of treatment. Therefore, some accommodation is necessary to engage this audience.

Since scientists already read and, to a certain extent, write accommodations, it calls into question the idea that scientific knowledge only travels from expert to non-expert—if scientists are reading accommodations, then the concepts they learn from other specialties may inform their work. Again, the social nature of science makes it apparent that scientists do not function in the isolated bubble of their own research. Paul’s study of how accommodation affects the understanding of chaos theory examines the pervasive role of accommodation. She began her study with two claims:

First, scientists in the field claim that chaos theory is a revolution in science, affecting many disciplines and making it plausible that popularizations would be used to spread the word. Second, although many of the mathematical concepts on which chaos theory is founded were well established by the mid-20th century...the theory’s value was not well recognized. (37)

Based on a review of the popular and semi-popular books on chaos theory, interviews with key figures, and a citation analysis, Paul is able to conclude that the role of

accommodation changes as scientific revolutions transition into what Kuhn called “normal science.” As she states: “at various points, popularizations are used by scientists to find a broad, interdisciplinary, scientific audience, to show interest in the field, to disseminate lines of inquiry, and to help establish the author’s priority claim” (32). Thus, “the results are compelling enough to argue for expanding our conception of the role of popularization from describing a science to defining it” (61), which is a much broader use than the “dominant view” allows.

Based on the observations here, it seems like the “dominant view” of popularizations is in need of drastic revision. In her article, “Popularization Discourse,” Calsamiglia concludes that, in light of the new balance being forged, “discursive and critical competencies need to be acquired, not only by the professional communicators involved, but also by those involved in the research itself” (145). It is evident that the cooperation that exists between scientists and the public, and the resultant popularizations, are becoming more important in the development of scientific thought. The conventional model of scientific communication, one that is simply a one-way street from scientists to the public, seems obsolete. Scientists and the public need accommodation to fuel the network of their communication—not just from scientist to public, but from scientist to scientists and from the public to scientists. Thus it is important to consider new methods of research to further understand this important relationship.

Understanding Scientific Communication as a Rhetorical Model

One possible resolution to the communication issues of accommodation might be to pursue a rhetorical model of communication. This model emphasizes the broadening of communication from unidirectional (which is present in the conventional view of accommodation) to multidimensional (an approach that is better suited to the complex role of accommodation discussed in the previous section). The multidimensional approach allows the formerly marginalized to find a place in the discourse. In their 1996 article, “The Low-Level Radioactive Waste Siting Controversy in North Carolina: Toward a Rhetorical Model of Risk Communication,” Steven Katz and Carolyn Miller explore alternate models of communication that may aid in the democratization of communication between experts (in this case the North Carolina Low-Level Radioactive Waste Management Authority) and non-experts (the residents impacted by the facility). As they explain,

the rhetorical model is...a conceptual approach that examines the suatory dimensions of language and its use in particular situations. It cannot produce predictive rules, but rather evolved heuristic guidelines; it attends to the concrete details of situated practice as much as (or more than) to abstract theory....It thus recognizes the important role that values and affect play in all aspects of a decision, and at its best attempts to use these in helpful and legitimate ways to achieve consensus and cooperation to further both immediate ends and those of society at large. (132)

If scientists truly rely on public goodwill as a source of income and opportunity, it is imperative that the communication process engages all members of the discussion. Katz and Miller explain that the act of engaging the audience in such a fashion is “participatory democracy”—an approach that “emphasizes process more than results, with participating citizens gaining not only results but satisfaction and investment from their engagement in decision making” (134). Since the discourse of scientific accommodation is not unidirectional, it seems that this sort of participatory approach would ease the tension between the experts and non-experts, whose symbiotic relationship is essential to the progress of science.

The rhetorical communication model is well suited to the type of accommodation research conducted here. As Katz and Miller explain, “what is missing from public participation programs and from risk communication in general is an underlying conception of decision making as egalitarian, interactive, and truly dialogic, and of communication and consensus making as rhetorical processes, that is, as historically situated, persuasive, and open-ended” (134-135). By examining the underlying arguments and structure of scientific accommodation, I hope to unearth examples that may lead to a better understanding of how this communication occurs. Armed with rhetorical heuristics, it may be possible to re-examine the author/accommodator relationship and provide a new approach to the rhetorical model of communication, as it applies to scientific accommodation.

Scientific Writing as a Social Act

The study of accommodation seems to be the territory of rhetoricians—thus the rhetorical model seems to be a natural fit. But, before it is possible to create a method, or even understand the formation of accommodation, it is first important to understand how facts are created within scientific texts. Without an understanding of how research becomes fact, it would be impossible to understand how those facts are transformed through accommodation.

Although most researchers agree that science is more often an act of collaboration and interpretation than it is an act of discovery, the exact method for study is often unique to the researcher. Latour, for example, in *Science in Action: How to Follow Scientists and Engineers through Society*, begins with the “simplest of all possible situations: when someone utters a statement, what happens when the others believe it or don’t believe it” (21). Latour’s entire approach revolves around how scientific fact is created through consensus; even the most basic collections of sentences create meaning in their interaction. This approach is especially relevant to this research—Latour uses a character dubbed “the dissenter,” who explores both the expert and non-expert reactions. Latour uses the tenaciousness of the dissenter to question how facts are defended—this leads to, as Latour explains, an observation of “what extremes a naïve outsider who wishes to disbelieve a sentence is led” (21).

Latour asserts that “by itself a given sentence is neither a fact nor a fiction; it is made so by others, later on” (25). Latour closely analyzes a number of sentences that transform meaning depending on their construction; based on his results, he concludes:

...scientists, engineers, and politicians constantly offer us rich material by transforming one another's statements in the directions of fact or of fiction. They break the ground for our analysis. We, laymen, outsiders and citizens, would be unable to discuss sentences [of a technical nature]...But since others dispute them and push the back into their conditions of production, we are effortlessly led to the process of work...we would have never suspected before. (25)

The act of argument strips away the technical matters from sentences and allows researchers access to the controversies that outsiders might not otherwise understand.

Latour goes on to explain that the fate of a statement—its status as fact or fiction—is based on the controversies and debates that surround it. These controversies are not just contained in the labs where facts are developed—“When we go from ‘daily life’ to scientific activity, from the man in the street to the men in the laboratory, from politics to expert opinion, we do not go from noise to quiet, from passion to reason, from heat to cold. We go from controversies to fiercer controversies” (*Science* 30). With this statement, Latour indicate that strongest debates of science occur behind the closed doors of laboratories—a statement that goes against the public perception of science as a rational, calculated enterprise. Instead, Latour describes science as a constant debate that depends on rhetoric to sooth the controversies. If even the scientific article is laden with such controversy, what does that mean for the accommodation?

The creation of fact in the opinion of the audience comes from both external and internal sources. No matter how innovative an idea is, is must be supported both by past

and future literature to move from fiction to fact (more on this later with the discussion of citation and statement type). This transition is also aided by the construction of the paper itself. Articles fortify themselves; “the difference between a regular text in prose and a technical document is the stratification of the latter. The text is arranged in layers” (*Science* 48). The reader is faced with an elaborate labyrinth of sources, figures, graphs, etc. The dissenter is faced with the near-impossible task of breaking down a quickly mounting stack of information. “Disbelieving will not only mean courageously fighting masses of references, but also unraveling endless new links that tie instruments, figures and texts together” (*Science* 49). In the scientific community, this dissenter is at least armed with his own research as a defense, but when this information reaches a non-expert audience, he has less tools of dissent at his disposal.

In fact, Latour explores how accommodation mirrors the controversy of scientific journals, but in the opposite direction:

If one wishes to increase the number of readers again, one has to decrease the intensity of the controversy, and reduce the resources....the difficulty of writing ‘popular’ articles about science is a good measure of the accumulation of resources in the hands of few scientists. It is hard to popularize science because it is designed to force out most people in the first place.” (*Science* 52)

Hard, but not impossible. Latour’s research provides justification for this sort of analysis by thoroughly demonstrating that the creation of scientific fact is a social enterprise—so social in fact that the reader, excluded from the lab, is, to varying degrees, included in the

fact-making process, even if he or she chooses to dissent. Accommodation is a means of engaging the audience in the discourse of fact-making; but how exactly is accommodation created?

CHAPTER THREE

METHODS

Theoretical Framework: Steps Toward A Method

To structure this analysis, I will be using Jeanne Fahnestock's "Accommodating Science: The Rhetorical Life of Scientific Facts." In her article, Fahnestock compares scientific journal articles with popularizations on the same subjects (accommodated articles). Fahnestock asserts that the changes the articles undergo are not just a matter of changing discourse-specific vocabulary, but rather, clear, substantive changes. She examines three different ways the articles change: through shifts in genre, statement types, and stases.

The genre shift is the first means of accommodation Fahnestock analyzes. To construct this analysis, she finds that "Aristotle's tripartite division of kinds of oratory provides a continually useful system for classifying discourse" (277). She determines that scientific papers are forensic persuasion; the most "swollen" sections are concerned with "establishing the validity of the observations they report" and are "explicitly devoted only to arguing for the occurrence of a past fact" (278). On the other hand, "scientific accommodations are overwhelmingly epideictic; their main purpose is to celebrate rather than validate" (278). Additionally, authors of scientific accommodations "cannot rely on the audience to recognize the significance of the information" (279) and are thus forced to provide more explanation for the audience than what is found in an article geared towards experts.

For Fahnestock, another aspect of genre shift is the introduction of deontological and teleological appeals in accommodated articles. Deontological appeals attempt to associate something with an existing value to an audience (Fahnestock calls this the “wonder appeal”), whereas teleological appeals claim that “something has value because it leads to further benefits” (Fahnestock calls this the “application appeal”) (279).

Fahnestock also introduces stasis theory as a method for comparing scientific and accommodated articles. “Concerned primarily with legal argument, stasis theory defines and orders the kinds of questions that can be at issue in a criminal case” (290). Fahnestock adapts these questions to the “rhetorical life” of scientific observation (291). For example, questions in the first stasis ask, “Does a thing exist? Did an event or effect really occur?” (291). The next stases ask, “What is the reason for the effect? “What value should be placed on it?” and “What, if anything, should be done about it?” (291). Most scientific articles remain in the first stasis, while accommodations move through the other stases.

In another article, Fahnestock and Secor explore stasis theory further. First, they explain that the traditional use of stasis theory is to consider the method like “a generating machine or device for extrusion molding; a topic dropped in the top hopper comes out in questions and potential theses” (428). Fahnestock and Secor further this limited view by arguing that “the stases are not only an invention device and a principle of arrangement; they can also become a sensitive tool of audience analysis” (431). Based on the authors’ analysis of a number of works in literary theory and science, they conclude that “it is clear that arguments within a discipline usually assume the value of

addressing certain subjects in certain stases. That is what it means to write within a discipline” (440). Fahnestock and Secor also conclude “all arguments involve a prior value argument that establishes the significance of addressing an argument in a particular stasis to a particular audience” (434). Stasis theory is thus a valuable tool for analysis because, when an author chooses a particular stasis in which to write, she is affecting the value an audience will assign to her research and also requesting a certain level of action from the audience.

Fahnestock also describes changes in statement type as a means of accommodation. She uses the five statement types established by Latour and Woolgar in *Laboratory Life* (Table 3.1). The statement types are distinguished by “the degree of certainty they convey” and “formalize” the observation of the statements’ taxonomy (Fahnestock 288). According to Latour and Woolgar, Type 5 statements are accepted in the field as factual or established, and thus require no support. Fahnestock defines Type 4 statements as “uncontroversial information that is nevertheless made explicit” (288).

Type 3 statements have subtle modalities, such as “the citation of a numbered reference or source” that “weakens the certainty of a claim because it suggests the need for backing” (Fahnestock 289). As Latour explains in *Science in Action*, citation can both support and detract from an argument. The acts of “bringing friends in,” “referring to former texts,” and “being referred to” all create a network of interrelated citations. By “bringing friends in” and “referring to former texts,” authors allow their work to rest on the ethos of others, although misuse of citations or questionable sources can detract from this ethos. When articles are “referred to” by later texts, these citations give a work

relevancy. As Latour explains, “No matter what a paper did to the former literature, if no one else does anything with it, then it is as if it never existed at all” (40). Thus, something as simple as a footnote can have a powerful effect on a claim.

Type 2 statements are created when “the qualifications are stronger, when, for instance, the wording draws attention to the availability of evidence or lack of it” (Fahnestock 289). For example, Type 2 statements would contain words like “‘may,’ ‘seems,’ ‘suggests,’ and ‘appears to be’” (Fahnestock 289). Type 1 statements are “openly and frankly speculative, admitting the insufficiency of evidence and the very tenuous nature of a claim” (Fahnestock 289).

Table 3.1: Statement Types

		Statement Type
More certain	5	Accepted in the field as factual or established, and thus require no support
	4	“Uncontroversial information that is nevertheless made explicit”
	3	Includes subtle modalities, such as citations.
Less certain	2	Relies on modifiers to draw attention to the availability or lack of evidence
	1	“Openly and frankly speculative”

This thesis will further expand on Fahnestock’s use of statement types by drawing heavily from the methods outlined in Stephen Toulmin, Richard Rieke, and Allan Janik’s *An Introduction to Reason* and apply them to the statement types Latour and Woolgar explain in *Laboratory Life*. The progression, I feel, is quite natural and very relevant to the somewhat unusual styles and genres found in forensic anthropology. Fahnestock explores the structure of papers at a macro level (genre, stases, appeals) and then at a micro level (statement types). Toulmin et al. break this macro level down further and explore how scientific fact is created and defended at the sentence level. Their approach

is almost an extension of Latour's stratified papers—it explores how each individual sentence is stacked to present the reader with a complete (and sometimes implied) argument. These stratifications make it difficult for the dissenter, expert or non-expert, to disagree.

Argument is a key element of scientific discourse; it is the necessary step from observation to claim. Argument keeps normal science functioning and allows scientists to speculate about the phenomena around them. As many others have pointed out, science is not simply an observation of truth: it takes a great deal of human reasoning and inscription to manufacture what scientists regard as fact. The progression of science is fueled by collaboration; collaboration that makes argument and persuasion an important part of the scientific discourse. In fact, most of scientific writing can be distilled down to one scientist, or a group of collaborators, trying to convince everyone else in their discipline that what they are arguing is true. Accommodation allows author-scientists to shape their arguments for their audiences—tailoring their approach for the maximum impact and minimum dissent.

In their method, Toulmin et al. analyze these rhetorical aspects of argumentation by outlining six elements of argumentation. Four of these elements compare the levels of argument: backing, warrants, grounds, and claims. These four elements build upon each other to support an eventual claim. Backing includes the generalizations that are accepted parts of science; for example, laws that have been proven repeatedly and made a part of the scientific canon. Warrants are supported by backing—they are the general assumptions, principles, etc., of a field. Warrants can take the form of mathematical

formulas, the laws of physics, or even “historical regularities” (Toulmin et al. 335).

Grounds are the observations or facts of a case. Claims are the conclusions of arguments that are justified through the lower level assertions (backing, warrants, grounds).

The other two elements, possible rebuttals and modal qualifiers, can exist in different places within an argument. Possible rebuttals are preemptive responses to potential counterarguments. They are exceptions or outliers that may influence the strength of an argument. Modal qualifiers are words or phrases that are added to a sentence (which may itself represent a backing, warrant, ground, claim, or possible rebuttal) to change its level of certainty. As Toulmin et al. explain, in cases where “the strength of the argument depends more on the interpretation of all these detailed data than on any mathematical formulas or explanatory mechanisms,” claims can “afford to be presented with some modesty and appropriate modal qualifiers” (339). These modalities can be as simple as single words: maybe, probably, presumably.

In their discussion of modal qualifiers, Toulmin et al. touch on the fact that different claims have different levels of certainty (and thus require different types of backing, warrants, and grounds). However, Toulmin et al. do not differentiate these levels of certainty. For this reason Latour and Woolgar’s Statement Types 1, 2, and 3 can be applied to the claims of the Toulmin et al. hierarchy to provide a deeper explanation of what type of information is present and also the certainty with which it is presented. The arguments’ elements and levels of certainty the authors use in their accommodations illuminate the influence accommodators have on texts, and the role accommodation plays in forensic anthropology.

Source Material for the Analysis of Accommodation in Forensic Anthropology

The crucial first step for this analysis was finding sets of articles to analyze. Since I wanted to pay special attention to the role the author plays in accommodation, I chose pairs of articles, written by the same main author, that included an article written for an expert audience and one written for a non-expert audience. To these groups I also added an article written by an outside author for a broader general audience. In this way, I could trace the changes in an article through not only one, but two accommodations.

I began my search for source material by using the list of diplomates from the American Board of Forensic Anthropologists to research which of them had also published popular press books. I chose to start with the popular press books and work backwards since I was fairly certain that all of the ABFA diplomates had published articles for professional journals at some point during their careers.

The authors I chose demonstrate some of the contrast in the field. Dr. Maples and Dr. Bass were prominent members of the field as forensic anthropology gained popularity, beginning around the 1970s. They were active during the time that public awareness of forensic anthropology was gaining momentum—a period during which accommodation would be instrumental. Dr. Maples founded the C.A. Pound Human Identification Laboratory (CAPHIL) at the University of Florida, a laboratory that assists in cases from around the country. After his death, the University of Florida created the Maples Center for Forensic Medicine in his honor; it is the first interdisciplinary forensic center to be created in the state university system. Dr. Bass is the founder of the University of Tennessee Anthropological Research Facility (commonly known as the

Body Farm), the first research facility of its kind. His program's decomposition studies have contributed to major developments in forensic science.

The third author I chose, Dr. Mann, was the newest diplomate who had also written a popular press book. I chose a newer diplomate in order to cover the progression of the field over a span of time. By using a range of publication dates from newer and older diplomates, I should be able to support my generalizations about the field as a whole, which I couldn't do with just one author, case, or time period. Also, Dr. Mann studied under Dr. Bass at the University of Tennessee, so his perspective demonstrates how different scientists regard the same research. Currently, Dr. Mann is the deputy director of the Central Identification Laboratory Hawaii (CILHI), a laboratory that works to identify US soldiers lost during military conflicts. CILHI, CAPHI, and the Body Farm represent the three of the largest centers for forensic anthropology in the United States.

Once I had selected the authors and popular press books, I focused on a particular case or subject matter. I chose the area of focus based on the overall newsworthiness of the topic and its general significance to the field. In other words, these cases would be the most interesting to non-expert audiences, while still remaining relevant to expert ones. For Dr. Maples, I chose the case where he identified the remains of Francisco Pizarro. For Dr. Bass and Dr. Mann, I chose the chapters they wrote in their respective books about the Body Farm.

After selecting a subject matter, I then searched for the journal articles the authors had published on the subject. Dr. Maples, along with his co-authors, published a full report of his findings on the Pizarro case in the *Journal of Forensic Sciences*. Dr. Bass

and Dr. Mann published a joint article on the summarized findings of the Body Farm research in the *Journal of Forensic Sciences*. The collaborative article was especially helpful because it allowed me to examine the role of collaboration in conjunction with the role of the author.

After I had collected the pairs of expert and non-expert audience articles, I then searched for articles written for a general audience. These articles would serve as the “control” for this experiment—these articles represented the conventional types of accommodation that would be commonly found in the public’s hands. For the Pizarro case, I found an article published in the *New York Times* when the case was breaking news. For the Body Farm discussion, I found an article published by *Newsweek* that appeared in the print magazine and on the magazine’s website. These articles gave me the opportunity to discuss how accommodation changes when it is written by an outside, non-expert author, for an audience that does not necessarily have an existing interest in forensic science.

The Pizarro case became Set I, which included the original article written by Maples et al., the chapter from Maples’s popular press book written by Maples and Browning, and the *New York Times* article. The Body Farm articles became Set II, which included the original article written by Mann et al., the chapter from Dr. Bass’s popular press book, the chapter from Dr. Mann’s popular press book, and the article from *Newsweek*. Once I collected my source material, it was time to design a method that combined the approaches of Fahnestock and Toulmin et al.

Table 3.2: Source Material Sets

	Set I	Set II
Original Article	Maples, William R. et al. “The Death and Mortal Remains of Francisco Pizarro.” <i>Journal of Forensic Sciences</i> , 1989	Mann, Robert, William M. Bass, and Lee Meadows. “Time Since Death and Decomposition of the Human Body: Variables and Observations in Case and Experimental Field Studies.” <i>Journal of Forensic Sciences</i> , 1990
Forensic Anthropologist Accommodation	Maples, William R. and Michael Browning. <i>Dead Men Do Tell Tales: The Strange and Fascinating Cases of a Forensic Anthropologist</i> . Broadway Books, 2001	Bass, William M. and Jon Jefferson. <i>Death's Acre: Inside the Legendary Forensic Lab the Body Farm Where the Dead Do Tell Tales</i> . Putnam, 2003 Mann, Robert and Miryam Williamson. <i>Forensic Detective: How I Cracked the World's Toughest Cases</i> . Ballantine Books, 2006
Outside Author Accommodation	United Press International. “Bones Found in Lima Verified as the Remains of Pizarro.” <i>New York Times</i> , 1984	Pederson, Daniel. “Down on the Body Farm.” <i>Newsweek</i> , 2000

Method

The first steps of my method closely mirror the approach that Fahnestock uses in *Accommodating Science*. I began my analysis by comparing the genres of the source materials within each subject matter. The first part of the genre analysis was to determine if one section of the article is larger than the rest. I counted the number of sentences that pertain to “history of the case,” “data collection,” and “conclusion.” I then converted

these numbers to percentages to see which section takes the largest proportion of the article.

For the second part of the genre analysis, I located deontological and teleological arguments within the articles, using Fahnestock's definitions. After comparing the arguments between the pairs of articles, I determined to which of the three divisions of oratory the articles related, based on Fahnestock's use of Aristotle.

For the third part, the stasis progression analysis, I used Fahnestock's definitions of the stases and record at which point in the articles the stasis changed. I also recorded in which stasis the articles ended.

The final two analyses required me to select an excerpt of the articles for analysis. I chose to select excerpts from the articles, not only due to the limitations of this project, but also because I wanted to focus on the aspects of the topic that were reflected in all of the articles. For the Pizarro set of articles, this was the results section of the expert piece and an excerpt of the popular-press book that discussed the results of the case. Dr. Maples's adherence to the IMRAD format even in the non-expert piece made this division easy to determine. For the Body Farm articles, however, the divisions were less obvious. I chose the sections that spoke directly of the Body Farm and the general results of the research conducted there (the "meat" of the piece: descriptions and explanations of the variables that effect decomposition). These sections were more similar to the original article. I used the entire *Newsweek* and *New York Times* articles because they were already a workable length. Although it may seem that I was biasing my results by selecting sections that were similar in nature, I believe that it only strengthens my

analysis. As Fahnestock explains, accommodation is not “simply a matter of translating technical jargon into non-technical equivalents,” (*Accommodating* 280), it is the adaptation of information for different audiences. Therefore, the “information” of the piece should be the focus of the analysis, not the surrounding context. It is fully expected for the language and formality of a piece to change as it is accommodated. The unexpected difference is if the information itself undergoes a change. For this reason, my decision to focus on the “claims” and data of the piece is well justified.

Once I had selected my excerpts, I conducted the fourth part of the analysis: I coded the sets of articles for statement types, based on Latour and Woolgar’s definitions, as operationalized by Fahnestock. Sentences that were hybrids of two statement types were counted in each category. Additionally, sentences that were strictly observational and that did not fit a definition of statement type were not categorized.

For the final part of the analysis, I identified the claims and grounds stated in the articles, using the Toulmin et al.’s definitions. I diagramed the arguments represented by the claims. These diagrams can be found in Appendix A. Once I diagramed the claims, I re-examined the sentences in their original contexts to determine if the warrants, grounds, or backing were present. Once I determined if the supporting material of the argument was present, I coded each of them for statement types (these tables can be found in Appendix B). In a few instances, the grounds, claims, and sometimes even warrants, were contained in the same sentence. That sentence might contain a modifier, which would make the whole sentence a Statement Type 2; but did the modifier apply to the warrants, grounds, or claim? This required a parsing out of Fahnestock’s methods that I hadn’t

expected. As a result, I made my judgments based on the placement of qualifiers. For example, Diagram MB5 (found in Appendix A) is an example of this issue: “This reunited skull and skeleton belonged to a white male *at least* sixty years old at the time of his death, who stood *about* sixty-five to sixty-nine inches tall in life, based on the length of his long bones” (Maples and Browning 217; emphasize mine). The claim that the skull belonged to a white male is not modified; it is a Statement Type 5. The claims about his height and age, however, do contain modifiers, so they are examples of Statement Type 2. This grammatical application of statement types allowed for a deeper analysis than I originally intended.

The results of this analysis will be presented in two ways, through the quantitative data of the statement type and argument element analysis (presented in tables in Chapter 4), and through the more qualitative and literary aspects of the genre and stasis analyses (discussed in Chapter 5). This separation is part of the rhetorical approach used in this analysis—certain elements of the data have stronger relationships than others.

CHAPTER FOUR
QUANTITATIVE DATA:
STATEMENT TYPES AND ARGUMENT ELEMENTS

In this chapter, I will review the results of the statement type analysis and the modified Toulmin analysis. I will begin the statement type analysis for the Pizarro case, followed by the statement type analysis for the Body Farm sources, and then move to the modified Toulmin analysis for each set (for a description of the sets, see Table 3.2 on p. 31). I will conclude with a discussion comparing the two sets.

Set I: Statement Type Analysis

As we can see in Table 4.1, the original article had, in total, 38 Type 2 or 3 statements (39%) and 17 Type 4 or 5 statements (18%). Maples and Browning's accommodated article had 18 Type 2 or 3 statements (25%), 33 Type 4 or 5 statements (45%), and 7 Type 1 statements (10%). The *New York Times* article had 3 Type 2 or 3 statements (20%) and 7 Type 4 or 5 statements (46%). My findings agreed with Fahnestock's observation that scientific articles contain more Type 2 and 3 statements than Type 4 and 5 statements, whereas accommodated articles contain more Type 1, 4, and 5 statements.

Table 4.1: Set I, Quantitative Analysis of Statement Types

Statement Type	Number of Sentences		
	Original Article	Maples and Browning	<i>New York Times</i>
1	0 (0%)	7 (10%)	0 (0%)
2	30 (31%)	18 (25%)	0 (0%)
3	8 (8%)	0 (0%)	3 (20%)
4	2 (2%)	17 (23%)	2 (13%)
5	15 (16%)	16 (22%)	5 (33%)
Total # of sentences	96	73	15

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

The following is an example of changes in statement type. Both excerpts written with Maples discussed which hand was Pizarro’s dominant hand, but the certainty of the statements was obviously changed. In the original article Maples and his coauthors state: “The general size of the bones, especially in the *muscle attachment areas*, suggested a *well-developed and robust skeleton*. These muscle attachment areas also suggested that this individual was right handed.” (emphasis mine; 1028). These sentences, with their modalities, are type two statements.

Similar sentences from Maples and Browning’s accommodated article have a greater degree of certainty and more definitions than sentences from the original article: “From *the relative size of the bumps on the bones where the muscles had been attached*, it was clear that the individual had been right-handed...The size of the bones showed they belonged in life to a *well-developed, robust man*” (218). These are Type 4 and 5 sentences. “Suggested” becomes “it was clear” and “showed.” Additionally, “muscle attachment areas” was further defined in the accommodation. Finally, although it may not seem like an important difference, describing a skeleton as “well-developed” and

“robust” is different from describing a man in the same way. “Robust” is actually a technical term in forensic anthropology—it is used to describe bones that have more pronounced muscle attachments, larger size, and an overall rougher texture. When Maples and his coauthor change the sentence from describing the bones to describing Pizarro himself, it creates an emotional connotation that is not present in the original and demonstrates a leap from reporting a characteristic of the observable bones to a description of the unobservable personality of Pizarro.

The *New York Times* accommodated article introduces even higher levels of certainty than the original article or Maples and Browning’s accommodated article, which, as I will point out, drastically changes the meaning of the findings. For example, in the accommodated article Maples and Browning state that “the angle of some of the wounds *suggested that* they were inflicted as the victim lay on the floor” (emphasis mine; 220). Many sentences like this one could not be accommodated with more certainty because they would become false, not just an exaggerated degree of true. For example, the *New York Times* accommodation ventures into this uncertain territory. In the articles, wounds to Pizarro’s mandible are described in three very different ways:

Original Article:

A series of eleven finely incised marks appeared on the inferior border and medial surface of the right body of the mandible. The orientation of these lines varied considerably...One of the linear marks lined up perfectly to the important wound that simultaneously damaged the fourth and fifth

cervical vertebrae, thus associating the mandible with the postcranial remains. (1028)

Maples and Browning's Accommodation:

On [mandible's] lower margin, beneath the chin, were eleven finely incised marks, clearly made by sharp, double-edged weapons pointing in several directions. One of these marks lined up perfectly with one of the deeper stab wounds found in the neck, thus furnishing more proof that the skull in the leaden coffer truly belonged with the set of loose bones in the other box. These telltale marks indicated that the deceased had either been stabbed repeatedly through the neck or, more probably, that one assailant had thrust his sword in, then sawed the blade back and forth against the jawbone... (219)

The *New York Times* Accommodation:

“He died when a sword was driven up under his chin and into his skull.”

Admittedly, the size constraints of the *New York Times* would have significant effect on the words the author chose, but the author's severely summarized sentence doesn't take into account the fact that, during his final moments, Pizarro was stabbed many different times by many different assailants—it seems to imply that only one blow was delivered. I think this is an example of poor accommodation; it doesn't just add certainty—it over simplifies the attack into something misleading and somewhat inaccurate.

Set I: Modified Toulmin Analysis

The modified Toulmin analysis of the Pizarro case resulted in 22 diagrammed claims (these diagrams can be found in Appendix A). After conducting the analysis, I arranged the raw data into a table (Table B.1, which can be found in Appendix B). This table lists the elements of each claim, points out their presence or absence in the text, and then gives the statement type of the present elements. It also identifies which elements were reiterations of previous elements (In Toulmin et al.'s diagramming method, when arguments build off of other arguments, elements are often repeated. I called these repeated elements "reiterations.") This table allowed me to compile the data from my 22 diagrams into one place. More manageable representations of this data can be found in Tables 4.3 and 4.4.

Explicit vs. Implicit Arguments

Table 4.3 tallies the total numbers of elements I diagrammed and then shows which of these elements are present in the text (I deemed these present, or explicit, arguments and absent, or implicit, arguments). I also counted the number of elements that appeared as a reiteration of a previous element (for example, in Diagram MEA2, Claims #1-3 become Ground #4. This ground was counted as a "reiteration."); these reiterated elements are also condensed into Table 4.3.

Table 4.2: Set I, Analysis of Explicit or Implicit Argument Elements

	Total Number Diagrammed	Number Present in Text	Number Diagrammed as a Reiteration
<i>Original Article</i>			
Backing	0	0	0
Warrants	18	10 (56%)	0
Grounds	17	7 (41%)	3 (18%)
Claims	16	11 (68%)	0
Rebuttals	10	1 (10%)	1 (10%)
<i>Maples and Browning</i>			
Backing	3	0	0
Warrants	15	2 (13%)	0
Grounds	15	4 (27%)	1 (7%)
Claims	15	15 (100%)	0
Rebuttals	6	0	0
<i>New York Times</i>			
Backing	1	0	0
Warrants	11	5 (45%)	1 (9%)
Grounds	8	4 (50%)	1 (13%)
Claims	9	7 (78%)	0
Rebuttals	3	0	0

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

A number of interesting comparisons can be made from Table 4.3. In the original article, 56% of the warrants, 41% of the grounds, 68% of the claims were in the text of the article. In the Maples and Browning accommodation, 13% of the warrants, 27% of the grounds, and 100% of the claims were in the text of the article. In the *New York Times* accommodation, 45% of the warrants, 50% of the grounds, and 78% of the claims were present in the text of the article.

First I would like to compare the presence of warrants and grounds in each of the articles. I would have expected for the Maples and Browning article to have the largest percentage of warrants and grounds present in the original text, for two reasons. First of all, the authors were not working with the strict word limit that the *New York Times* author would have had. Secondly, I would have guessed that Maples and Browning

would have used more elaboration in their arguments since they were dealing with a largely non-professional audience. These hypotheses, however, are not supported by the data. Instead, the original article and the accommodated *New York Times* article have a comparable and higher percentage of warrants and grounds present in their respective texts.

I believe that this occurred for a few reasons. First of all, to construct the diagrams of the claims in the *New York Times* article, I had to search throughout the article to find elements. Since the article was so short, these elements were close enough (in literal text proximity) to the original claim that they could be considered a “present” part of the claim. Also, some of the elements were repeated for a number of claims, in a way that was just different enough to not be considered a “reiteration,” but rather a distinct element for a different claim. For example, if you look at the diagrams of two claims from the *New York Times* article, Diagram NYT1 and Diagram NYT3, they contain some of the same elements. The claims for these arguments are distinct, but common evidence is used. I also think that some of the claims were omitted as a result of length restrictions. This is an example of what I would call restricted accommodation; space is limited, so the author must be able to determine which claims are necessary and which claims can be implied, based on his or her understanding of the target audience.

The original article may have contained such a large number of warrants and grounds in the text because the authors needed to defend their methods and data. A general audience might not understand the methods or care about the justification; a professional audience, on the other hand, demands a much stronger “burden of proof.” It

is not enough for Maples et al. to say they did something; they must also explain why and how they did what they did. For example, in Diagram MEA5 (in Appendix A), both of the warrants for this argument are present. These warrants support the particular methods (the Giles and Elliot discriminant function formulae and the Fully and Pineau procedure) the authors used.

This hypothesis is also supported by the percentage of claims present in the original article (68%) and the Maples and Browning accommodation (100%). It may seem strange that not all of the claims are present in the original article; in many instances I found arguments that seemed to imply a claim, but, upon closer inspection, never actually overtly stated the claim. For example, this sentence led to Diagram MEA3: “The postcranial skeleton of the elderly male articulated with the skull in the lead box (C-1 cervical vertebra to occipital condyles)” (Maples et al). Although it seems like a minor distinction, I think that, in terms of logic, saying that skull and skeleton “articulated” is very different than saying that the skull and skeleton “matched.” The authors do not state this final leap of their argument, even though it is implied. Yet these arguments were still integral to the overall argument of the article, so I included them.

In my analysis of argument structure, a pattern emerged. All three of the articles contain the same overarching claim: this skull and skeleton belong to Francisco Pizarro. This claim isn’t surprising, since all three of the articles deal with the same case. Each article, however, reaches this conclusion at a different point. Maples and Browning do not reveal that the skeleton is Pizarro’s until the end of the section explaining the skeleton’s wounds (almost 3 pages after the excerpt I chose). The *New York Times* article

states it in the first sentence. The original article never seems to overtly state that conclusion, perhaps because it is implied from the title of the piece onward.

Even though they arrive at the conclusion at different points, all three of the articles seem to use a similar pattern in their arguments. This repeated argument follows a structure similar to: “This skeleton shows signs of X” (grounds); “forensic anthropology can prove that X means Y” (warrant), and “Historical records also document X (=Y) about Pizarro” (warrant); therefore, “this skeleton must be $Y \rightarrow$ Francisco Pizarro” (claim). The structure may be repeated, but the articles are still very different in their approach.

Statement Types

The statement type categorizations of the argument elements are presented in Table 4.4. The warrants in the original article were evenly split between Statement Type 3 and Statement Type 5. The grounds in the original article were all Statement Type 5. Nine percent of the claims in the original article were Statement Type 1; 64% were Statement Type 2; 18% were Statement Type 3; and 9% were Statement Type 4. The warrants in the Maples and Browning accommodation were also evenly split; this time between Statement Type 2 and Statement Type 4. The grounds were also all Statement Type 5. Forty-six percent of the claims were Statement Type 2; 8% were Statement Type 3; and 46% were Statement Type 5. In the *New York Times* accommodation, all of the warrants and grounds were Statement Type 5. Twenty-nine percent of the claims were Statement Type 2; 71% were Statement Type 5.

Table 4.3: Set I, Statement Types Present in Argument Elements

	Type 1	Type 2	Type 3	Type 4	Type 5	Total
Original Article						
Backing	0	0	0	0	0	0
Warrants	0	0	5 (50%)	0	5 (50%)	10
Grounds	0	0	0	0	7 (100%)	7
Claims	1 (9%)	7 (64%)	2 (18%)	0	1 (9%)	11
Rebuttal	0	1 (100%)	0	0	0	1
Maples and Browning						
Backing	0	0	0	0	0	0
Warrants	0	1 (50%)	0	1 (50%)	0	2
Grounds	0	0	0	0	4 (100%)	4
Claims	0	6 (46%)	1 (8%)	0	6 (46%)	13
Rebuttal	0	0	0	0	0	0
<i>New York Times</i>						
Backing	0	0	0	0	0	0
Warrants	0	0	0	0	5 (100%)	5
Grounds	0	0	0	0	4 (100%)	4
Claims	0	2 (29%)	0	0	5 (71%)	7
Rebuttal	0	0	0	0	0	0

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

These distributions, although tenuous, do demonstrate a few key trends. First of all, the grounds in all three of the articles were classified as Statement Type 5. This is probably because grounds represent the observed “facts of the case”; they are involved in determining if something is or isn’t. Another important observation is that the warrants, grounds, and claims of the *New York Times* article are predominantly Statement Type 5. This agrees with Fahnstock’s assessment that accommodations demonstrate a higher level of certainty. The fact that the claims in the Maples and Browning article trend towards higher statement types, although not as strongly as the *New York Times* articles, also supports this finding. As expected, most of the claims in the original article are lower statement types (64% are Statement Type 2).

The level of certainty in the warrants contained in the original article and the Maples and Browning accommodation also points to an interesting observation. The statement types for the warrants in the Maples and Browning article are, on average, lower than the ones for the original article. In some way, this must be related to the fact that more of the warrants are stated in the original article.

Set II: Statement Type Analysis

The quantitative analysis of statement types for the Body Farm sources appear in Table 4.2. This table shows remarkable similarities among the articles in the sets. In all of the articles, the most prevalent statement type is Type 4; Statement Type 2 is the second most prevalent. The accommodations and original article do not demonstrate the expected contrast. These findings do not agree with Fahnestock’s results.

Table 4.4: Set II, Quantitative Analysis of Statement Types

Statement Type	Number of Sentences			
	Original Article	Bass Accommodation	Mann Accommodation	<i>Newsweek</i> Article
1	3 (3%)	0 (0%)	4 (7%)	0 (0%)
2	22 (21%)	8 (12%)	6 (10%)	3 (4%)
3	2 (2%)	0 (0%)	0 (0%)	3 (4%)
4	22 (21%)	24 (35%)	15 (25%)	11 (16%)
5	3 (3%)	0 (0%)	2 (3%)	3 (4%)
Total # of sentences	104	69	61	67

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

These examples had similar numbers of Type 2 and Type 4 statements—even among the professional and popular-press publication. Type 3 and Type 5 statements

were practically non-existent. The original article had fewer references (Type 3 statements) and more speculative sentences (Type 1 statements) than Fahnestock's results would lead you to expect. The existence of few Type 3 statements and more Type 1 statements than expected may be attributed to the fact that the original article is based on research that was (especially when the article was published in 1990) quite unusual for the field. This will be explored in more depth in the Conclusion.

Set II: Modified Toulmin Analysis

Implicit vs. Explicit Arguments

The presence or absence of argument elements for the Body Farm sources is presented in Table 4.5. In the original article, none of the backing, 35% of the warrants, 59% of the grounds, 17% of the rebuttals, and 65% of the claims were present in the text of the article. It is interesting to note that such a low number of claims are present in the article. This may have been a result of the structure of the article—each variable was presented with the implied claim that it impacted decomposition rates in some manner. These claims were not always overtly stated, but the fact that they were listed as a variable highlighted their importance.

Table 4.5: Set II, Analysis of Explicit or Implicit Argument Elements

	Total Number Diagrammed	Number Present in Text	Number Diagrammed as a Reiteration
<i>Original Article</i>			
Backing	2	0	0
Warrants	26	9 (35%)	1 (4%)
Grounds	27	16 (59%)	0
Claims	26	17 (65%)	0
Rebuttals	6	1 (17%)	0
<i>Bass Accommodation</i>			
Backing	2	0	0
Warrants	11	5 (45%)	1 (9%)
Grounds	11	5 (45%)	1 (9%)
Claims	10	10 (100%)	0
Rebuttals	1	1 (100%)	0
<i>Mann Accommodation</i>			
Backing	2	2 (100%)	0
Warrants	15	6 (40%)	0
Grounds	14	6 (43%)	0
Claims	14	13 (93%)	0
Rebuttals	5	0	0
<i>Newsweek Accommodation</i>			
Backing	0	0	0
Warrants	25	4 (16%)	1 (4%)
Grounds	21	12 (57%)	2 (10%)
Claims	22	14 (64%)	0
Rebuttals	4	0	0

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

Both of the forensic anthropologist-accommodated articles had similar numbers of implicit and explicit claims. In the Mann accommodation, 100% of the backing was present, 40% of the warrants were present, 43% of the grounds were present, and 93% of the claims were present. In the Bass accommodation, no backing was present, 16% of the warrants were present, 57% of the grounds were present, and 64% of the claims were present. I believe that the main difference, the presence of backing, resulted from the fact that the Mann accommodation was more of a self-contained chapter about the Body

Farm; the selection I chose for the Bass accommodation was not the only chapter in the book that discussed the Body Farm (some backing-level information was discussed in separate chapters).

The *Newsweek* accommodation included 16% of the warrants, 57% of the grounds, and 64% of the claims. It is interesting to note that the claims were not as present in this accommodation as they were for the others in this set. As I discussed in the Pizarro case, this may be due to the constraints of the publication and the nature of the genre. This will be discussed further in the next chapter.

Statement Types

The argument elements, categorized by statement type, from the Body Farm sources can be found in Table 4.6. In the original article, the present warrants are either Statement Type 4 or Statement Type 5. This adheres to what would be expected: the more certain elements of an argument would be the foundational elements. The grounds were 38% Statement Type 2, 44% Statement Type 4, and 24% Statement Type 5. The claims were 12% Statement Type 1, 24% Statement Type 2, 41% Statement Type 7, and 24% Statement Type 5. This distribution of statement types conflicts with the expected results—especially the fact that equal numbers of claims are Statement Type 2 and Statement Type 5.

Table 4.6: Set II, Statement Types Present in Argument Elements

	Type 1	Type 2	Type 3	Type 4	Type 5	Total
Original Article						
Backing	0	0	0	0	0	0
Warrants	0	0	0	5 (56%)	4 (44%)	9
Grounds	0	6 (38%)	0	7 (44%)	3 (19%)	16
Claims	2 (12%)	4 (24%)	0	7 (41%)	4 (24%)	17
Rebuttal	0	0	0	1 (100%)	0	1
Bass Accommodation						
Backing	0	0	0	0	0	0
Warrants	0	1 (20%)	0	3 (60%)	1 (20%)	5
Grounds	0	0	0	3 (60%)	2 (40%)	5
Claims	0	4 (40%)	0	5 (50%)	1 (10%)	10
Rebuttal	0	0	0	0	1 (100%)	1
Mann Accommodation						
Backing	0	0	0	2 (100%)	0	2
Warrants	0	0	0	4 (67%)	2 (33%)	6
Grounds	0	1 (13%)	0	2 (25%)	5 (63%)	8
Claims	2 (13%)	3 (20%)	0	5 (33%)	5 (33%)	15
Rebuttal	0	0	0	0	0	0
Newsweek Accommodation						
Backing	0	0	0	0	0	0
Warrants	0	2 (50%)	0	1 (25%)	1 (25%)	4
Grounds	0	1 (8%)	0	4 (33%)	7 (58%)	12
Claims	0	4 (31%)	1 (8%)	4 (31%)	5 (38%)	13
Rebuttal	0	0	0	0	0	0

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

In the Bass accommodation, 20% of the warrants were Statement Type 2, 60% were Statement Type 4, and 20% were Statement Type 5. This follows the expected results: the supporting elements of the case tend towards the more certain statement types, but are mostly Statement Type 4, the statement type that includes “explicit” information. The grounds of the Bass accommodation are almost evenly split between Statement Type 4 and Statement Type 5. These results are also somewhat expected: the grounds are often the observed facts of a case and are usually rather certain. As in the original article, the claims in the Bass accommodation are somewhat less certain than

expected: 40% were Statement Type 2, 50% were Statement Type 4, and 10% were Statement Type 5.

The Mann accommodation in Set II has a somewhat different distribution of statement types than the Bass accommodation. For example, all of the backing is present in the article. This represents a greater need for support than any of the other sources. The warrants adhere to the expected standard: they were distributed between Statement Type 4 (67%) and Statement Type (33%). The grounds included one Statement Type 2 sentence, which continues the trend towards less certain statement types. The rest of the grounds were represented in Statement Type 4 (25%) and Statement Type 5 (63%). The distribution of claims is unexpected—13% are Statement Type 1, 20% are Statement Type 2, 33% are Statement Type 4, and 33% are Statement Type 5. It is interesting to note that the distribution of claims in Dr. Mann's accommodated article is most similar to the distribution of claims in the original article; Dr. Mann was the first author for both of these articles.

In the *Newsweek* article, 50% of the warrants were Statement Type 2, 25% were Statement Type 4, and 25% were Statement Type 5. Since only four warrants were present in the text, this trend toward less certain is not very strong. On the other hand, 8% of the grounds were Statement Type 2, 33% were Statement Type 4, and 58% were Statement Type 5, which is a stronger trend towards more certain statement types. The claims in the *Newsweek* article were 31% Statement Type 2, 31% Statement Type 4, and 38% Statement Type 5, which demonstrates a slight trend toward certainty. The trends in these results are not strong, but do support Fahnestock's expected values.

Discussion of Combined Results of Sets I and II

To conclude this portion of the analysis, I combined the results of both sets to infer what possible interpretations could be made through the comparison of the sources. Since the Body Farm sources had one more article than the Pizarro case, I added the two forensic anthropologist accommodations together and refigured the percentages. This made the data easier to compare and, since the forensic anthropologist data was coming from a larger sample, somewhat more accurate. Using a combined table of the statement types from each set (Table 4.7), I created a figure that presented a graphical representation of the statement types present in each set.

Table 4.7: Comparison of Statement Type Analysis

Statement Type	Number of Sentences					
	Original Article		Forensic Anthropologist Accommodation		Outside Accommodation	
	Set I	Set II	Set I	Set II	Set I	Set II
1	0 (0%)	3 (3%)	7 (10%)	4 (3%)	0 (0%)	0 (0%)
2	30 (31%)	22 (21%)	18 (25%)	14 (11%)	0 (0%)	3 (4%)
3	8 (8%)	2 (2%)	0 (0%)	0 (0%)	3 (20%)	3 (4%)
4	2 (2%)	22 (21%)	17 (23%)	39 (30%)	2 (13%)	11 (16%)
5	15 (16%)	3 (3%)	16 (22%)	2 (2%)	5 (33%)	3 (4%)
Total # of sentences	96	104	73	130	15	67

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

Figure 4.1 demonstrates a few key trends. Although the quantities themselves are a bit skewed by the fact that two sources in the Body Farm set were combined, it is apparent that the number of Statement Type 2 sentences in both Sets decreases as the information becomes accommodated. This is in clear agreement with Fahnestock’s analysis: the accommodations introduce a greater level of certainty than the original articles, or even the forensic anthropologist accommodated articles.

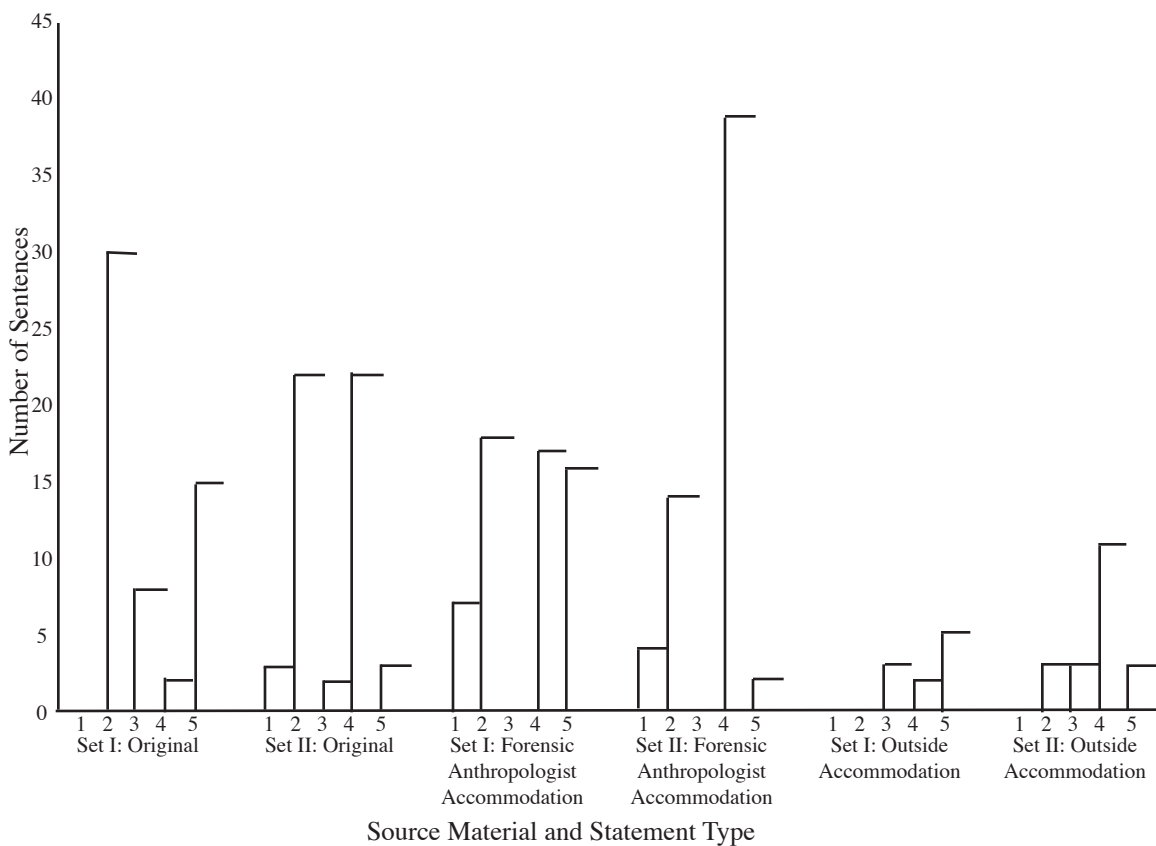


Figure 4.1: Graphical Comparison of Statement Types

It is also interesting to note that the Statement Type 3 sentences in Set I and Set II also change as they are accommodated. None of the forensic anthropologist accommodated articles in any of the Sets had Statement Type 3 sentences, but both of the

original articles and outside accommodations did. The form of the Statement Type 3 sentences did change slightly in the accommodation, however. In the original articles sentences that included citations or references were counted as Statement Type 3. In the outside accommodations, which do not traditionally include formal citations, statements that were modified with quotations from authorities represented Statement Type 3.

I think the lack of Statement Type 3 sentences, in the Body Farm set in particular, reflects the newness of the information being presented. In the Pizarro case, no other forensic anthropologists had ever studied the remains of Francisco Pizarro, so aside from citing the measurement formulas he used and the historical documents on Pizarro, there was no other information for Dr. Maples to cite. In the less restricted genre of the popular press book, he was not obligated at all to use citation. In the original Maples et al. article, only 7 of the 16 references pertain to forensic anthropology itself; the rest are historical information about Pizarro. Compared to a forensic anthropology article recently published in the same journal that had 23 references to major work in the field (Ginter), the Maples et al. references seem lacking. When the Body Farm articles were written, there were no other body farms anywhere else in the world. In the original article, 13 of the 14 citations included in the reference list are mentioned in the first two sentences, with the expressed purpose of demonstrating how few studies have been conducted on the decomposition of the human body. In his popular-press accommodation, Dr. Bass admits that aside from studies of anatomy, he has no knowledge of the existence of anything remotely similar to the Body Farm. Thus, he and his co-authors have very little supporting research to cite, except for the animal studies he called into question.

Additionally the original articles in both sets may have contained such a high number of Type 4 and 5 statements because forensic anthropology is a relatively new field and still needs definitions. At the time the original articles were written, forensic anthropology had only been “official” for a little over a decade. Additionally, the journal the article was published in is read by many types of forensic specialists (ballistics experts, crime scene investigators, DNA specialists) and does not have the same, as Foucault would describe it, “society of discourse” (1468) as a field that only has one main focus of study. Therefore, when this article was published in a journal that is read by all kinds of forensic scientists, it needed more definition than articles that are published and read within a more homogenous field.

The comparison of explicit and implicit argument elements among the source sets can also present some important deductions about the nature of forensic anthropology accommodation. Table 4.8 presents the combined results of the implicit and explicit argument analyses.

Table 4.8: Comparison of Explicit or Implicit Argument Elements

	Total Number Diagrammed		Number Present in Text		Number Diagrammed as a Reiteration	
	Set I	Set II	Set I	Set II	Set I	Set II
Original Article						
Backing	0	2	0	0	0	0
Warrants	18	26	10 (56%)	9 (35%)	0	1 (4%)
Grounds	17	27	7 (41%)	16 (59%)	3 (18%)	0
Claims	16	26	11 (68%)	17 (65%)	0	0
Rebuttals	10	6	1 (10%)	1 (17%)	1 (10%)	0
Total	61	87	29 (48%)	43 (49%)	4 (7%)	1 (1%)
Forensic Anthropologist Accommodation						
Backing	3	4	0	2 (50%)	0	0
Warrants	15	26	2 (13%)	11 (42%)	0	1 (4%)
Grounds	15	25	4 (27%)	11 (44%)	1 (7%)	1 (4%)
Claims	15	24	15 (100%)	23 (96%)	0	0
Rebuttals	6	6	0	1 (2%)	0	0
Total	54	85	21 (39%)	53 (62%)	1 (2%)	2 (2%)
Outside Accommodation						
Backing	1	0	0	0	0	0
Warrants	11	25	5 (45%)	4 (16%)	1 (9%)	1 (4%)
Grounds	8	21	4 (50%)	12 (57%)	1 (13%)	2 (10%)
Claims	9	22	7 (78%)	14 (64%)	0	0
Rebuttals	3	4	0	0	0	0
Total	32	72	16 (50%)	30 (42%)	2 (6%)	3 (4%)

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

In both sets, the total number of elements present in the text remained close to 50% for all of the sources. The types of elements, however, changed from accommodation to accommodation. Overall, the forensic anthropologist accommodations resulted in the highest number of explicit claims. The original articles and the outside accommodations from both sets had similar numbers of explicit claims, ranging from 64%-78%. Surprisingly few of the argument elements were reiterations. Although the arguments did build on themselves, it was more common for new elements to be included.

These implied arguments speak to the nature of accommodation. In the forensic anthropologist accommodations, the general audience would not be able to make the deductive leap from the grounds to the claim. They would need the claims spelled out for them, even if they didn't require an in-depth explanation of the grounds and warrants. In the original articles, however, the data must be reported, but the claims can be implied; a professional audience would know what the grounds meant. In some cases, the audience may even need to be reminded of the warrants, but they are then perfectly capable of making their own leap to the claim. In fact, not including the claim could be interpreted as a form of accommodation: overtly stating the claim, even with modifiers, implies a greater level of certainty than simply letting the audience fill in their own conclusions.

Despite the diverse subject matter in the two sets of articles, the overall trends were quite similar. These trends supported Fahnestock's observations of statement types in accommodations and provided insight into possible explanations for the presence or absences of argument elements. In the next, I will explore the qualitative data that presents both similarities and dissimilarities among the source materials.

CHAPTER FIVE

QUALITATIVE DATA: GENRE AND STASES

A Brief Audience Analysis

Before I can discuss the genres of the articles, it is important to first understand the audiences for which they were intended. Both of the original articles were published in the *Journal of Forensic Sciences*, a well-known and highly regarded journal in the field of forensic anthropology. Both of the original articles would have been read by experts in the field, people who study forensic anthropology as part of their career, and other forensic experts, who understand the scientific discourse as whole but perhaps not the technical aspects of forensic anthropology. This article, most likely, would only be available to professionals with subscriptions and students who attend a university that purchases a subscription for its forensic science or anthropology program. General audience access would be limited by their understanding of terminology and the cost and availability of a journal subscription.

The professional interest for the Mann et al. article would be slightly different; it provides experts with a summary of the variables that effect decomposition in a natural setting. Although the authors caution that the results are only directly applicable to areas with similar climates at Tennessee, the article still manages to provide experts with a few “rule of thumb” guidelines that would apply to a number of cases. The authors are also quick to point out the motivation for their article:

“The authors, William Bass in particular, have given hundreds of seminars, informal talks, and college courses on the many aspects of the

human body in a forensic science context. It has been in these presentations that many of the same questions regarding human decomposition have been raised time and again” (Mann et al. 104).

From this quotation it is easy to see that this article is aimed at a professional audience that still has lingering questions about the decomposition process—something that is a part of the field, but not completely understood. It would have more direct application to other fields within forensic science and might be more widely read than the Pizarro article, which has more historical interest.

The three accommodated popular-press books written by the forensic anthropologists with the help of coauthors also might have a good amount of professional appeal (especially since Dr. Maples was a prominent figure in the field, his memoir probably would have interested other forensic anthropologists), but its main audience would be people interested in forensic anthropology mostly through curiosity, not their careers. The book would be accessible to a large audience,³ but this audience would be limited by the macabre subject matter, which is fully represented on Dr. Mann and Dr. Maples’s books with covers that depict skeletons. The context clues as to who this audience is are apparent. Dr. Mann’s book is labeled on the cover, by Dr. Bass, as a “must read for every *CSI* fan”; the forward for Dr. Bass’s book is written by Patricia Cornwell, a popular crime novelist who even based one of her books on Dr. Bass and his work at the Body Farm.

³ In my personal experience, I have seen the book in stock at major booksellers and even on the shelves of my small local library. This evidence is anecdotal, but I think it speaks to the general availability of the book—at least in my geographical area, you would not even have to special order it.

The accommodated articles written by outside authors would have the widest audiences of all: Not everyone would choose to read the article, but both publications have a very wide readership. The *New York Times* has a current circulation of 1,120,420 papers daily and 1,627,062 papers on Sunday (“New York Times”), which doesn’t even include internet readership. The readership of *Newsweek* is even more extensive: “In 2005, the magazine reported a national audience of more than 20 million; worldwide, its audience numbered almost 26 million in more than 190 countries” (“About Newsweek”). Although not all of these people would have read the article, it would have at least landed in many hands.

Analyzing Genre: Set I

I began my analysis by counting the sentences in each section of the original article and the Maples and Browning accommodation to see if one section was larger than the others, and compiled this data in a table (see Table 5.1). The authors had not divided the accommodated article into sections, but both articles were similar enough in order and content to make these divisions fairly obvious. Since the *New York Times* article was too short and did not cover the same scope of material, I did not include it in this portion of the analysis. In the original article, 28% of the sentences are dedicated to the history of the case, 58% to the data, and 14% to the conclusion. In the accommodated article, 58% of the sentences are dedicated to the history, 39% to the data, and 3% to the conclusion.

Table 5.1: Set I, Quantitative Comparison of Sections

	Number of Sentences	
	Original Article	Maples and Browning's Article
History/Introduction	64 (28%)	144 (58%)
Data	131 (58%)	97 (39%)
Conclusion	31 (14%)	8 (3%)
Total # of sentences	226	249

Note: percentages that ended in 0.5 and higher were rounded up to the nearest whole number.

In agreement with Fahnestock, the largest part of the original article was the “Examination of the Bones” data section in which Maples and his coauthors list the characteristics of the remains in order to support their hypothesis that the skeleton, not the mummy, belongs to Pizarro. Maples and Browning’s accommodated article, however, places more emphasis on the history of Pizarro, which helps the reader recognize the significance of the article (an important part of accommodation, according to Fahnestock). It may seem strange that Maples and Browning’s accommodated article has such a short conclusion, but when I looked more closely at the article, I noticed that Maples and his coauthor had been explaining the significance of the data as they went along, which would have made a lengthy conclusion redundant. Additionally, by building the conclusion along the way, Maples and Browning are able to help readers recognize the significance of the discussion, which is also an important function of accommodation.

I would, however, argue that both articles are forensic in nature, since the overall point of both articles is to establish an occurrence of past fact. In both articles, Maples and his coauthors dedicated many sentences to the bone-by-bone analysis of trauma. Although Fahnestock points out that many accommodated articles may be epideictic in nature, this accommodation does not venture into explicitly assigning praise or blame

(solving the case seems to be praise enough). This is not, however, necessarily the case for all forensic anthropology articles. If this article had described a controversial or newly discovered method (as in Set II), the accommodated could have taken a more epideictic stance in arguing against prior positions or a deliberative position in arguing how a new method might benefit future cases.

The analysis of deontological and teleological appeals can further deepen our understanding of genre. Although much of Maples and Browning's book is dedicated to the effectiveness of forensic anthropology as a crime-solving tool (a teleological appeal), the accommodated chapter is more about the deontological appeal of forensic anthropology. For example, the original article begins: "Francisco Pizarro, soldier of fortune, lieutenant of Balboa in Panama, conqueror and governor of Peru, died in Lima at the hands of assassins on 26 June 1541" (1021). Maples and Browning's accommodated article, on the other hand, begins: "Francisco Pizarro died as he lived, by the sword. When the rapiers of his assassins pricked his gullet, they extinguished a life that was all strife and struggle" (207). In the original article, Maples and his coauthors simply place Pizarro's death into a list of facts. In Maples and Browning's accommodated article, they add colorful imagery (the pricking of the gullet, the extinguishing of a life, the strife and struggle) and a more interesting approach to Pizarro's back-story, which increases the deontological appeal of the statement.

In another example, Maples and Browning increase the deontological appeal of the article with their method of concluding the article. After a few sentence in the original article to reinforce Maples and his coauthors' assertion that the skull and postcranial

remains belong to the same person, Maples and his coauthors conclude that “the incised wounds to the bones from the crypt were consistent with the historical account of the death of Pizarro” (1034). The paragraph that reaches the same conclusion in Maples and Browning’s accommodated article begins with: “All in all, the skull and the skeletal remains before me were unmistakably those of a man who had suffered a dreadful, violent death” (219). Again, Maples and Browning increase the deontological appeal of the argument by appealing to the audience’s preconceived values of “violent death,” and perhaps the audience’s own morbid tendencies.

The accommodated article from the *New York Times*, however, uses a different type of deontological appeal. The deontological appeal of Pizarro’s violent death that was very much present in the Maples and Browning accommodation is removed from the *New York Times* accommodation. From the *New York Times*: “Pizarro, who conquered the Incas in 1532, was slain in 1541 in a sword fight with former followers. He died when a sword was driven up under his chin and into his skull.” The deontological appeal of “never before done,” however, is emphasized: “Last month, with the aid of a \$4,000 grant from the Chancellor’s office and the university’s nuclear reactor, Dr. Benfer and William Maples, a forensic specialist who is curator of physical anthropology at the Florida State Museum at the University of Florida, succeeded in firmly making the match.” This deontological appeal is subtle (especially when it is compared to the strength of the deontological appeals in the other accommodation), but I think the connections the article makes to the Florida State Museum and the University of Florida and mention of the

grant seem to build wonder appeal. These appeals rely on the ethos of these institutions and the (monetary) value they place on the research.

Analyzing Genre: Set II

This Body Farm set of articles did not lend itself to the quantitative analysis of genre as easily as the Pizarro articles did. In fact, in the original article, the authors emphasize that the information they needed to report defies the usual genre of the scientific article:

This report is not suited to the standard Materials and Methods, Results, and so forth, format of most scientific journals because it is a compilation of observations based on experience and case studies....It was decided, therefore, that to disseminate some of the observations noted over the years, a single ‘report of findings’ based on many case studies and aimed at a wide readership would be best suited. (Mann et al. 104)

The article consists of a brief introduction, a numbered list of “Variables” that affect decomposition, a numbered list of “General Observations,” and a brief conclusion. In the original article on the Body Farm, Mann et al. spend the most time on data, which adheres to what Fahnestock observed—this article is forensic in nature.

The other three articles, however, did not have the same structure as the original article. In both the Mann and Bass accommodations, the chapters were shaped by narrative and time, not by information. The *Newsweek* article seemed to be a summary of the Mann and Bass accommodations—it covered the same material and had a similar

narrative approach. Despite the fact that I was unable to count the sentences in each section, it was still quite obvious that the accommodations were epideictic in nature. This claim is best justified by examining the appeals used in the sources.

The authors of the accommodations in both Sets seem to rely heavily on the combined power of deontological and teleological appeals to create their epideictic rhetoric. All three of the pieces rely on the wonder appeal of the “ickiness” of decomposing bodies, juxtaposed with the teleological appeal of the need for decomposition research. For example, the smell of decomposing flesh figures prominently in all of the accommodations, with the exception of Dr. Bass’s.

From Dr. Mann:

If you’ve ever caught the scent of decaying flesh, you haven’t forgotten it.

The thickly sweet odor of decay is almost overwhelming, especially on a hot day, even to someone accustomed to it. (Mann and Williamson 32)

From *Newsweek*:

The air smells sickeningly sweet, with honeysuckle and death. (Pederson)

Dr. Bass, the seasoned veteran, does not waste time discussing the scent of a corpse, but rather jumps right in to the visual aspects of decomposition:

As the flesh turned the color of caramel, a network of purplish-crimson lines began to show through it, like a satellite map of a continent’s rivers. We were seeing the circulatory system, its veins and arteries highlighted as the blood within them began to putrefy, making them larger and darker,

almost as if they'd been outlined on the body with a felt-tip marker. (Bass and Jefferson 112)

These quotations are similar to the violent descriptions from the Pizarro cases: they appeal to the morbid tendencies of those interested in forensic science. In the accommodations, it seems as though the authors are trying to familiarize the uninitiated with the looks and smells of death. They are putting the audience right where it wants to be—in the shoes of a forensic anthropologist.

The expert article, however, does not once mention the smell of decomposition and barely speaks of the colors of decay, except when unusual or especially relevant. There is no mention of felt-tipped pens or roadmaps, but rather a clinical, restrained description:

Cold weather, however, may prevent all decay other than discoloration of the skin from a natural color to orange or black or both, with patches of mold over much of the body. (Mann et al. 105)

This contrast in the use of the deontological appeal speaks to the different needs and experiences of the audience, and also the author's method of meeting those needs.

All four of the articles, however, use the same teleological appeal: the appeal that the Body Farm contributes important research that leads directly to the resolution of crimes. In the expert article, this appeal is mentioned first, as justification for the article:

...it is crucial that forensic scientists have adequate knowledge to estimate accurately how long a person has been dead if they are to contribute to the

resolution of the legal issues involved when a human body is recovered.

(Mann et al. 103)

After the discussions of smell, both Dr. Mann's accommodation and the *Newsweek* accommodation mention the same appeal. Dr. Mann's approach has the subtle hint of the pathetic appeal with a mention of "bereaved families":

Police investigators, prosecutors, defense lawyers, and bereaved families all have compelling reasons to know the interval between the time someone died under unusual circumstances and the time the body was discovered. (Mann and Williamson 34)

And the *Newsweek* article relies more on the appeal of ethos:

Ask any detective. Solving a crime—from a drug cartel hit to a garden-variety murder—often depends upon pinpointing the time of death. To do so requires the empirical study of decomposing humans; this humble site in Tennessee is the world's foremost laboratory for doing just that.

(Pederson)

The teleological appeal of solving crimes is not mentioned overtly in Dr. Bass's accommodation until he has to defend himself to protestors:

"When I explained the purpose of the facility—researching decomposition to help the police solve murders—the group acknowledged that yes, such work had scientific merit, but why did it have to be located here, practically under the public's nose?" (Bass and Jefferson 119)

This appeal, as demonstrated here, is the first and most obvious that the audience could identify with. The importance of solving crimes (and our public fascination with it, hence the overwhelming number of real and dramatized crime shows) is something that even the most non-expert audience could understand.

It is also interesting to note that Dr. Bass, as the director of the Body Farm and professor of forensic anthropology, takes the teleological appeal further to discuss additional research goals he has for the Body Farm. These goals, such as building a skeletal collection for new data and creating an osteology lab for his students, are less related to public interest, but would still demonstrate the need for the research conducted at the Body Farm.

The types of appeals present in both sets shows the strongest difference between the forensic anthropologist accommodations and the outside accommodations. The forensic anthropologists focus on the deontological appeals (the violence, gore, and decomposition), while the outside accommodators focus on the deontological appeals (academic collaboration, historical significance, value to the public). The role of the author/accommodators is strongly represented in their choice of appeals.

Analyzing Stases: Set I

To complete the Fahnestock analysis, I analyzed the stases covered by the excerpts in the Pizarro case. All of the authors answer the first stasis question in the articles: they determine that the death of Francisco Pizarro did occur as presented in historical records and how the remains supported this record. None of the articles,

however, venture further in the stases. I believe that the arguments in this set stop in the first stasis because the articles do not venture into the epideictic or deliberative realms. The case is merely solved—there is no need to establish praise or blame and no deliberation of future action is really needed, especially in a historic case without any opportunity for prosecution. This reinforces the conclusions I made based on the appeals present in this case; the teleological appeals that present the value of forensic anthropology are secondary to the deontological appeals that present the violence of the case. The fact that the argument stalls in the first stases seems to indicate that the authors believed that the resolution of the case was most important thing to communicate to their audience. The identification of Francisco Pizarro was of enough historical significance that no further action was required.

Analyzing Stases: Set II

Unlike the Pizarro case, all four of the sources in the Body Farm set move through all four of the stases. In fact, this observation is closely tied to the fact that the teleological appeal for the usefulness of the Body Farm is emphasized in all of the sources. All four of the sources follow a similar transition (these versions of the stases are from Fahnestock [291]):

1. “Does a thing exist? /Did an event or effect really occur?”

The Body Farm is an unusual anthropology lab at the University of Tennessee.

2. “What is the reason for the effect?”

The Body Farm provides researchers with a place to study decomposition.

3. “What value should be placed on it?”

The Body Farm is an invaluable tool for solving crime.

4. “What, if anything, should be done about it?”

More Body Farms should be created in different locations to provide a larger source of data.

In this case, the fact that the argument moves through all four stases indicates that the authors are concerned with shaping public perception of the Body Farm. It isn't enough to prove that it is a valuable tool for forensic scientists; the fact that the argument moves through the four stasis shows that the authors want to move the audience to action. One of the major issues with research facilities like the Body Farm is that people are perfectly willing to understand its merits, as long as they don't have to deal with decomposing bodies in their own cities. By leading the audience to the fourth stasis, “more Body Farms should be created in different locations to provide a larger source of data,” the authors are constructing a subtle plea for more public support.

The “Genre Shift” and Forensic Anthropology

The strong similarities among the original articles and the accommodations in the quantitative analysis of both Sets, combined with the qualitative observations made here about stasis and genre, seem to demand a reevaluation of the sources, their role as accommodations, and their relationship to scientific discourse. As Penrose and Katz explain in *Writing in the Sciences*, certain scientific conventions are “governed by more

predictable conventions than are evident...., for persistent audience needs and recurring rhetorical purposes exert a powerful influence on the development of written forms” (174). These “predictable conventions” are so pervasive that the writers might not even realize the rhetorical motivation behind them. The genres of forensic anthropology, however, seem to exist outside of the expected conventions of scientific writing.

Although Dr. Maples demonstrates a strong affinity for the IMRAD format in both of his sources, the style of the sources in both sets is surprisingly literary for scientific writing, which I also think can be explained by the newness of forensic anthropology. In this case, I am making a separation between the format of scientific articles (of which they authors are obviously aware) and the style of scientific writing. The forensic anthropologists’ unusual style choices (at least for scientific discourse) may be due to the fact that these anthropologists represent major figures in the field and, since the field was so new, it still doesn’t have the formalized written discourse that an older discipline might. This also may be a very important connection to what Foucault describes as the “principles of constraint” (1467). As Foucault explains, when new discourses spring into existence our natural abhorrence of the unknown causes human beings to immediately begin regulating its freedoms. At this point in the creation of forensic anthropology’s discourse, the principles of constraint had not yet been established and the “commentary” (the “major narratives” that are “recited in well-defined circumstances” [Foucault 1464]; e.g., existing scientific texts) was not in place to regulate the forensic anthropologists’ language. As a result, they wrote in the style that

was most natural to them. Now the forensic anthropology has established itself as a science (and not just a crime-solving technique) it employs a much more scientific tone.

The “Z-axis” and Forensic Anthropology

The personal, literary styles of the source materials also seemed reminiscent of Holton’s “Thematic Imagination in Science.” Holton discusses how the “z-axis” describes the parts of science that are suppressed because scientists refuse to view them as a part of science. These elements are the humanized components of science (such as aesthetics, social values, or religion) that the traditional view of science deems irrelevant. Perhaps the suppression of the “z-axis” is also present in accommodation (especially if the accommodation is written by the author of the original article) and may reflect on the personal beliefs of the scientists and their different choices of methods.

Fahnestock talks about how authors of scientific articles are often interviewed by the person writing the accommodation and these interviews are often much more speculative than what the author originally wrote. In the *New York Times* article, the author of the accommodation interviewed one of the other scientists that had worked on the case, not Dr. Maples. Because Maples was such a prominent figure in the field, and the first article I chose was his accommodation of his own writing, the inclusion of the article from the *New York Times* also allows for a slightly examination of the role the author plays in accommodation.

It is interesting to note that the original article and the Maples accommodation from Set I neglect to mention a radiation test that determined that the cuts in the bone

contained metal. Perhaps this omission was a result of Maples's narrative style—since he was mostly relying on his own observations, he only chose to write about the elements of the case he knew the most about (and that he could easily fit into the timeline of his story). Additionally, the names of the scientists involved were, as expected, omitted from the original article, but were featured prominently in the *New York Times* article. In Maples and Browning's accommodation, where it would also be appropriate to include other scientists' names, these names were not mentioned.

This suppression of the Z-axis is also present, but to a lesser extent, in the Body Farm set of articles. The narrative tone and pronounced emphasis on the relationships between the scientists produces a time-based, but not subject-based, collection of stories. This structure prevented a quantitative analysis of genre and also made it much more difficult to find complementary sections to compare from each source. It necessitated that I switch to a more literary analysis, one that reflects the rhetorical model of communication described by Katz and Miller, to assess accommodation in Set II.

CHAPTER SIX

CONCLUSIONS

Accommodating Forensic Anthropology: What Does It All Mean?

Forensic anthropology is a field that is, in many ways, dependent on accommodation. Forensic anthropology has gained a huge amount of popularity in recent years, but despite its television success, many types of accommodation are still necessary to help the public understand the value of forensic anthropology research. Public understanding provides important support for forensic anthropology, not only through monetary support, but also through the public's willingness to let labs like the Body Farm exist in their own backyards.

Even the process of solving a crime with the aid of forensic anthropology takes a great deal of accommodation. The police who discover a crime scene must understand the general principles of forensic anthropology to properly collect evidence. The medical examiner who examines a body must understand when it is necessary to hand the case over to a forensic anthropologist. Forensic anthropologists may even have to persuade district attorney that their evidence is conclusive enough to merit a criminal trial. Once a trial begins, forensic anthropologists must understand their audience well enough to present persuasive testimony that non-experts of the jury can understand. This constant accommodation influences the field and creates an unusual and special scientific discourse.

Reflection on the Rhetorical Model

A rhetorical model of study can create a complex pool of data that is not easily interpreted. This analysis is an example of the many directions that can lead to fruitful conclusion. The complexity of the analysis is perhaps what makes it possible: none of the individual approaches would have provided me with the means of analyzing an entire field. It is also interesting that the different approaches seemed to grow organically from one another and provide almost a form of triangulation. Only a rhetorical model could allow for the combination of pseudo-scientific quantitative data and tables with the more literary analyses of genre and stases. It provides for qualitative as well as quantitative analysis of texts, and also literary as well as statistical rhetorical analysis. It is my recommendation that this sort of method be used to create a more vibrant and deep understanding of how accommodation affects different fields. Depending on the researcher, I think this approach could be adapted to a number of scientific fields.

Areas for Future Study

Conducting this analysis has allowed me to consider a number of areas that are limited in this study, but that could be fodder for future studies. One of the most challenging issues of this analysis was determining the role of the co-authors. Although I was able to make certain assertions about the field of forensic anthropology through the roles of the authors and their accommodations, it was nearly impossible for me to determine what elements of an article could be attributed to a co-author. For example, all three of the popular-press forensic anthropology books were written with the help of

journalist co-authors. These authors took on the role of ghost writers—the books were written in first person from the perspective of the scientist, the subject matter was outside their expertise—but they still had an influence on the text. Although this relationship is nearly impossible to determine from an outside perspective, an ethnographic study of the relationship between these non-expert coauthors and the expert lead authors might present researchers with interesting data.

Another area that is ripe for future study is television accommodation. It would be interesting to determine if statement types and argument diagrams could be gleaned from television transcripts. In addition, what role might the images on the screen have in the accommodation? Would certain shows opt for more graphic B-roll, while others chose sterile lab environments? The analysis could also include real accommodations of documentaries and the fictional accommodations found on crime dramas. It might also be interesting, although difficult, to follow a case through different representations on television. It would be possible for the same case to be covered on a news show (perhaps as breaking news on CNN), a talk show (like Nancy Grace's show on *Headline News*), a true crime documentary (like *Cold Case Files*), and a procedural crime drama (*Law and Order* is known for its plots "ripped" from headlines). If such a progression could be found, I imagine it would lead to quite amazing results and perhaps even expand the traditional definitions of accommodation into multimodal domains.

It is also clear that other disciplines need these sort of rhetorical analyses to enhance our understanding of scientific discourse. Perhaps the intricacies of forensic anthropology accommodation will not seem quite so unusual when other researchers with

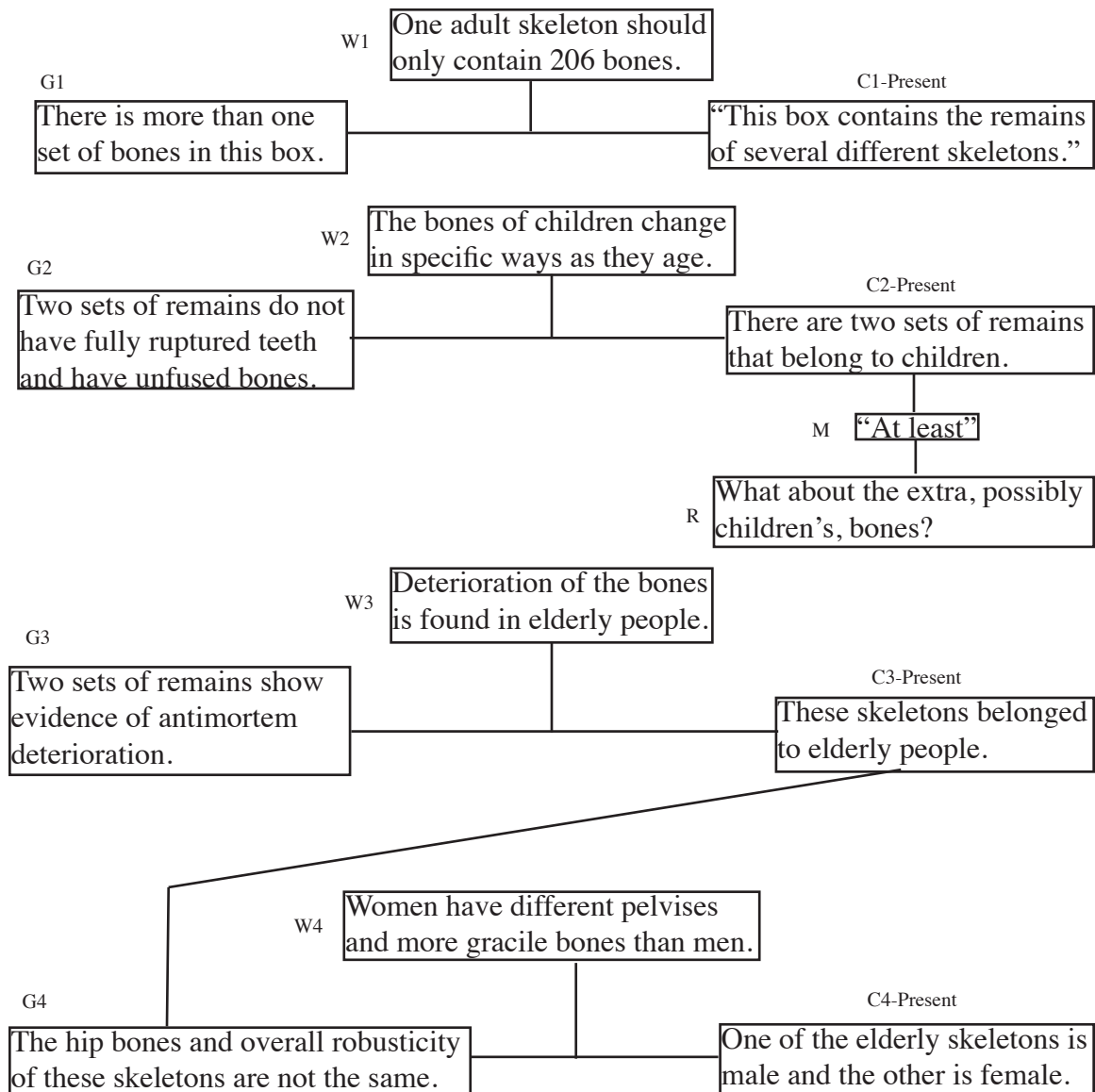
scientific experience begin to examine their own fields. The possibilities for this type of analysis, and future comparison, would make for very rich research.

APPENDICES

Appendix A

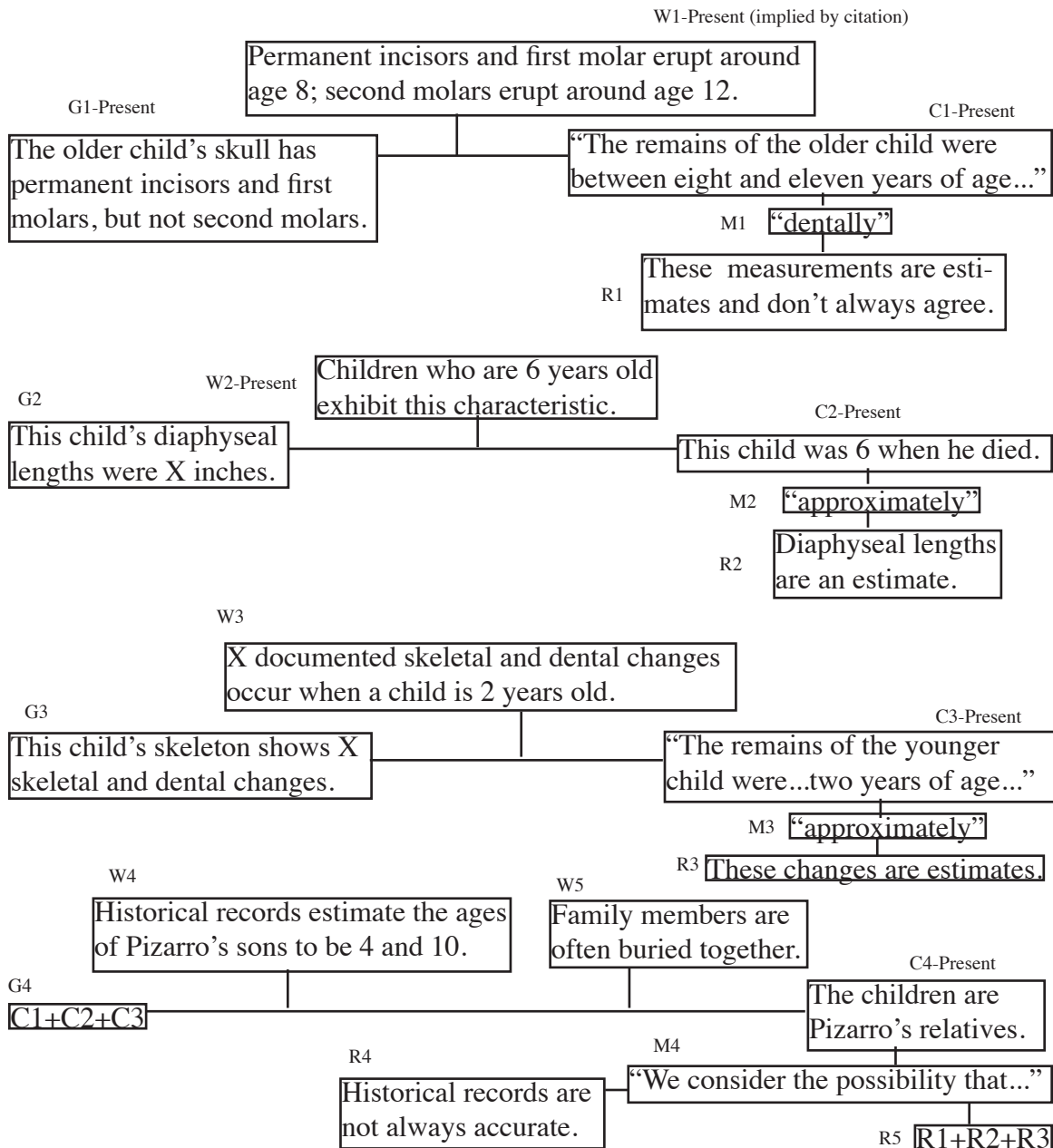
Toulmin Diagrams

MEA1: “The first, larger box (Box A) contained the mixed remains of several skeletons: remains of at least two children, an elderly female, the skull and postcranial remains of an elderly male, and the postcranial skeleton of a second elderly male” (Maples et al. 1024).



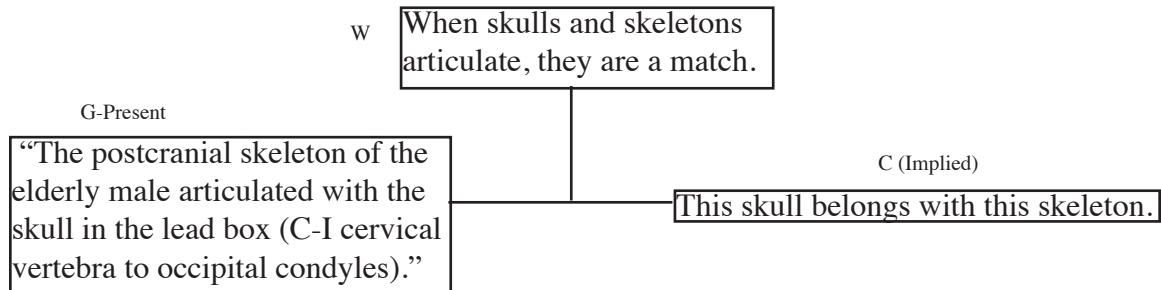
B=Backing, W=Warrants, G=Grounds, C=Claims, M=Modifier, R=Rebuttal
 Elements labeled “present” can be found in the original text; The numbers labelling the elements correspond to statement type.
 MEA=Maples et al., Set I Original Article; MB=Maples and Browning, Set I Author Accommodation; NYT=Set I *New York Times* Accommodation; JFS=Mann et al., Set II Original Article; B=Bass and Jefferson, Set II Author Accommodation; M=Mann and Williamson, Set II Author Accommodation; NW=Set II *Newsweek* Accommodation.

MEA2: “We considered the possibility that the children might be relatives of Pizarro.... The remains of the older child were between eight and eleven years of age dentally [9] (eruption of permanent incisors and first molars, but not second molars). This child's postcranial skeleton appeared to be approximately six years of age based on diaphyseal lengths [10]. The remains of the younger child were approximately two years of age, dentally and skeletally” (Maples et al. 1024).

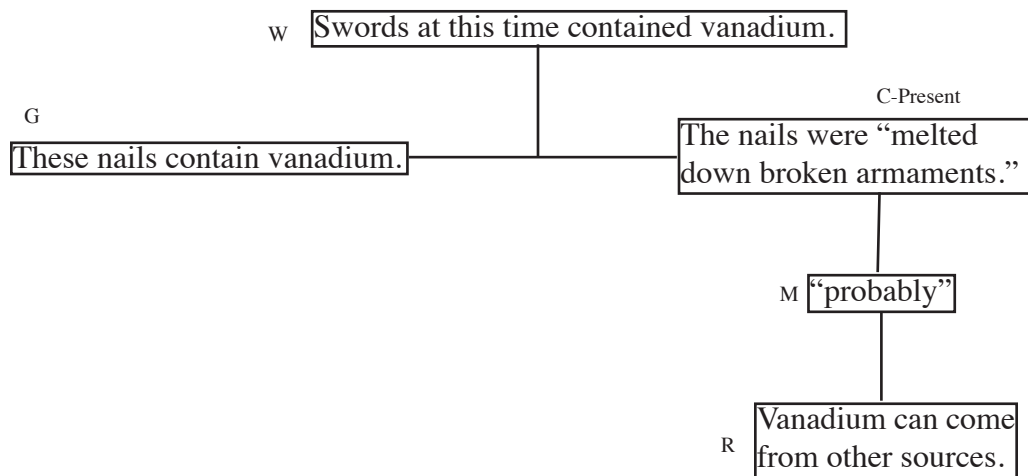


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MEA3: “The postcranial skeleton of the elderly male articulated with the skull in the lead box (C-I cervical vertebra to occipital condyles)” (Maples et al. 1024).

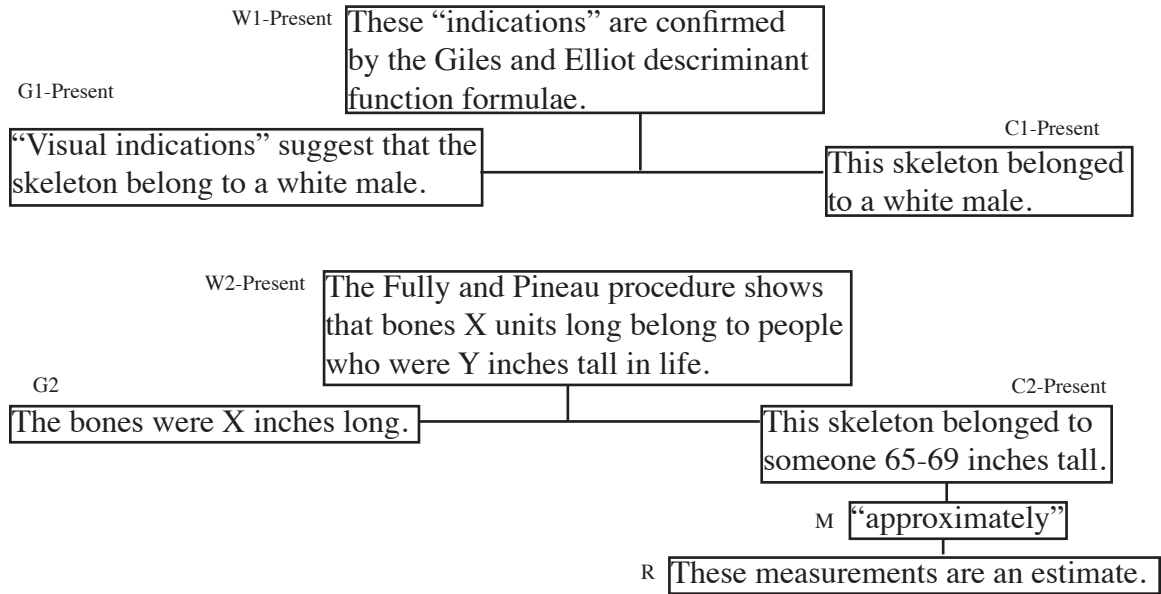


MEA4: “Trace-element analysis of these nails at the Research Reactor of the University of Missouri revealed that they contained vanadium and were probably melted down broken armaments, not silver as had been suspected [11]” (Maples et al. 1024).

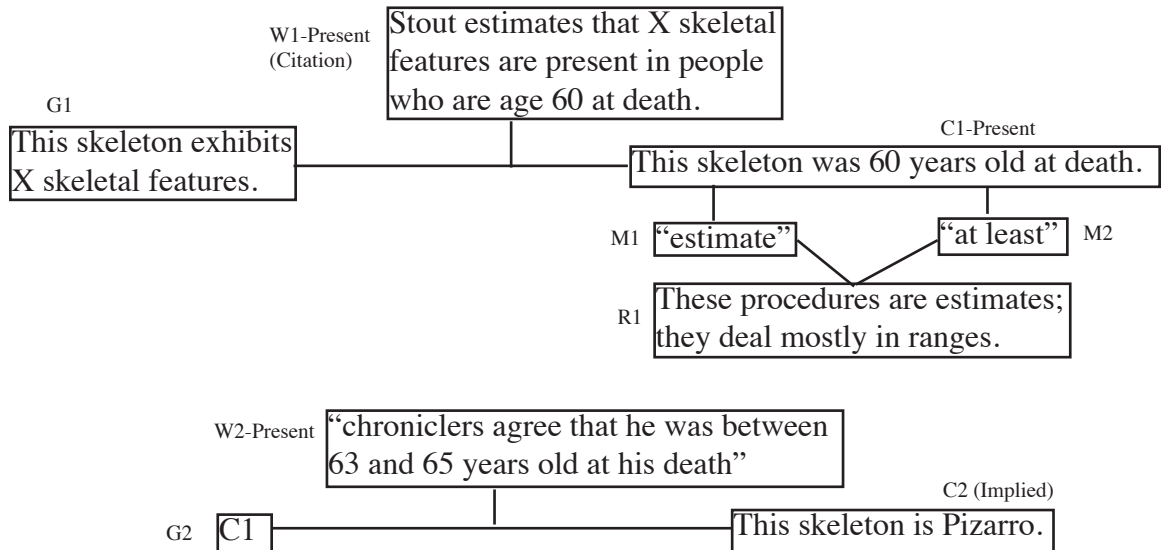


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MEA5: “The skull from the lead box and the appropriate postcranial bones from the wooden box were from a white male (visual indications were confirmed by the Giles and Elliot [12] discriminant function formulae) approximately 65 to 69 in. (1.65 to 1.75 m) in height (as estimated by the Fully and Pineau [13] procedure)” (Maples et al. 1024).

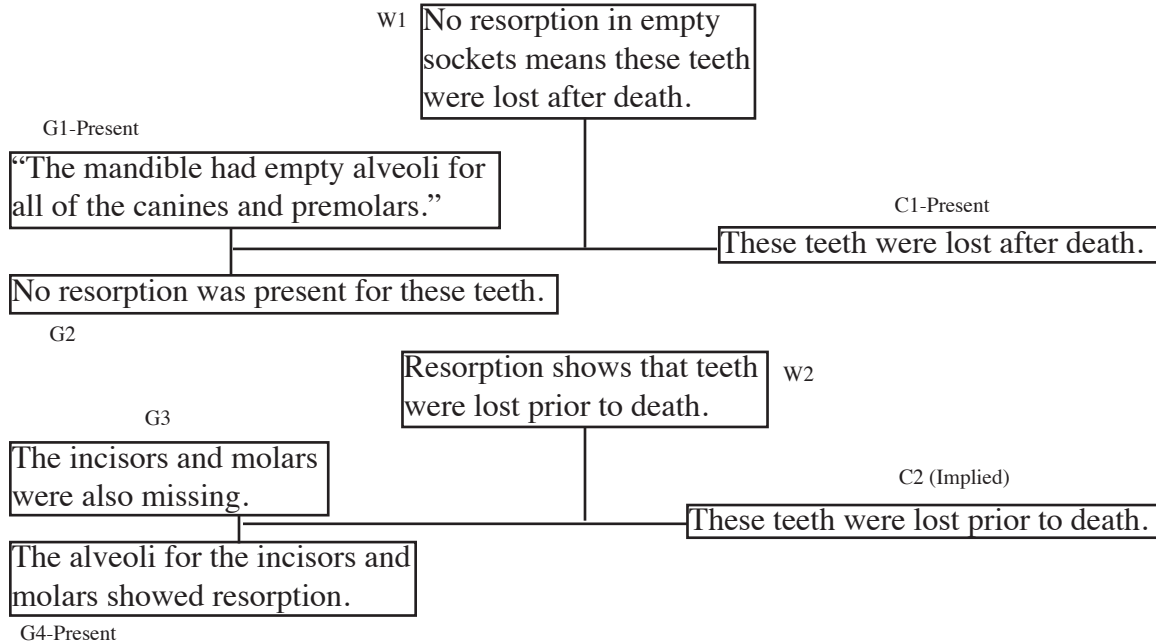


MEA6: “The age at death as estimated from the skeleton and skull was at least 60 years (see Stout [14] for a histological age estimate)” (Maples et al. 1024).

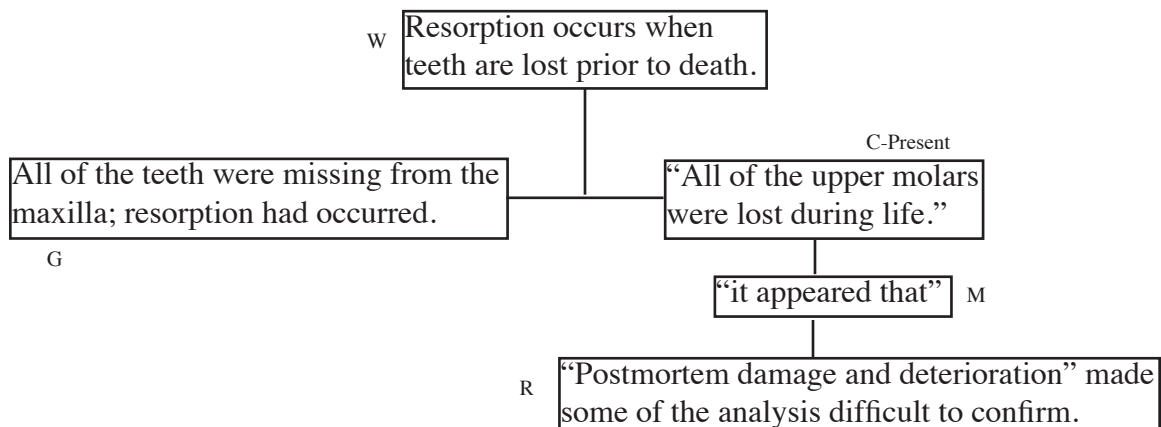


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MEA7: “The mandible had empty alveoli for all of the canines and premolars, but the alveoli for the incisors and molars had closed with considerable resorption of the alveolar process in those areas” (Maples et al. 1024).

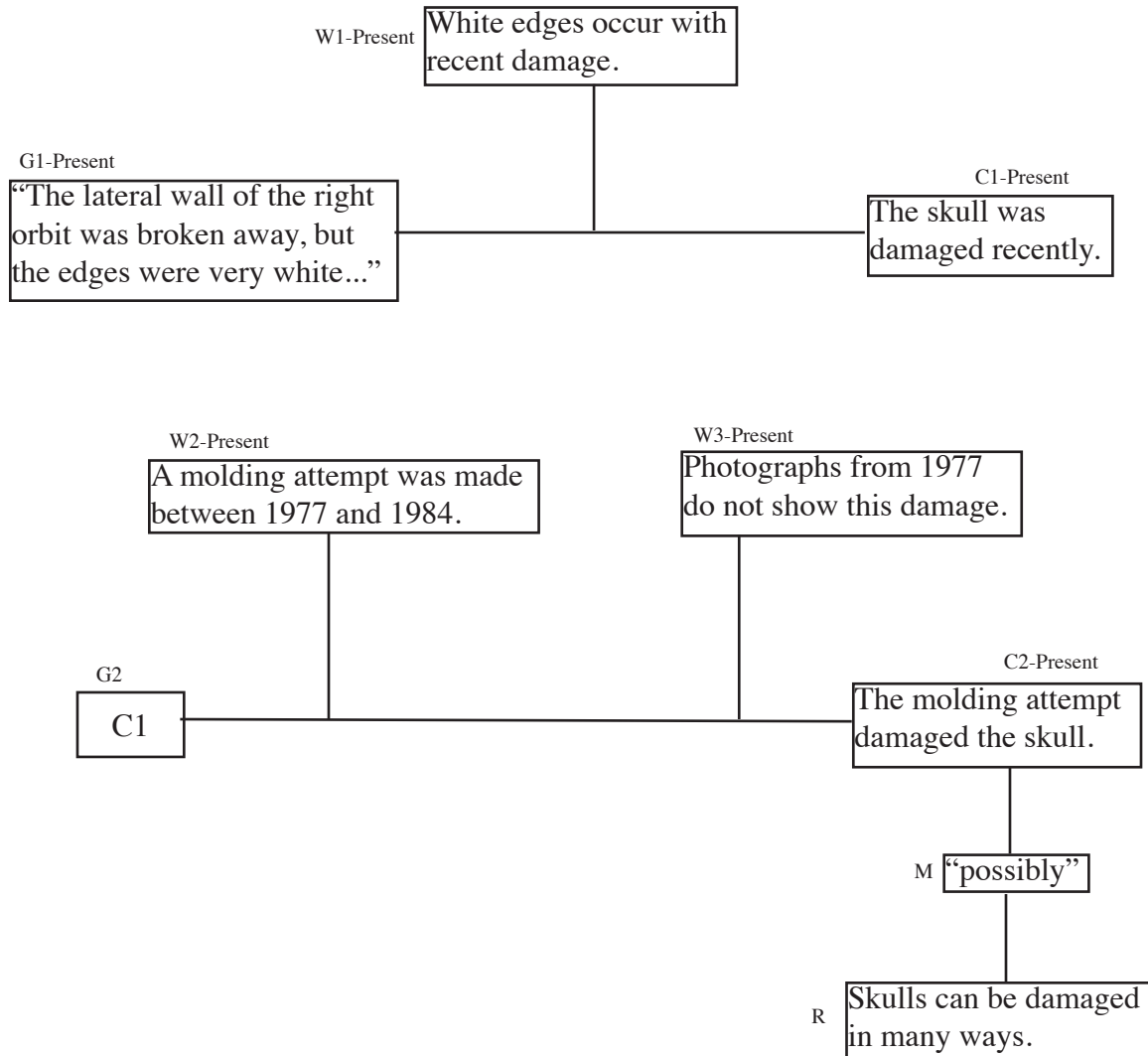


MEA8: “It appeared that all of the upper molars were lost during life. Postmortem damage and deterioration of the alveolar ridge of the maxilla made it difficult to confirm the antemortem loss of the upper central incisors (#8 and 9) and the two right premolars (#4 and 5)” (Maples et al. 1024).



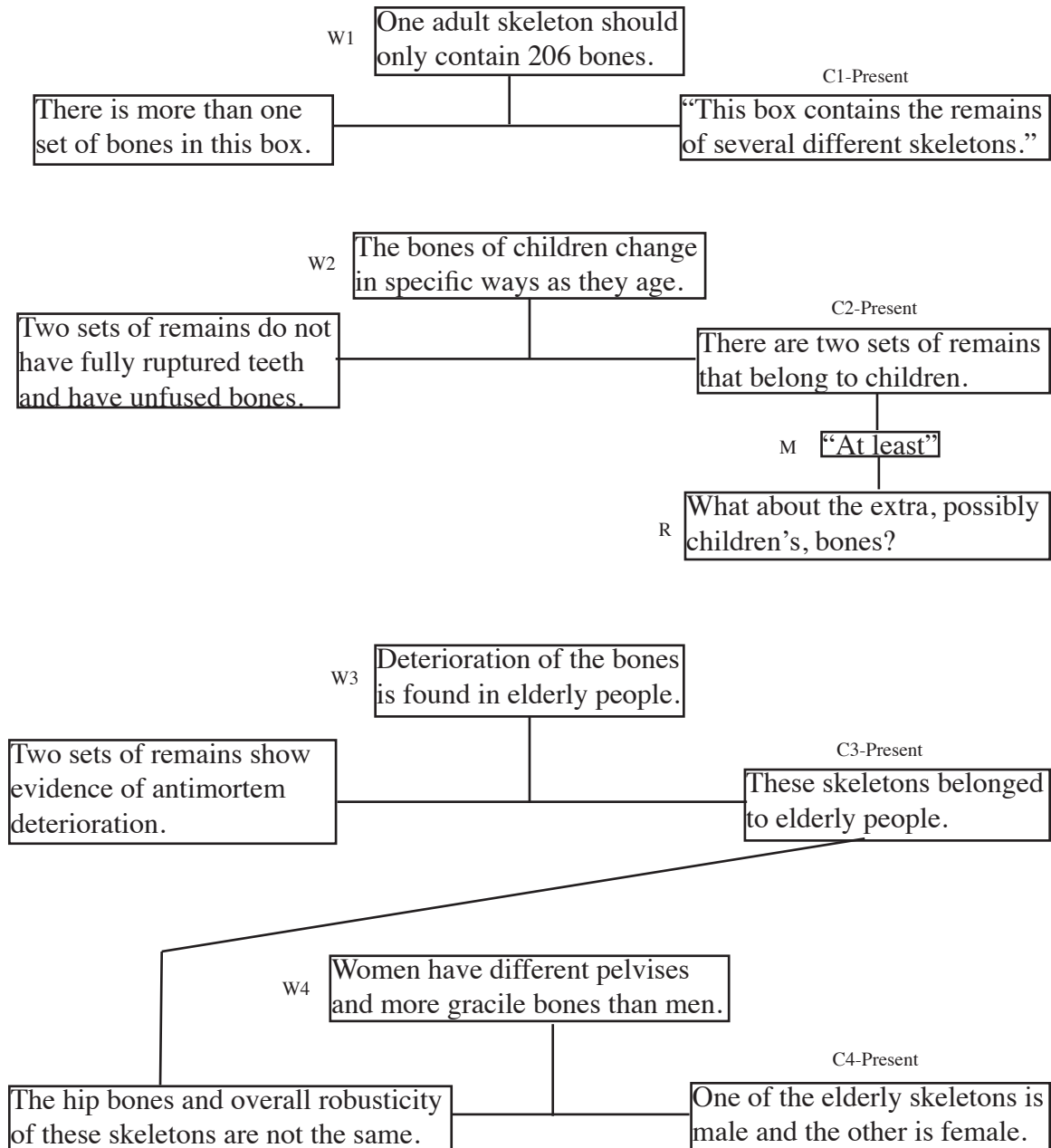
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MEA9: “The lateral wall of the right orbit was broken away, but the edges were very white indicating recent damage, possibly from a molding attempt made before the 1984 examination (1977 photographs do not show this damage)” (Maples et al. 1024).



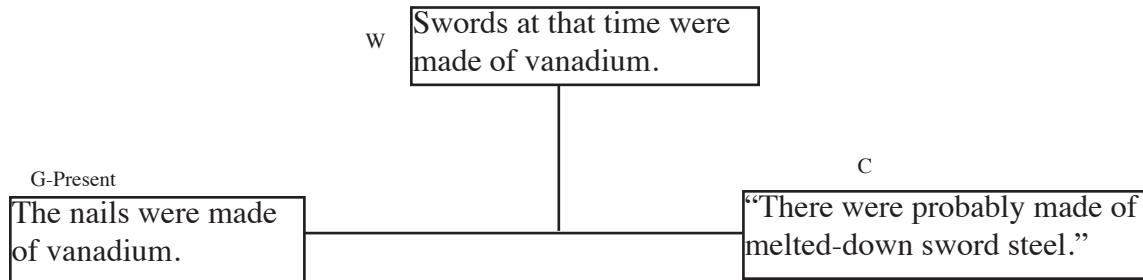
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MB1: “Of the two wooden boxes found in the hidden niche, the larger one, which we called Box A, contained the mixed remains of several skeletons: among them were the remains of at least two children, an elderly female, the skull and postcranial remains of an elderly male and the skull-less, postcranial skeleton of a second elderly male” (Maples and Browning 217).

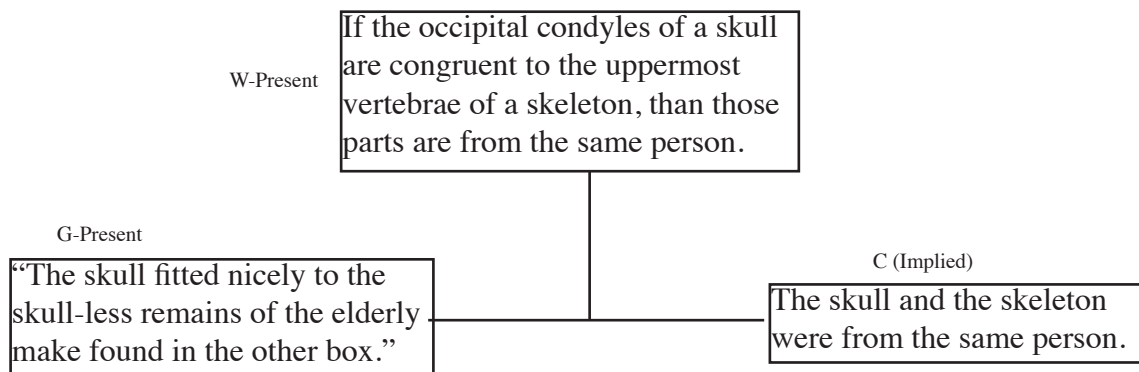


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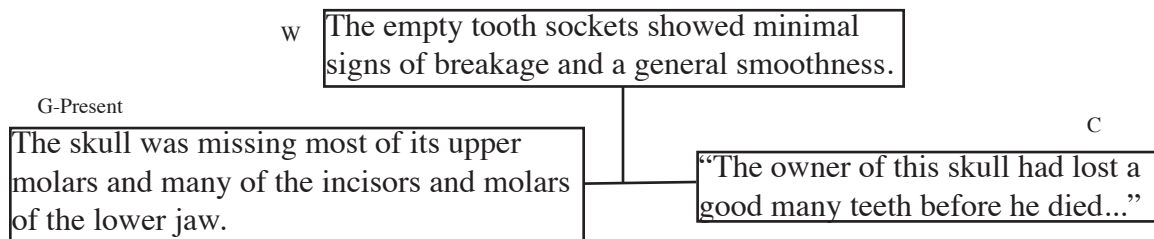
MB2: “They were probably made of melted-down sword steel” (Maples and Browning 217).



MB3: “This skull fitted nicely to the skull-less remains of the elderly male found in the other box. Its occipital condyles, the part of the skull's base where it joins the neck, were perfectly congruent with the uppermost vertebrae of the skeleton in Box A” (Maples and Browning 217).

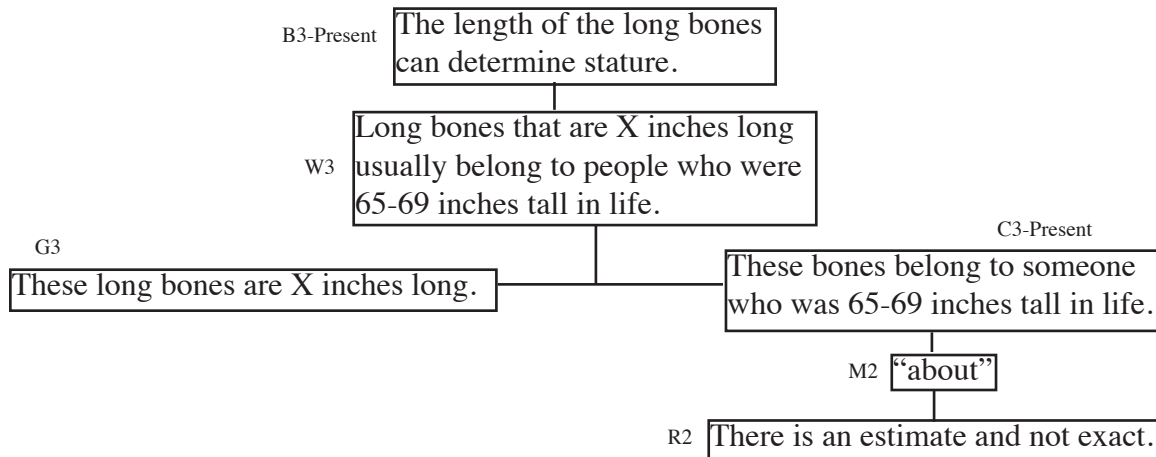
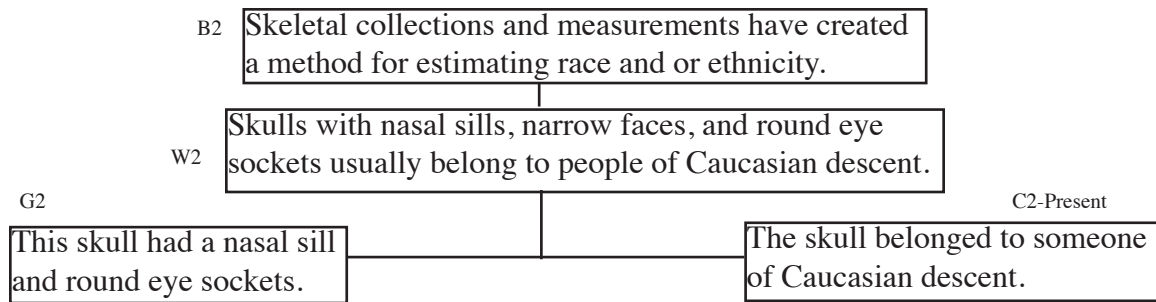
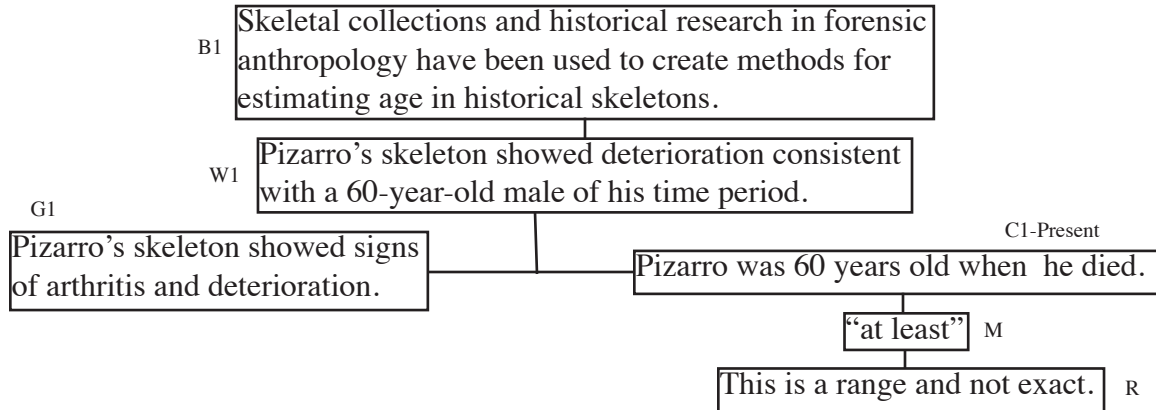


MB4: “It appeared that the owner of this skull had lost a good many teeth before he died, including most of his upper molars and many of the incisors and molars of the lower jaw” (Maples and Browning 217).



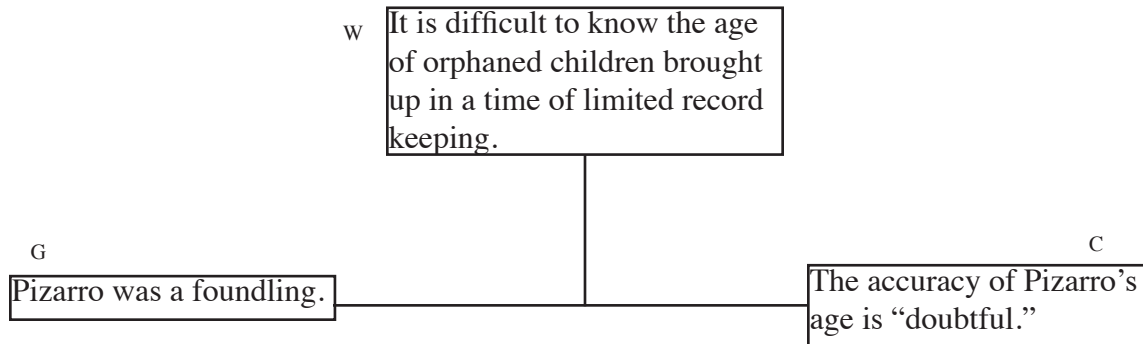
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MB5: “This reunited skull and skeleton' belonged to a white male at least sixty years old at the time of his death, who stood about sixty-five to sixty-nine inches tall in life, based on the length of his long bones” (Maples and Browning 217).

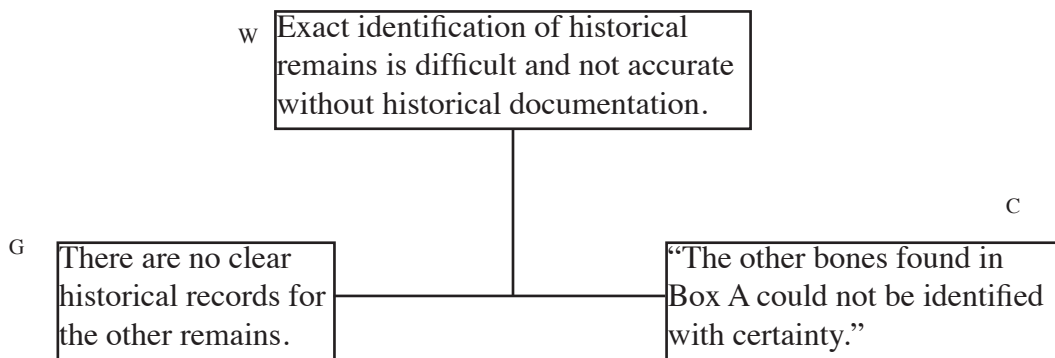


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MB6: “(Because Pizarro was a foundling, his age at the time of his death is doubtful. He was variously said to be sixty-three or sixty-five years old by contemporary historians)” (Maples and Browning 217).

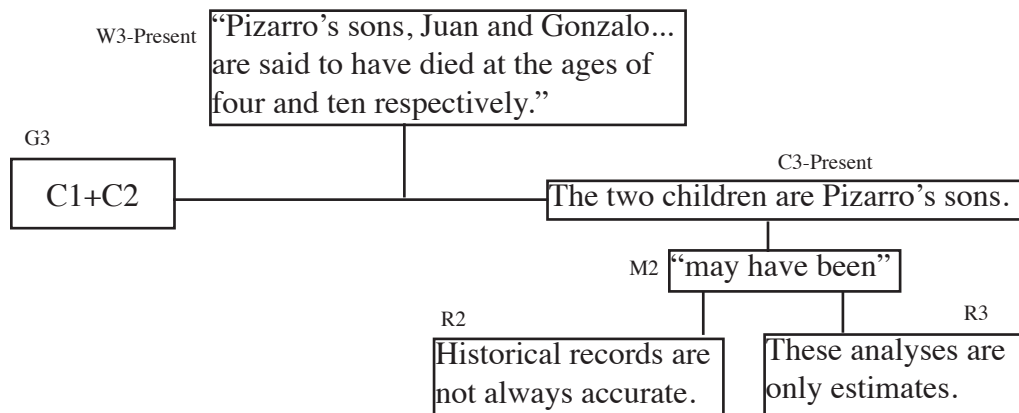
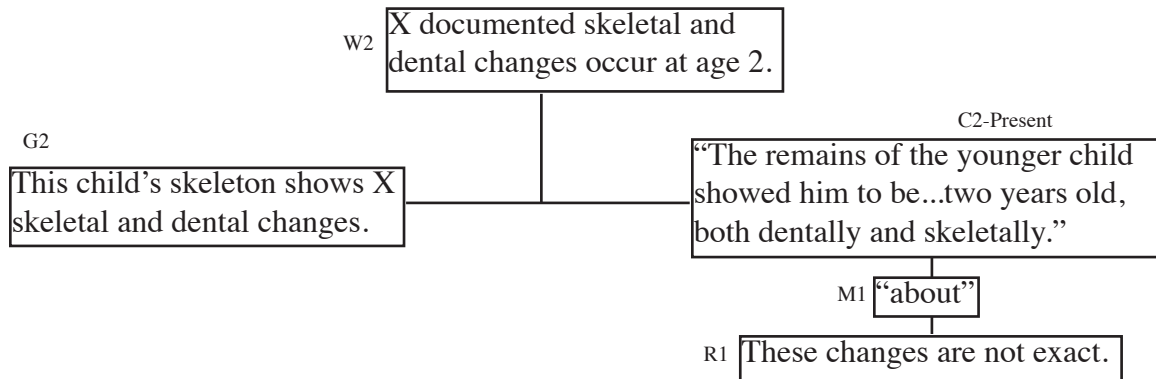
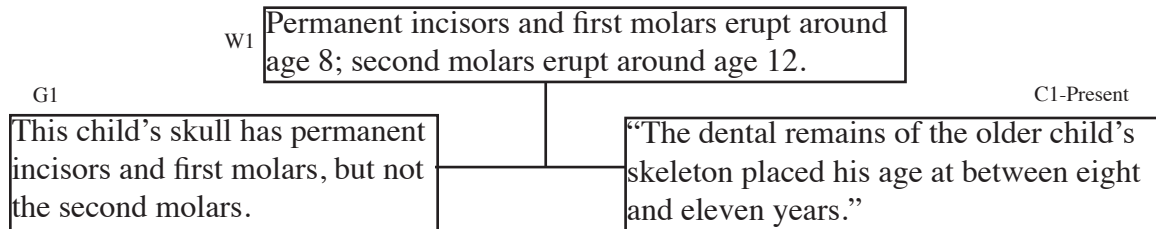


MB7: “The other bones found in Box A could not be identified with certainty” (Maples and Browning 220).



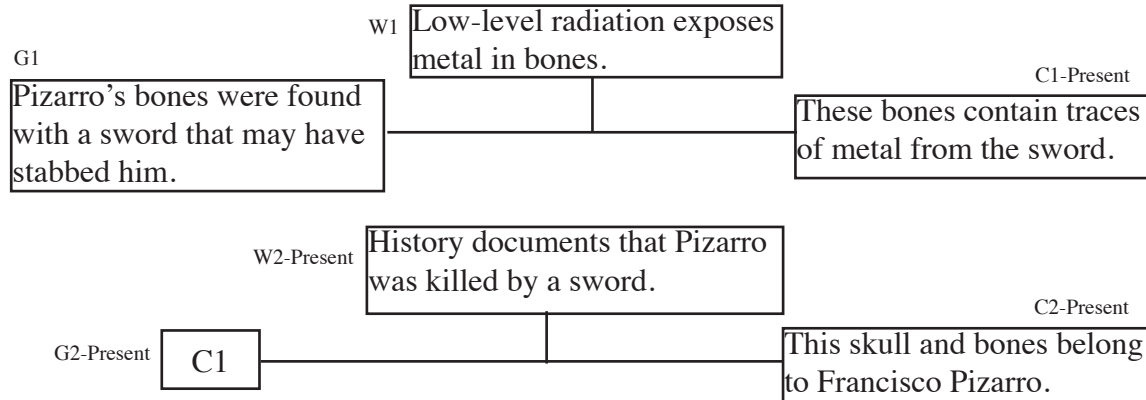
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MB8: “The two children may have been Pizarro's sons, Juan and Gonzalo, who are said to have died at the ages of four and ten respectively. The dental remains of the older child's skeleton placed his age at between eight and eleven years. The remains of the younger child showed him to be about two years old, both dentally and skeletally” (Maples and Browning 220).

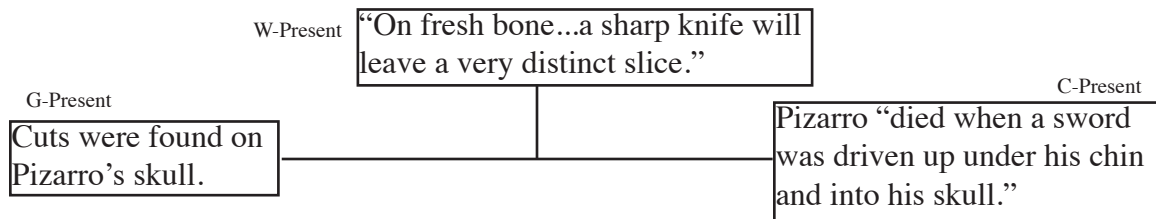


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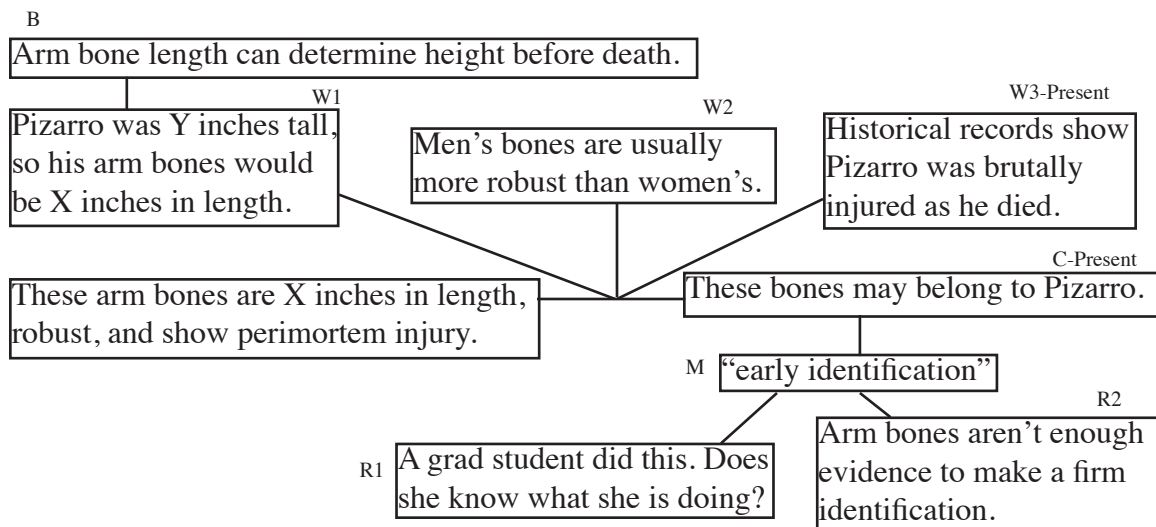
NYT1: “With the help of the nuclear reactor at the University of Missouri, anthropologists have been able to match the skull and the remaining bones of the Spanish explorer Francisco Pizarro, found in Lima, Peru” (United Press International).



NYT2: “He died when a sword was driven up under his chin and into his skull” (UPI)

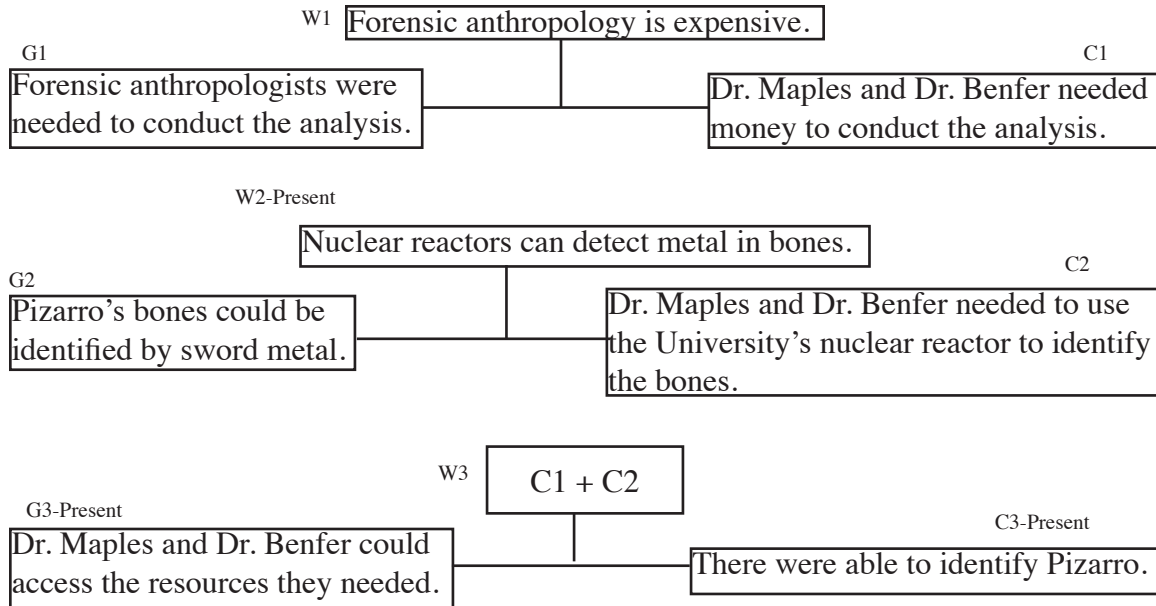


NYT3: “From measurements of arm bones found in the other box, Sarah Gehlert, a graduate student, managed to make an early identification” (UPI).

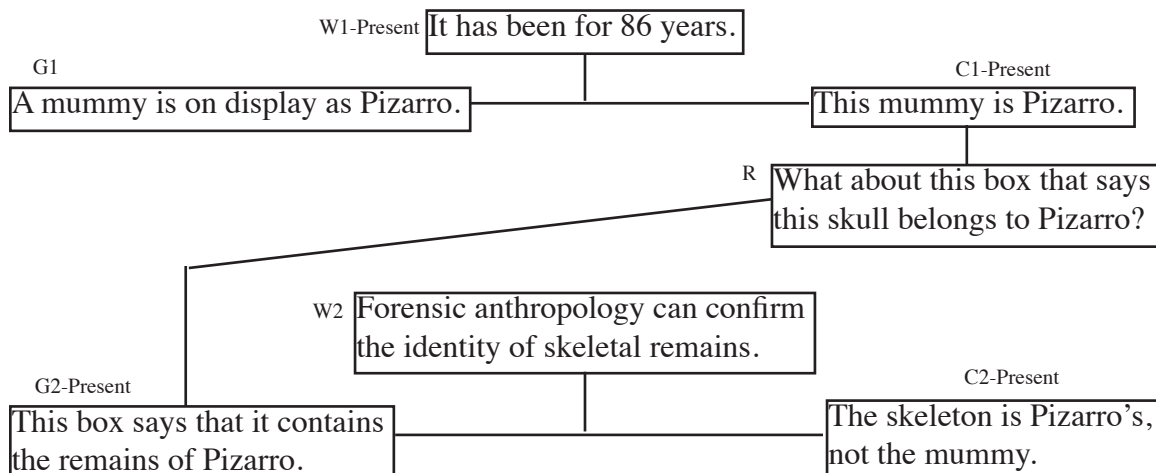


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NYT4: “Last month, with the aid of a \$4,000 grant from the Chancellor's office and the university's nuclear reactor, Dr. Benfer and William Maples, a forensic specialist who is curator of physical anthropology at the Florida State Museum at the University of Florida, succeeded in firmly making the match” (UPI).

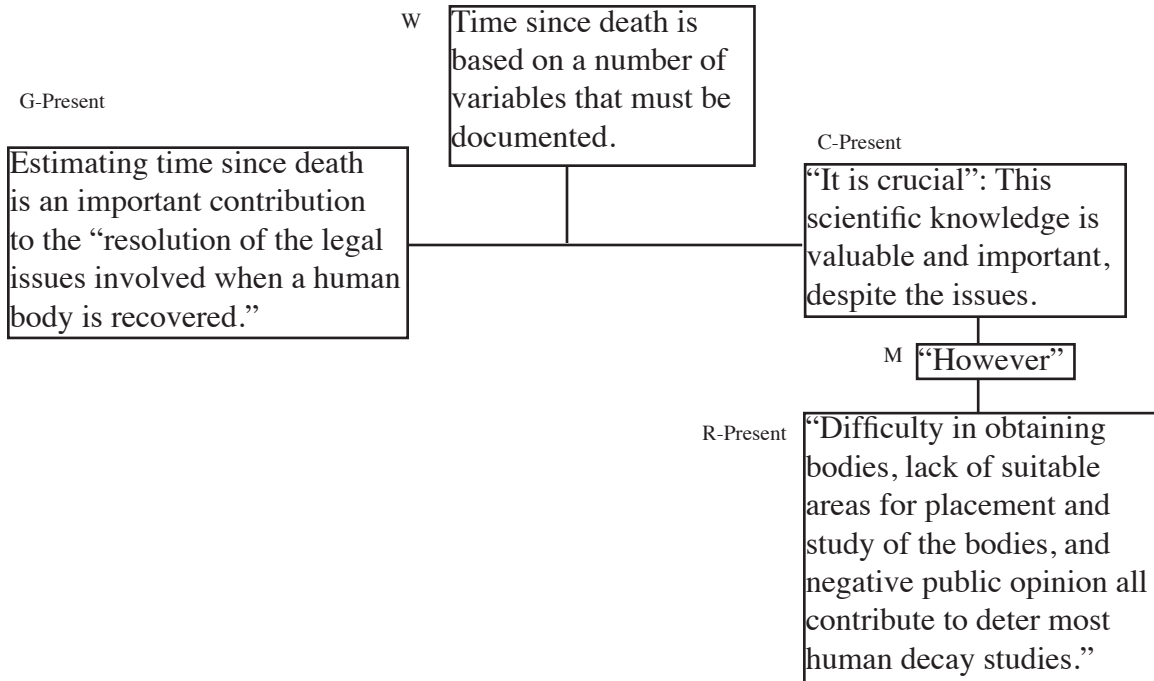


NYT5: “Since 1891, the 350th anniversary of the conquistador’s death, a mummified body has been on display and, until the 1977 discovery of the skull, it was believed to be the body of Pizarro” (UPI).

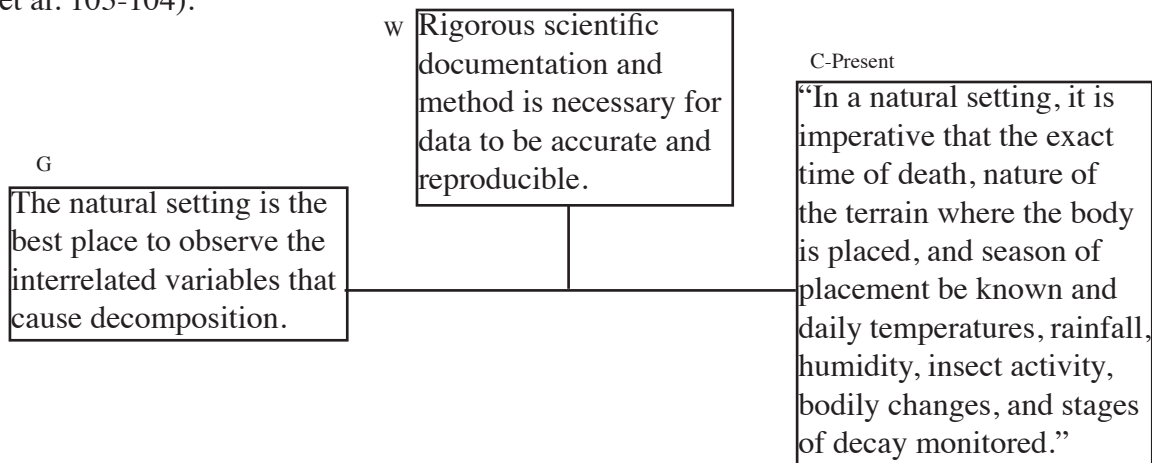


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JFS1: “Difficulty in obtaining bodies, lack of suitable areas for placement and study of the bodies, and negative public opinion all contribute to deter most human decay studies. However, it is crucial that forensic scientists have adequate knowledge to estimate accurately how long a person has been dead if they are to contribute to the resolution of the legal issues involved when a human body is recovered” (Mann et al. 103).

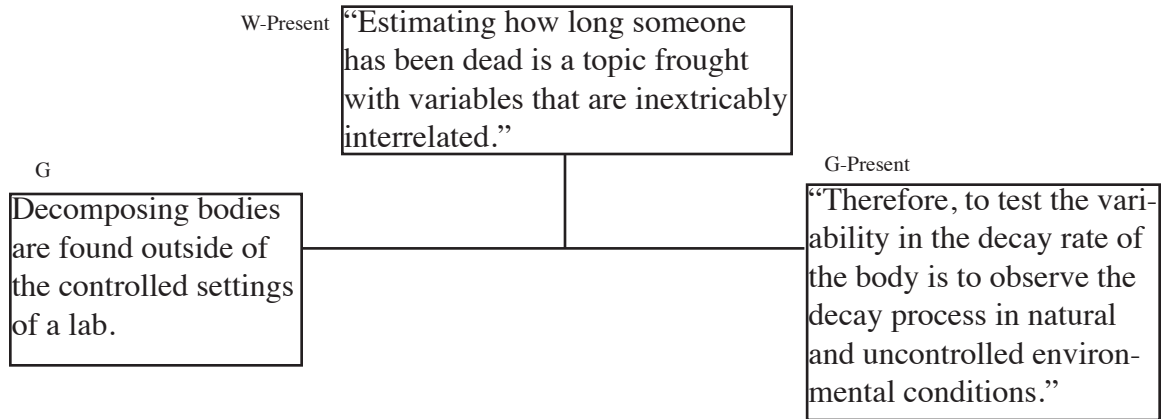


JFS2: “In a natural setting, it is imperative that the exact time of death, nature of the terrain where the body is placed, and season of placement be known and daily temperatures, rainfall, humidity, insect activity, bodily changes, and stages of decay monitored” (Mann et al. 103-104).

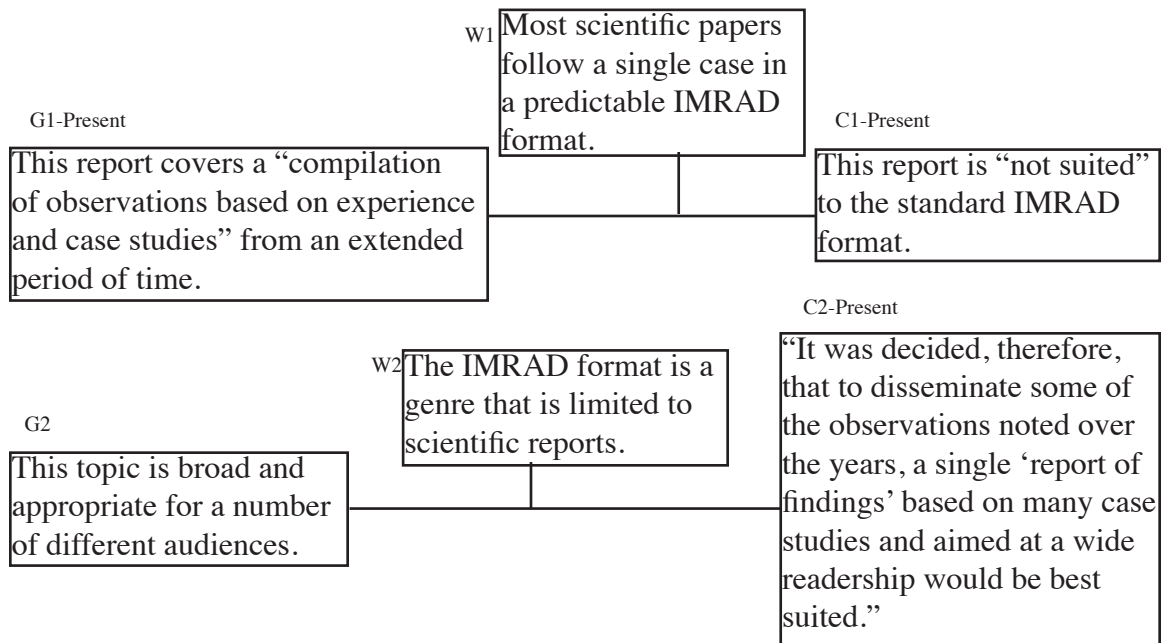


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JFS3: “Estimating how long someone has been dead is a topic fraught with variables that are inextricably interrelated....Rarely, in an actual forensic case, could a time-since-death estimate be determined based on a single variable such as temperature. Therefore, to test the variability in the decay rate of the body is to observe the decay process in natural and uncontrolled environmental conditions” (Mann et al. 104).

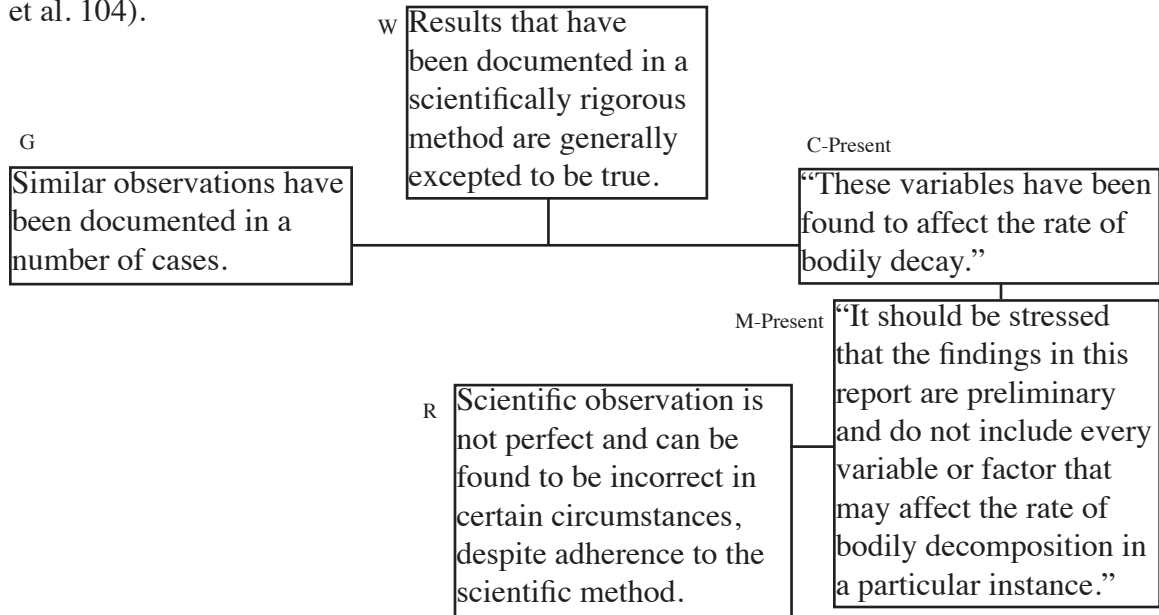


JFS4: “This report is not suited to the standard Materials and Methods, Results, and so forth, format of most scientific journals because it is a compilation of observations based on experience and case studies....It was decided, therefore, that to disseminate some of the observations noted over the years, a single ‘report of findings’ based on many case studies and aimed at a wide readership would be best suited” (Mann et al. 104).

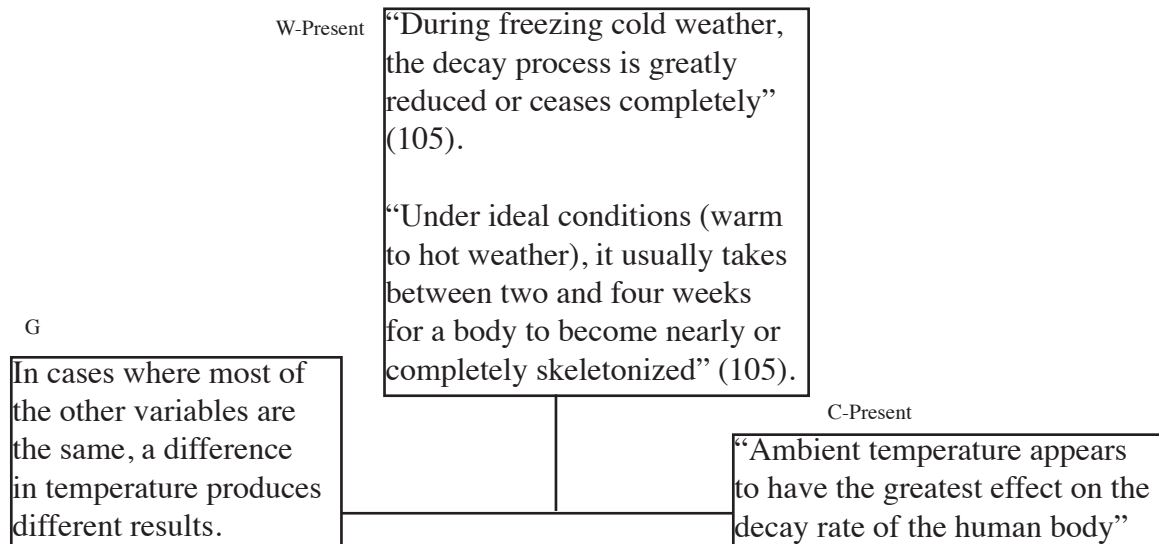


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JFS5: “These variables have been found to affect the rate of bodily decay. It should be stressed that the findings in this report are preliminary and do not include every variable or factor that may affect the rate of bodily decomposition in a particular instance” (Mann et al. 104).

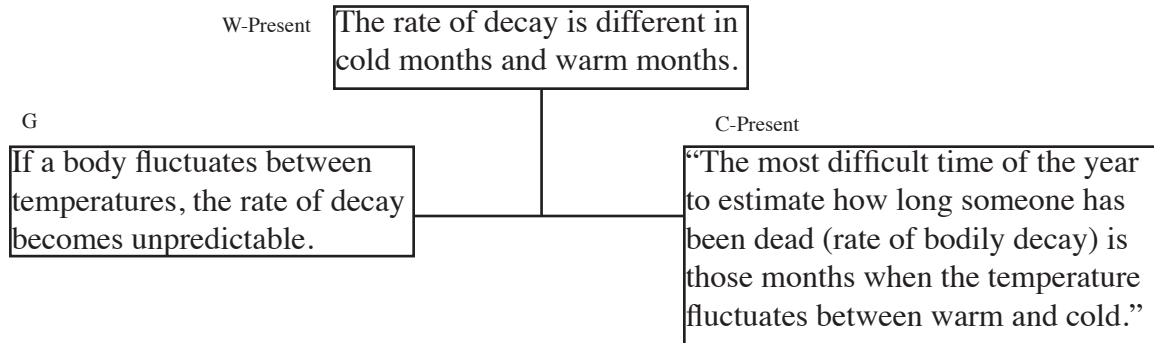


JFS6: “Ambient temperature appears to have the greatest effect on the decay rate of the human body” (Mann et al. 105).

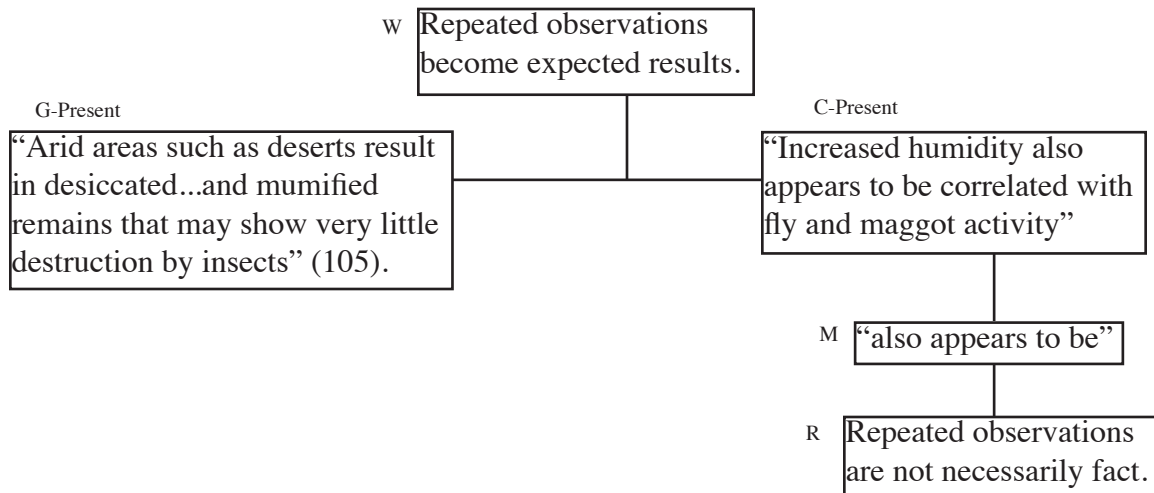


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JFS7: “The most difficult time of the year to estimate how long someone has been dead (rate of bodily decay) is those months when the temperature fluctuates between warm and cold” (Mann et al. 105).

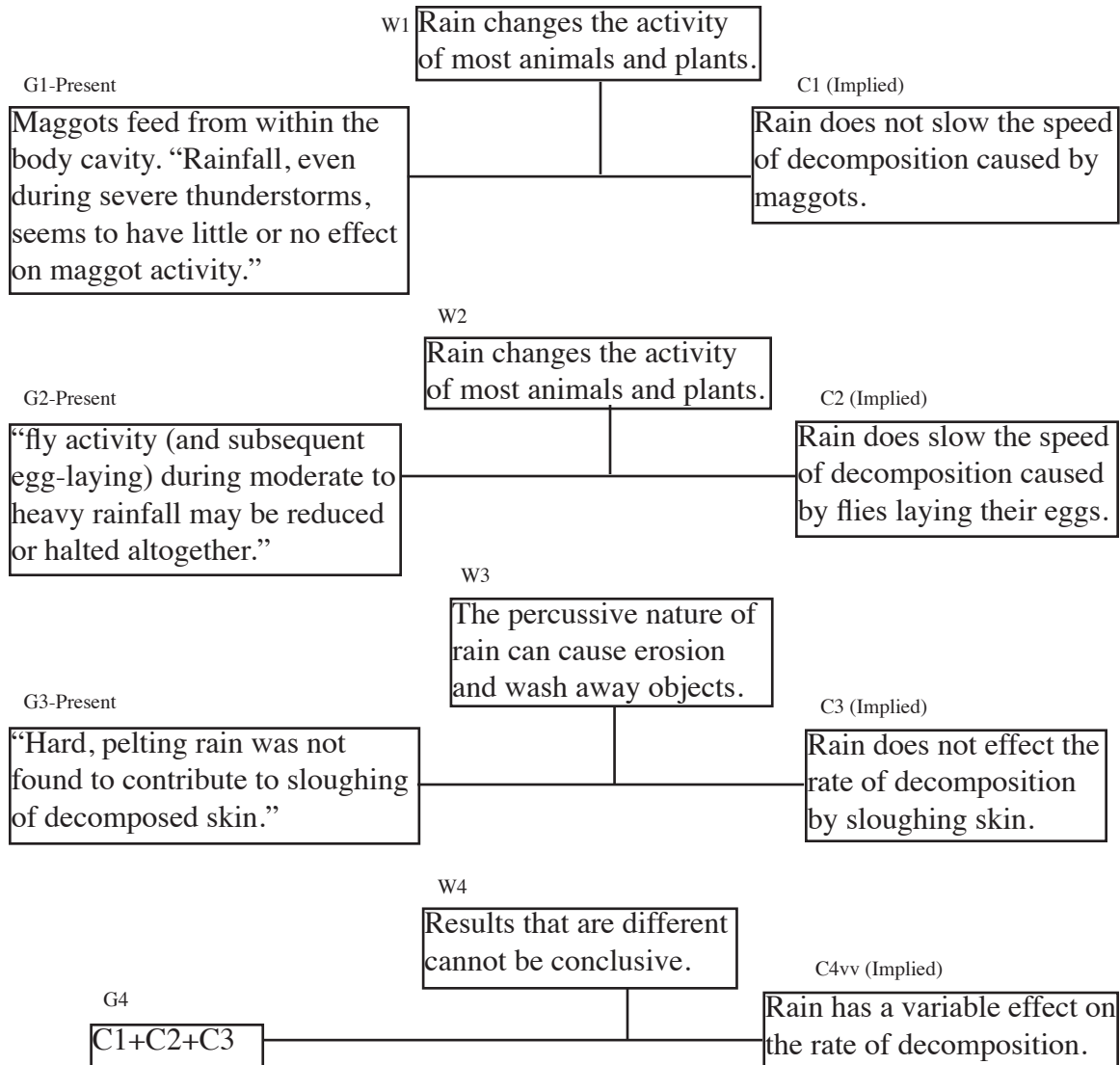


JFS8: “Increased humidity also appears to be correlated with fly and maggot activity” (Mann et al. 105).



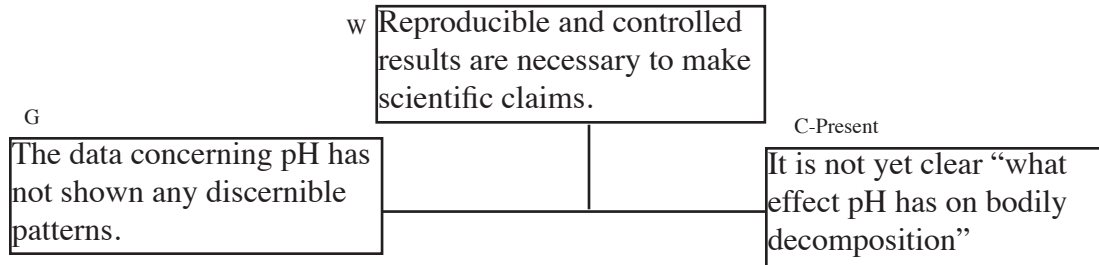
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JFS9: “Rainfall, even during severe thunderstorms, seems to have little or no effect on maggot activity--most of the larvae will remain hidden within the body cavities and continue to feed. However, fly activity (and subsequent egg-laying) during moderate to heavy rainfall may be reduced or halted altogether. Hard, pelting rain was not found to contribute to sloughing of decomposed skin” (Mann et al. 105).

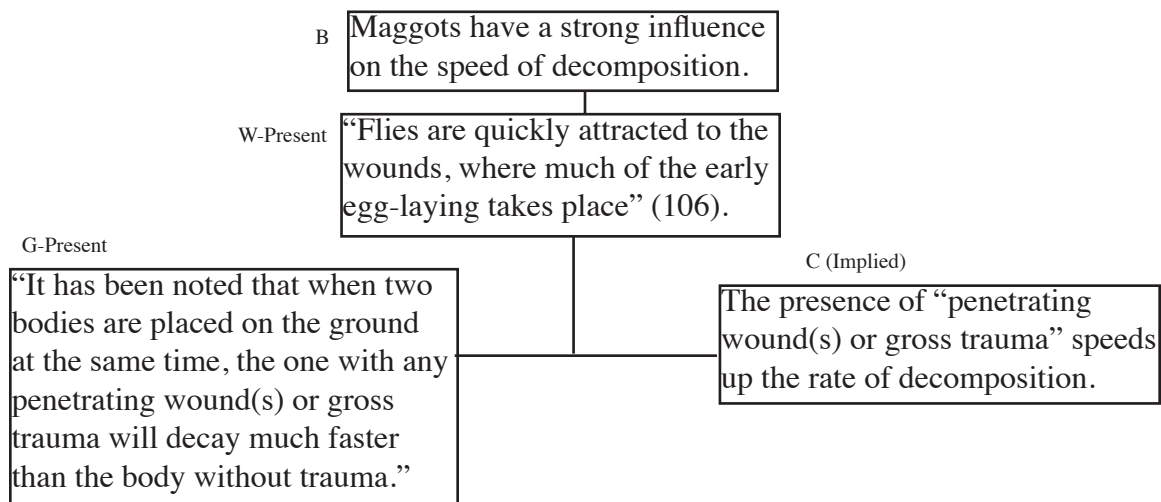


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JFS10: “Daily soil samples are being taken from around and beneath decomposing bodies to test the effect of soil pH (alkaline versus acid) on the rate of bodily decomposition. Presently it is not known what effect pH has on bodily decomposition” (Mann et al. 106).

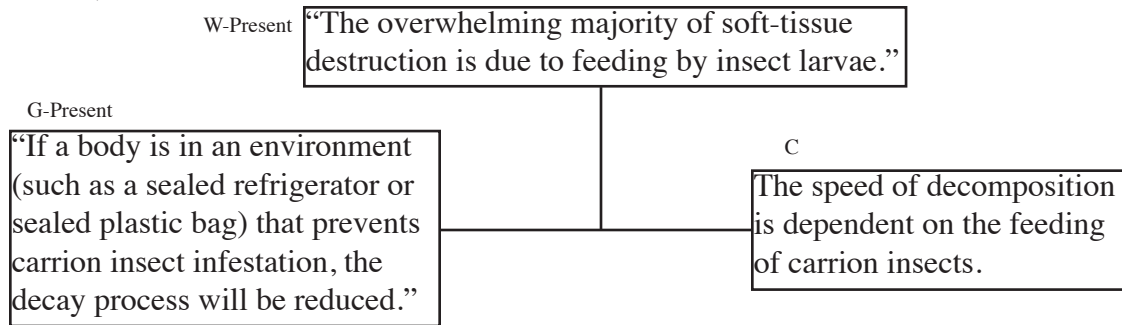


JFS11: “It has been noted that when two bodies are placed on the ground at the same time, the one with any penetrating wound(s) or gross trauma will decay much faster than the body without trauma” (Mann et al. 106).

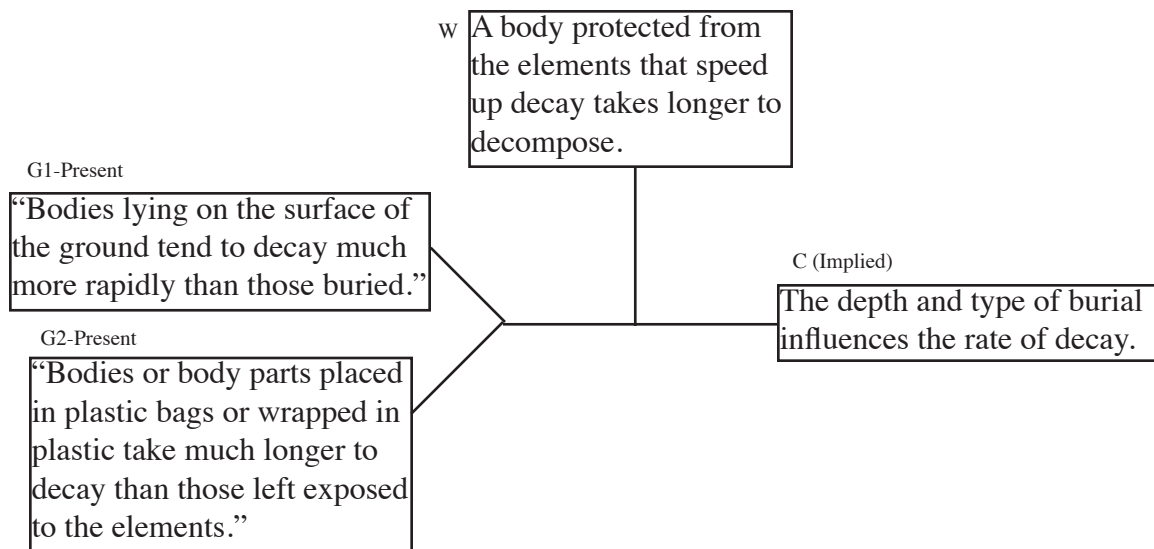


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JFS12: “If a body is in an environment (such as a sealed refrigerator or sealed plastic bag) that prevents carrion insect infestation, the decay process will be reduced. The overwhelming majority of soft-tissue destruction is due to feeding by insect larvae” (Mann et al. 106).

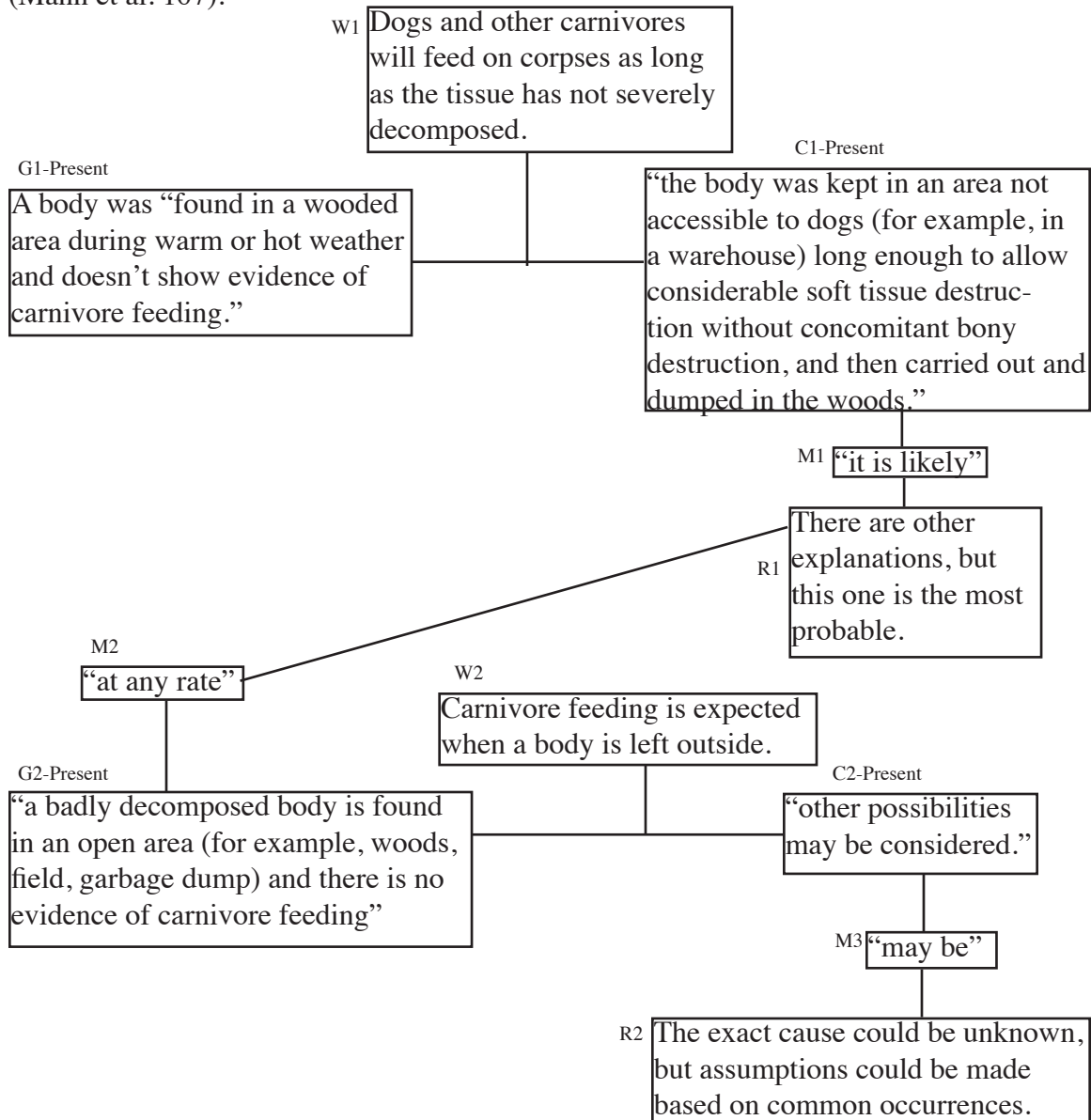


JFS13: “Bodies lying on the surface of the ground tend to decay much more rapidly than those buried. The depth of burial also plays an integral part in the decay rate....Bodies or body parts placed in plastic bags or wrapped in plastic take much longer to decay than those left exposed to the elements” (Mann et al. 106).



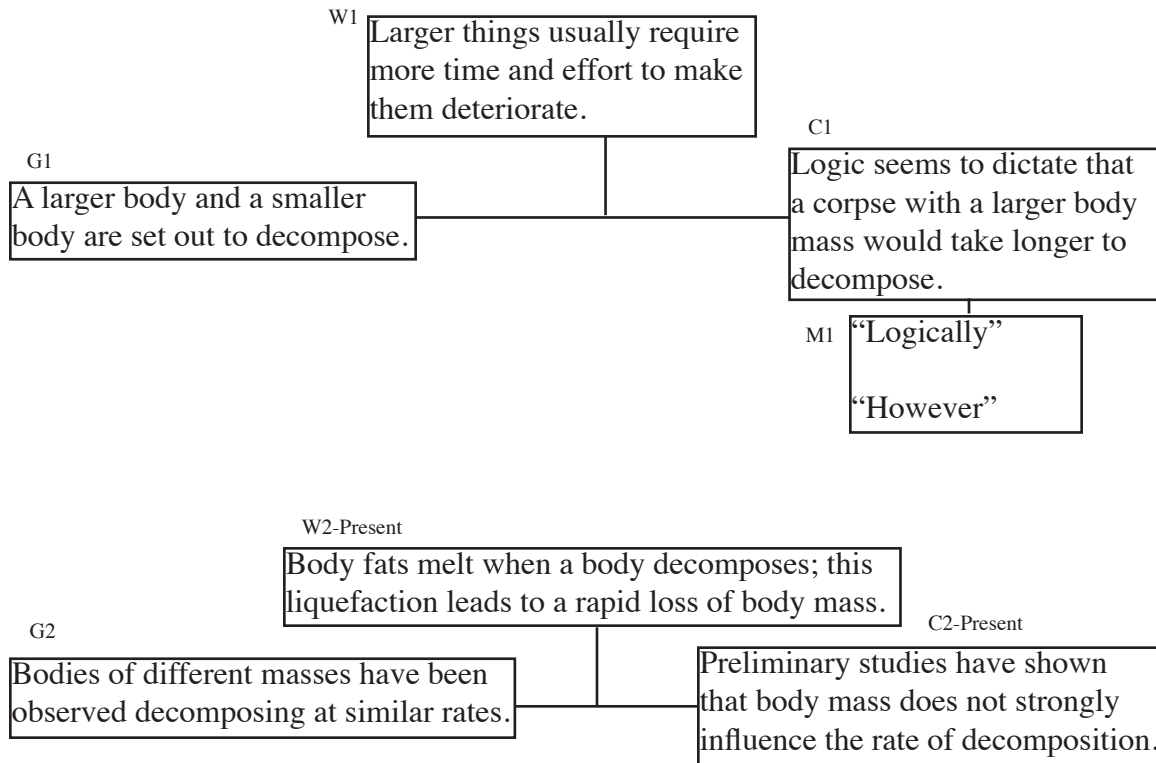
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JFS14: “If a body is found in a wooded area during warm or hot weather and doesn’t show evidence of carnivore feeding, it is likely that the body was kept in an area not accessible to dogs (for example, in a warehouse) long enough to allow considerable soft tissue destruction without concomitant bony destruction, and then carried out and dumped in the woods. At any rate, if a badly decomposed body is found in an open area (for example, woods, field, garbage dump) and there is no evidence of carnivore feeding, other possibilities may be considered. For example, the absence of carnivore feeding may alert you that the body has not been exposed to the out of doors for more than a few days” (Mann et al. 107).



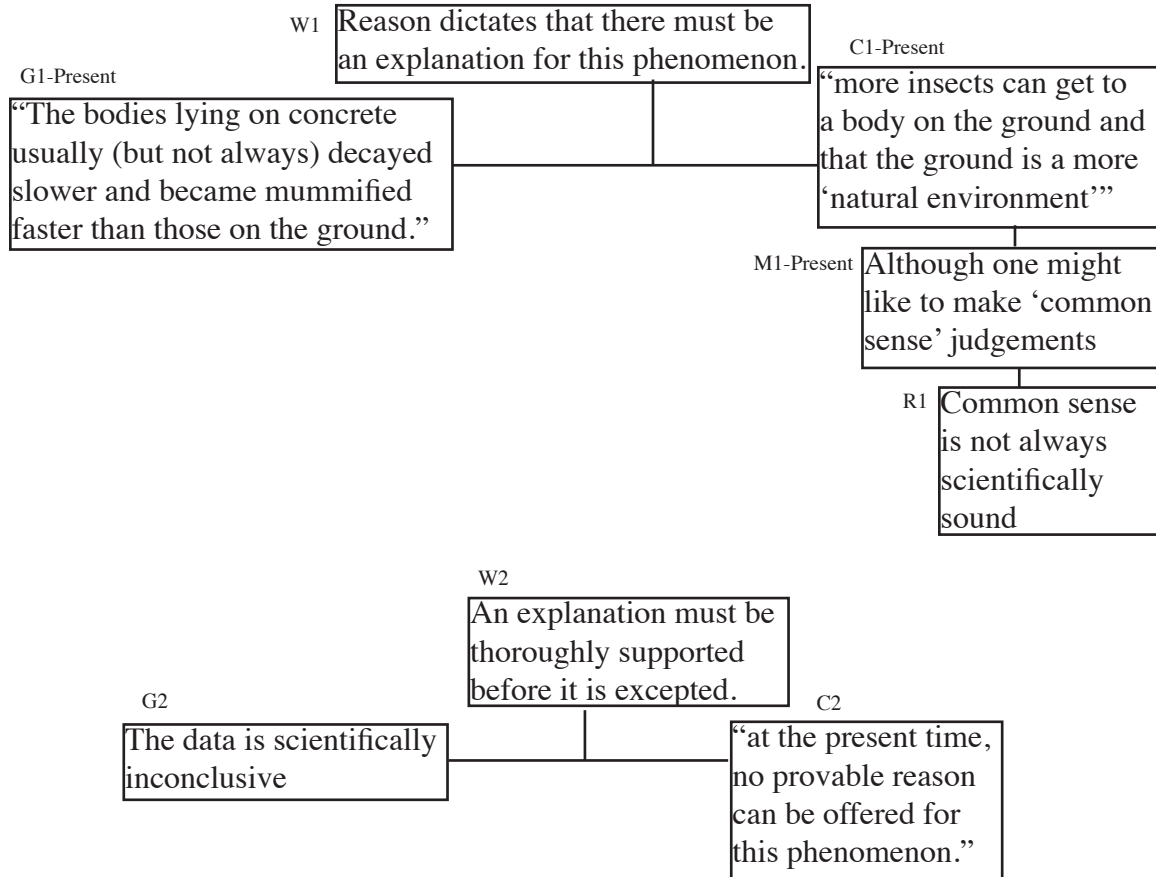
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JFS15: “Logically, this should be a very important factor in the rate of decay. However, preliminary studies have not borne this to be true. Studies at ARF have shown that obese bodies quickly lose body mass due to liquefaction (“melting away”) of body fats” (Mann et al. 107).

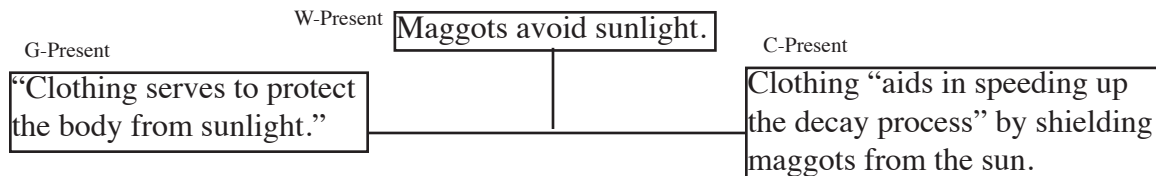


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JFS16: “The bodies lying on concrete usually (but not always) decayed slower and became mummified faster than those on the ground. Although one might like to make ‘common sense’ judgements that more insects can get to a body on the ground and that the ground is a more ‘natural environment,’ at the present time, no provable reason can be offered for this phenomenon” (Mann et al. 107).

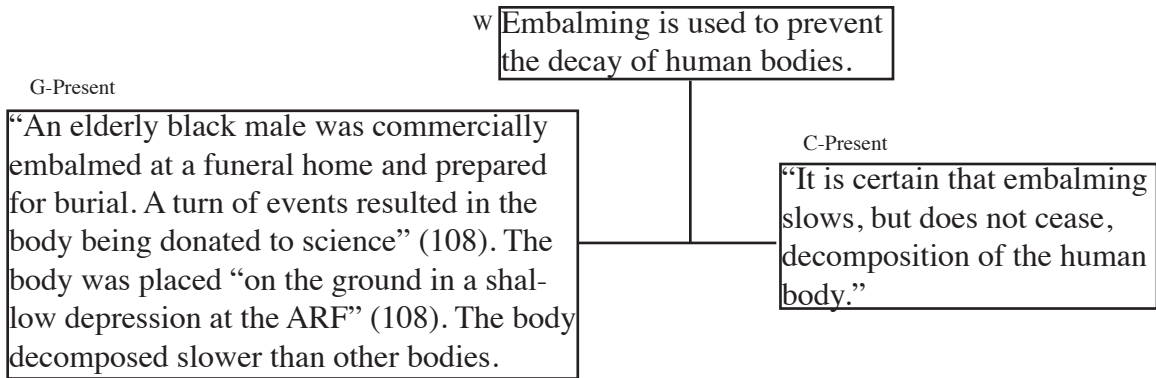


JFS17: “Clothing serves to protect the body from sunlight, which the maggots avoid, and aids in speeding up the decay process” (Mann et al. 107).

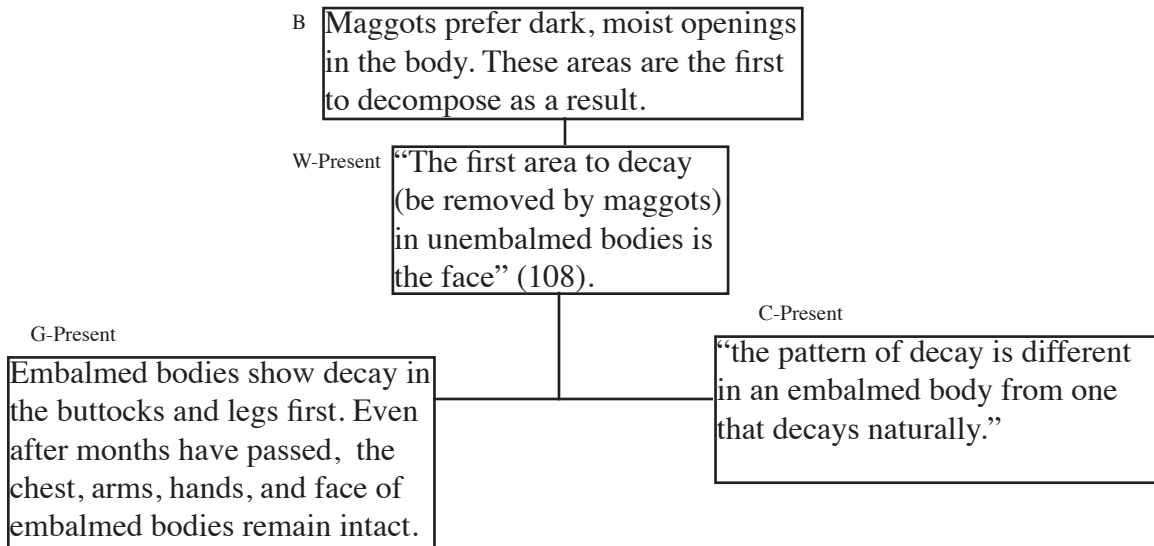


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JFS18: “Embalming does greatly slow the decay rate of the body...It is certain that embalming slows, but does not cease, decomposition of the human body” (Mann et al. 108).

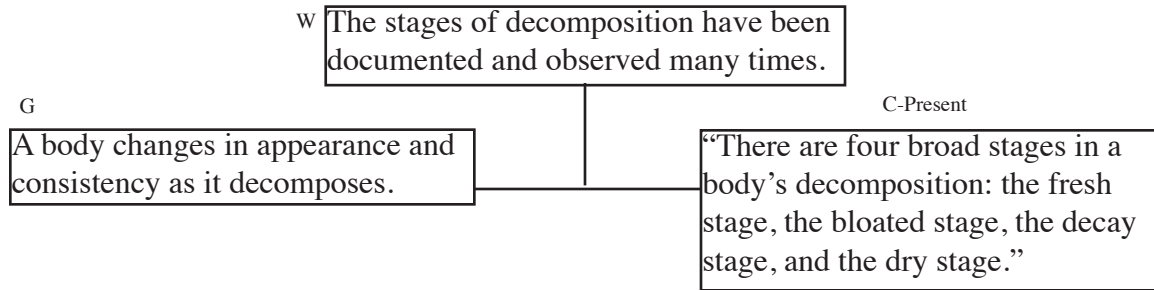


JFS19: “Further, the pattern of decay is different in an embalmed body from one that decays naturally” (Mann et al. 108).

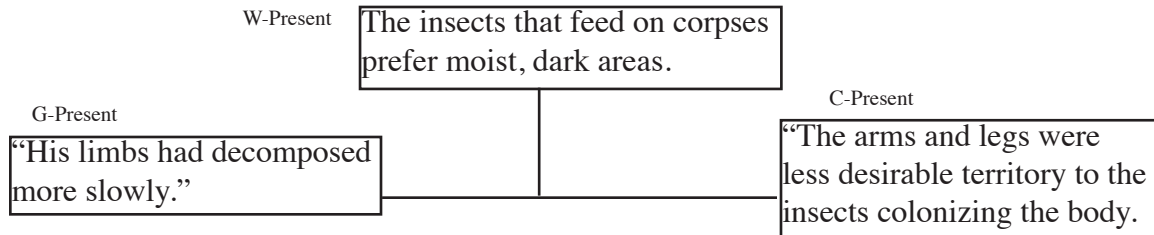


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B1: “There are four broad stages in a body’s decomposition: the fresh stage, the bloated stage, the decay stage, and the dry stage” (Bass and Jefferson 111-112).

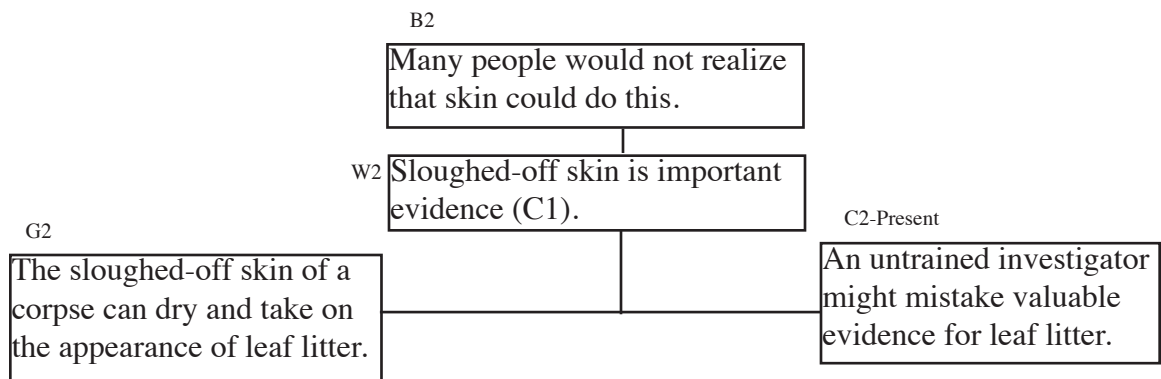
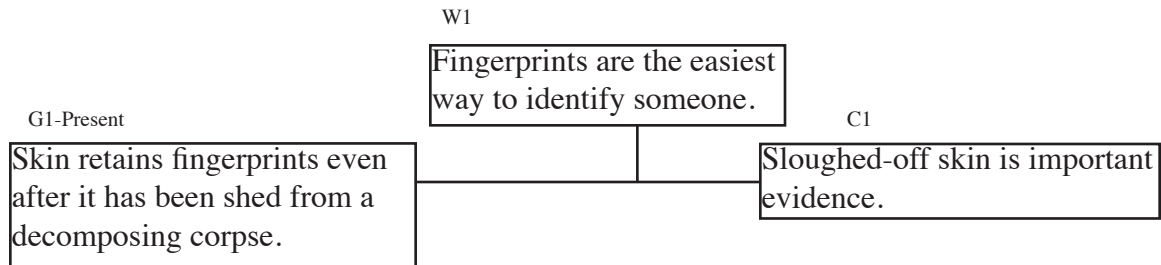


B2: “His limbs had decomposed more slowly. Lacking the moist, dark openings of the face and pelvis, the arms and legs were less desirable territory to the insects colonizing the body” (Bass and Jefferson 113).

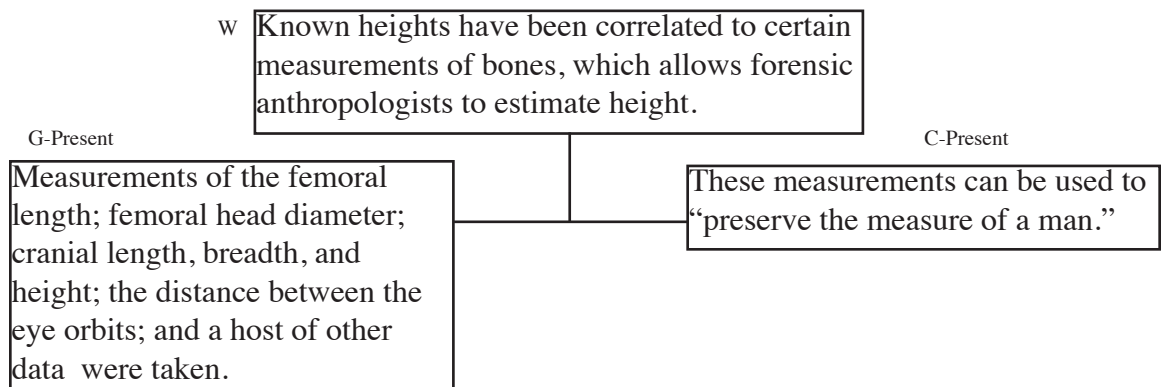


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B3: “But when Art took one of these shriveled husks back to the lab, he managed to moisten and uncurl it, coaxing I-81’s identity once again from something an untrained investigator might well have discarded as leaf litter” (Bass and Jefferson 113).

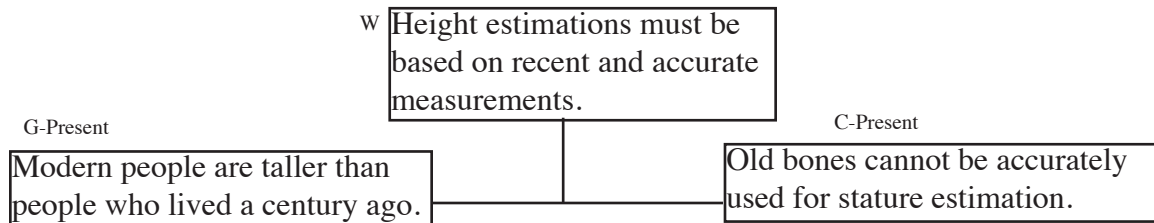


B4: “Then I measured the bones, recording the key dimensions: femoral length; femoral head diameter; cranial length, breadth, and height; the distance between the eye orbits; and a host of other data that would preserve the measure of the man” (Bass and Jefferson 113).

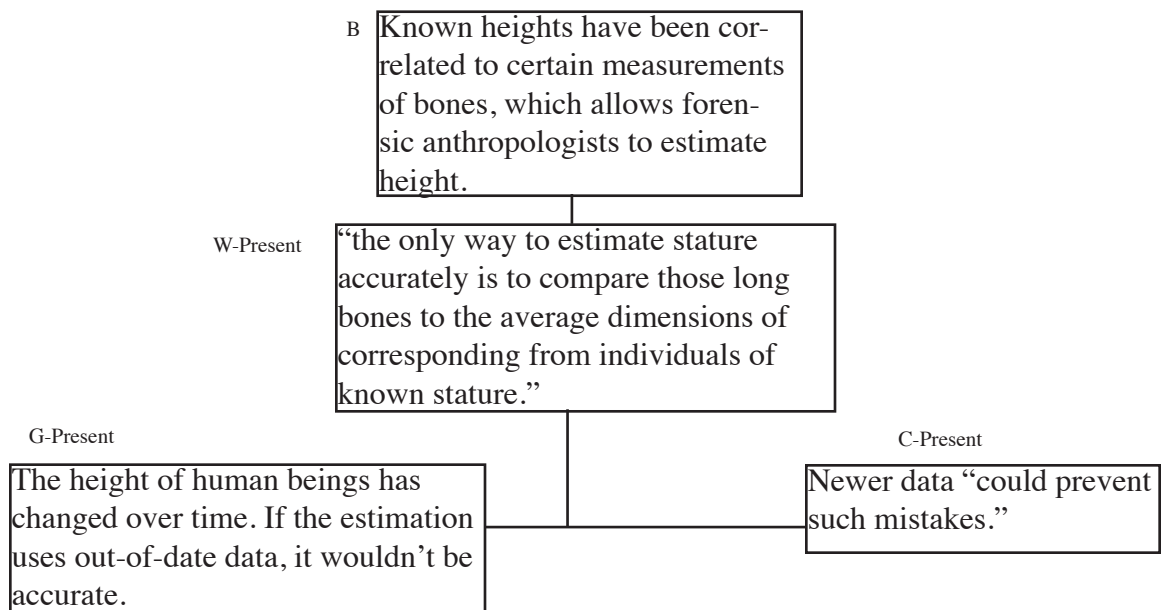


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B5: “But those bones were old, and for forensic purposes that made them obsolete” (Bass and Jefferson 114).

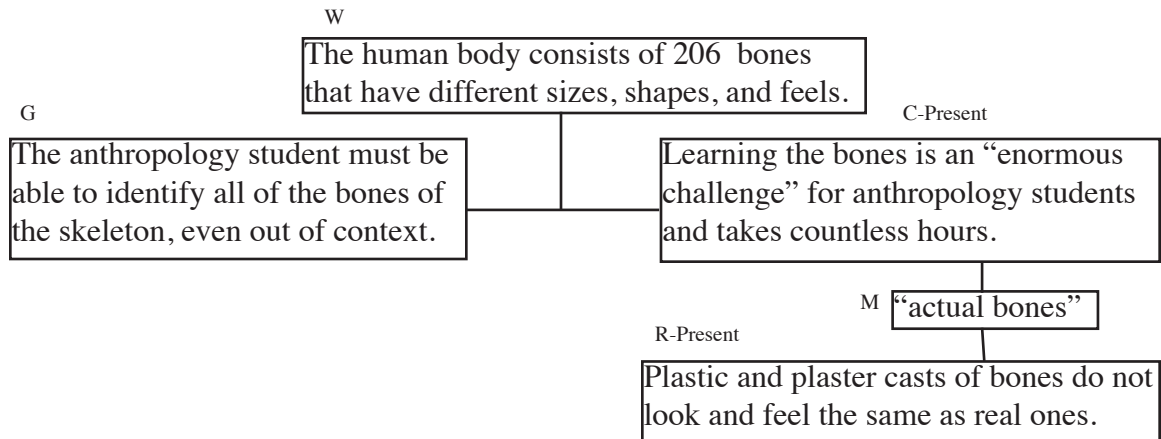


B6: “When an unknown crime victim is found--especially if police find only a few of the long bones--the only way to estimate stature accurately is to compare those long bones to the average dimensions of corresponding from individuals of known stature. And if the numbers being used for comparison are out of date, the estimation could be off by several inches....Data from 1-81 could prevent such mistakes” (Bass and Jefferson 114).

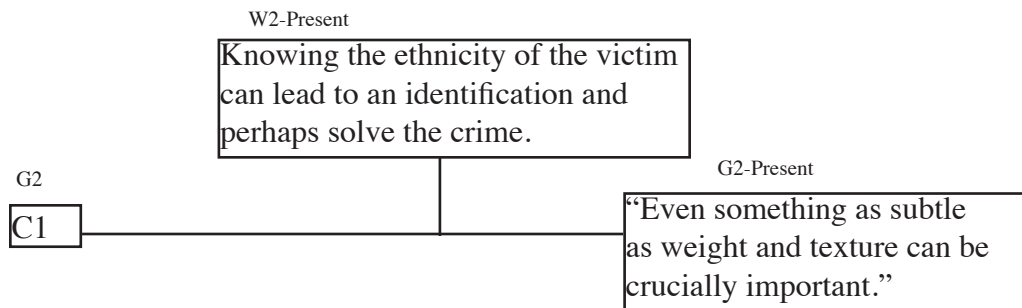
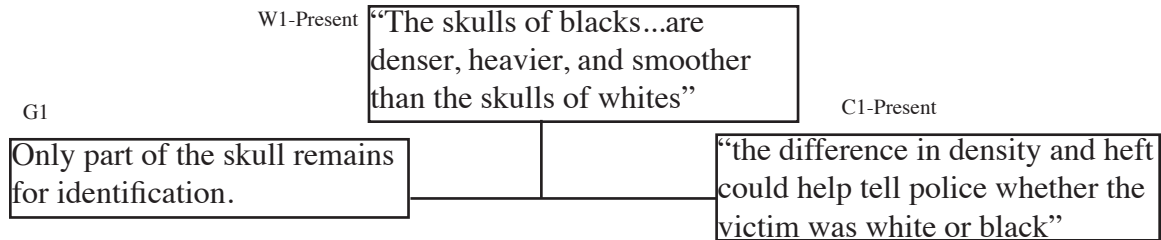


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B7: “Learning the size, shape, and feel of every bone in the human body is an enormous challenge for anthropology students. The only way to do it is to study actual bones--real ones, not plastic or plaster casts of them--for countless hours” (Bass and Jefferson 115).

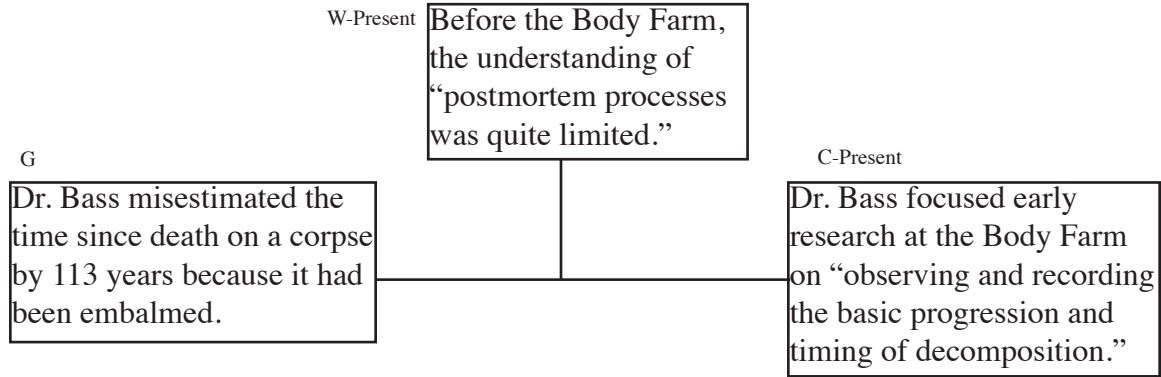


B8: “Even something as subtle as weight and texture can be crucially important. The skulls of blacks, for instance, are denser, heavier, and smoother than the skulls of whites....In a forensic case, if only a part of a skull is found, knowing the difference in density and heft could help tell police whether the victim was white or black” (Bass and Jefferson 115).



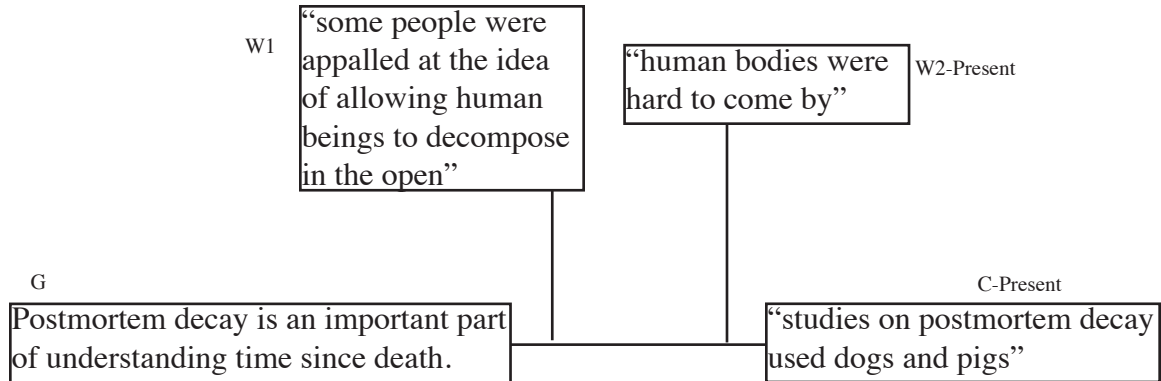
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B9: “Much of our early research focused simply on observing and recording the basic progression and timing of decomposition. As Colonel Shy had made painfully clear, our understanding of postmortem processes was quite limited” (Bass and Jefferson 115).

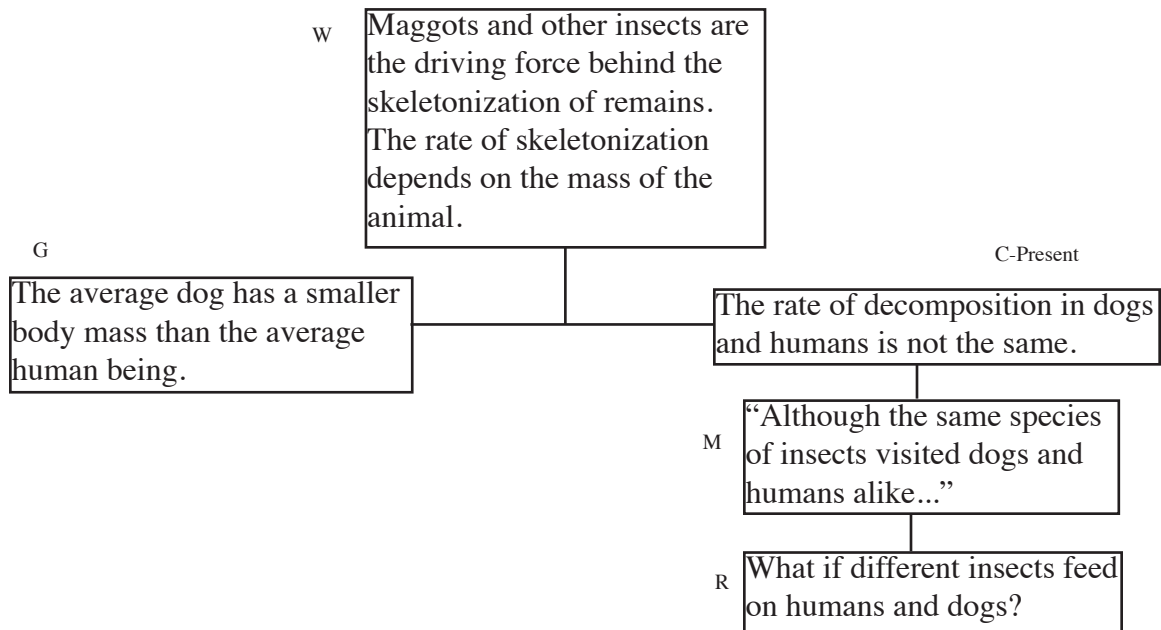


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M1: “Before the Body Farm, studies on postmortem decay used dogs and pigs, since human bodies were hard to come by and some people were appalled at the idea of allowing human beings to decompose in the open” (Mann and Williamson 42).

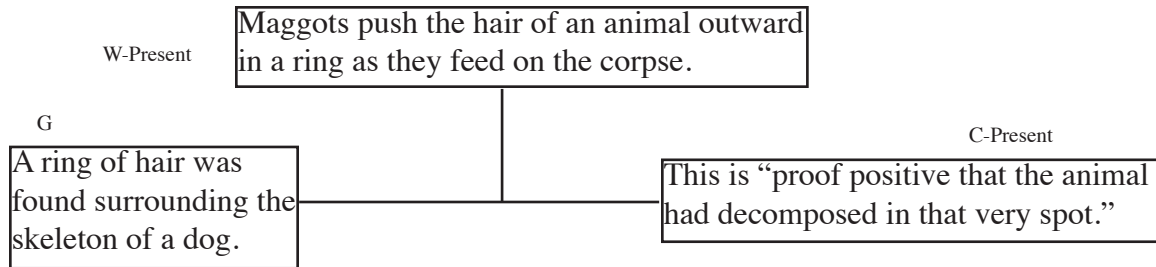


M2: “My dog studies demonstrated that, although the same species of insects visited dogs and human beings alike, coming in relays, one species after another, the rate of decomposition was not the same” (Mann and Williamson 43).

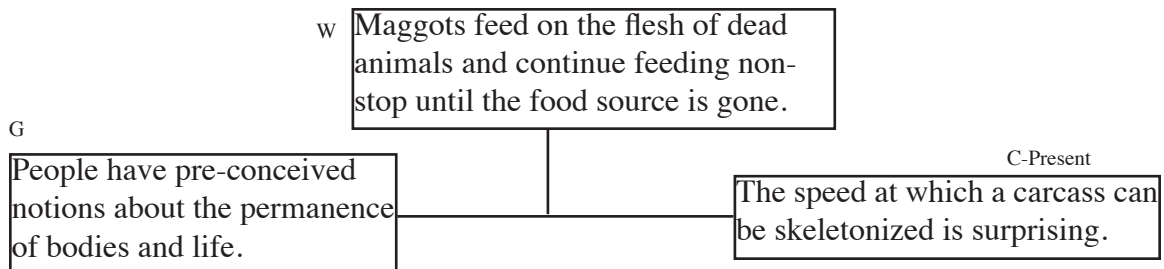


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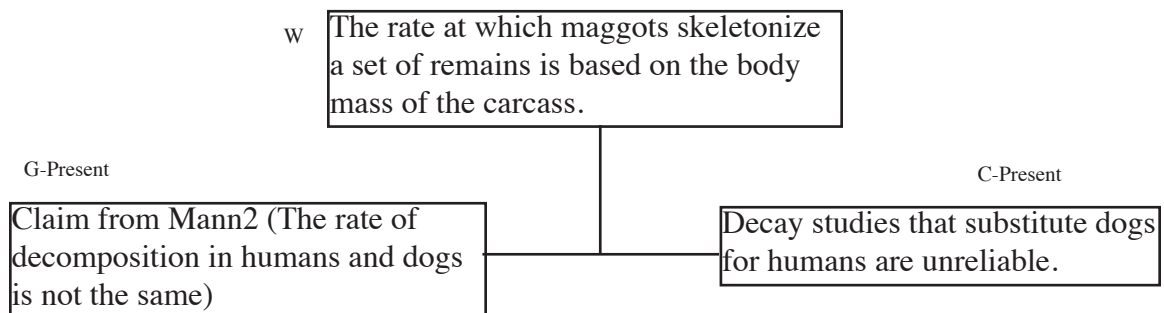
M3: “The ring of hair would be proof positive that the animal had decomposed in that very spot, not somewhere else” (Mann and Williamson 43).



M4: “They find it hard to believe that the carcass of an animal can go from fresh to dry in only three days” (Mann and Williamson 43).

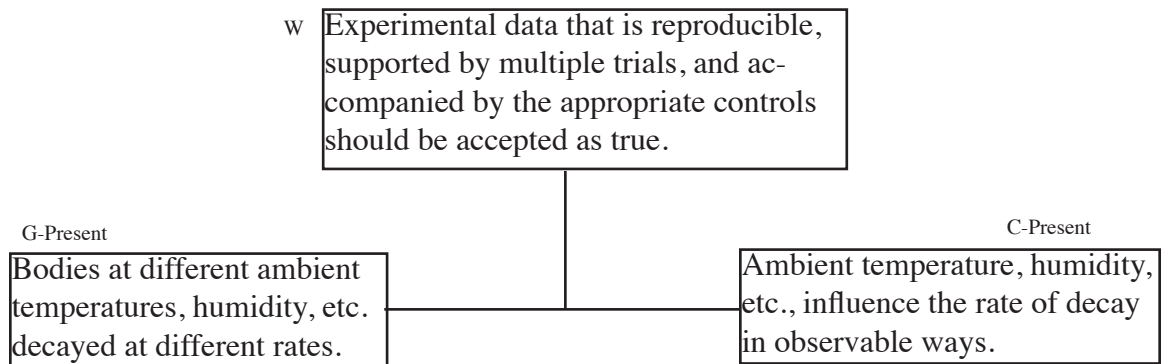


M5: “The result of my dog study was to show that decay studies substituting dogs for human bodies must be viewed with caution, even with skepticism” (Mann and Williamson 43).

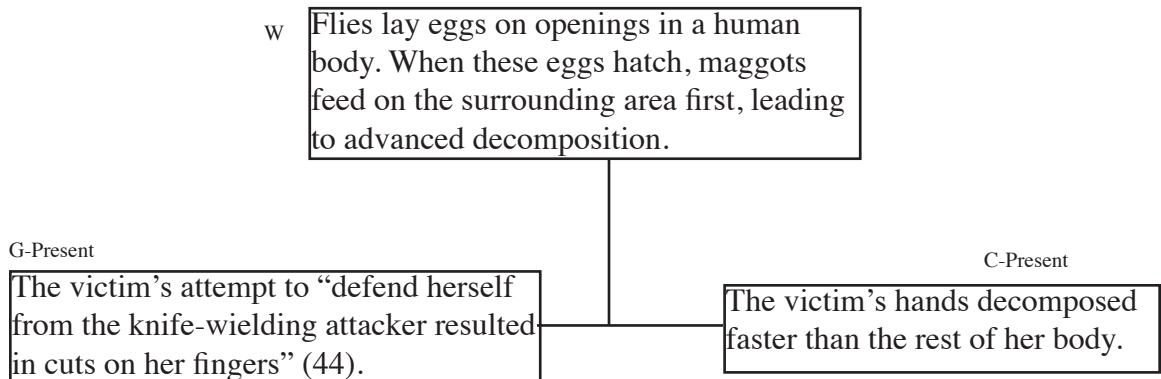


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M6: “From this series of experiments, I learned that the rate at which a body decays depends on a combination of factors, including ambient temperature, humidity, accessibility to insects, rainfall, the surface with which they are in contact, and whether penetrating wounds are present” (Mann and Williamson 44).

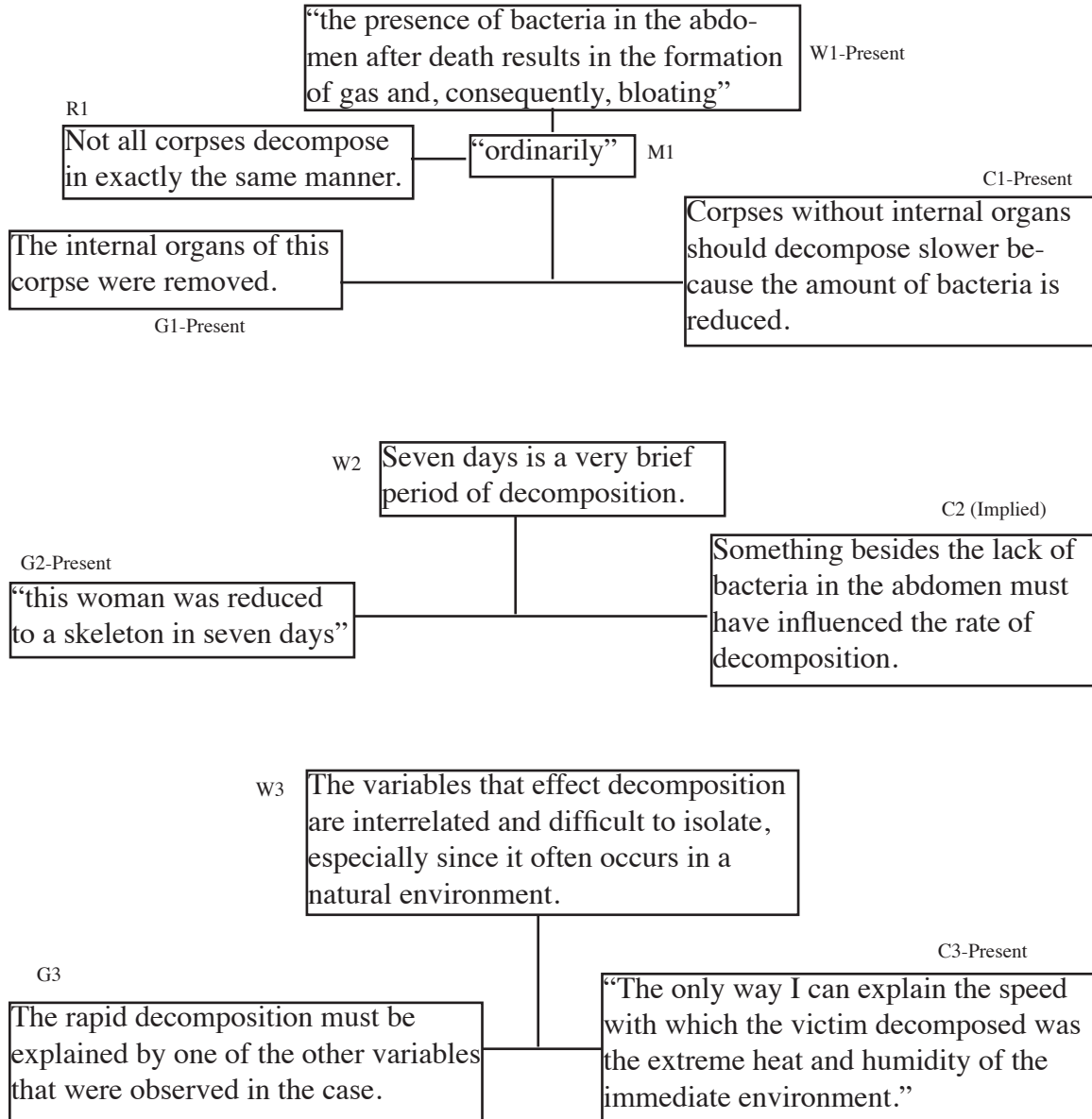


M7: “These open wounds had lured flies to lay their eggs on her hands, hence their rapid decomposition” (Mann and Williamson 44).



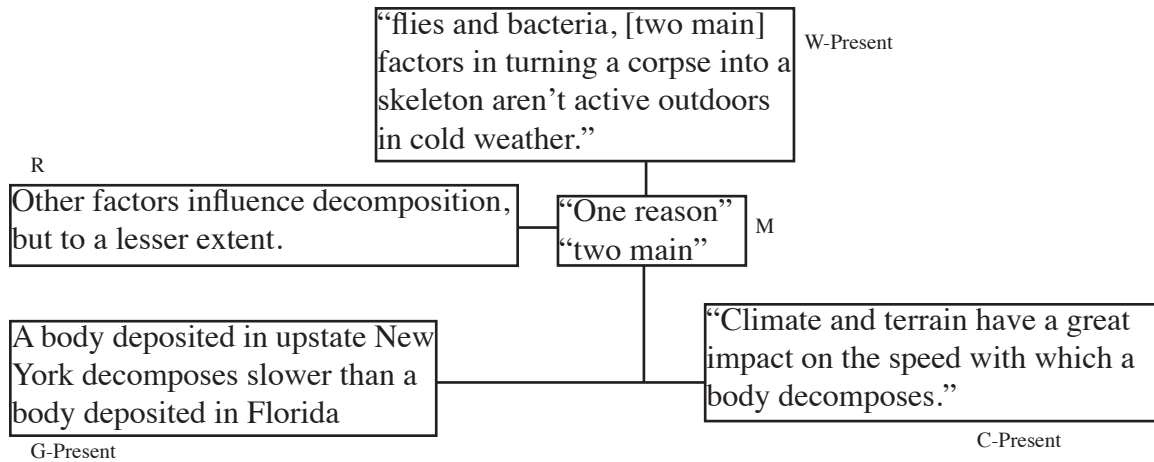
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M8: “Ordinarily, the presence of bacteria in the abdomen after death results in the formation of gas and, consequently, bloating. This process hastens decomposition. In this case, with the internal organs removed, the victim’s body should have theoretically decomposed at a slower rate than one that had not been autopsied. But this woman was reduced to a skeleton in seven days....The only way I can explain the speed with which the victim decomposed was the extreme heat and humidity of the immediate environment” (Mann and Williamson 44-45).

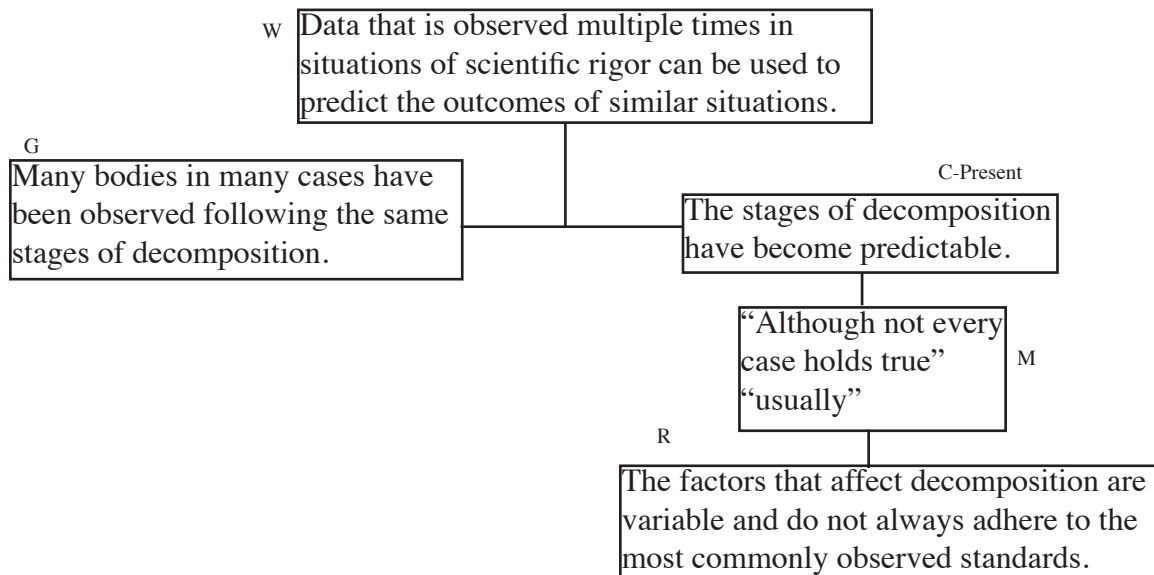


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M9: “Climate and terrain have a great impact on the speed with which a body decomposes. If a body is deposited in a wooded area in upstate New York in the dead of winter, it’s going to decompose much more slowly than one dumped in Florida woods in the summer. One reason is that flies and bacteria, the two main factors in turning a corpse into a skeleton, aren’t active outdoors in cold weather” (Mann and Williamson 45).

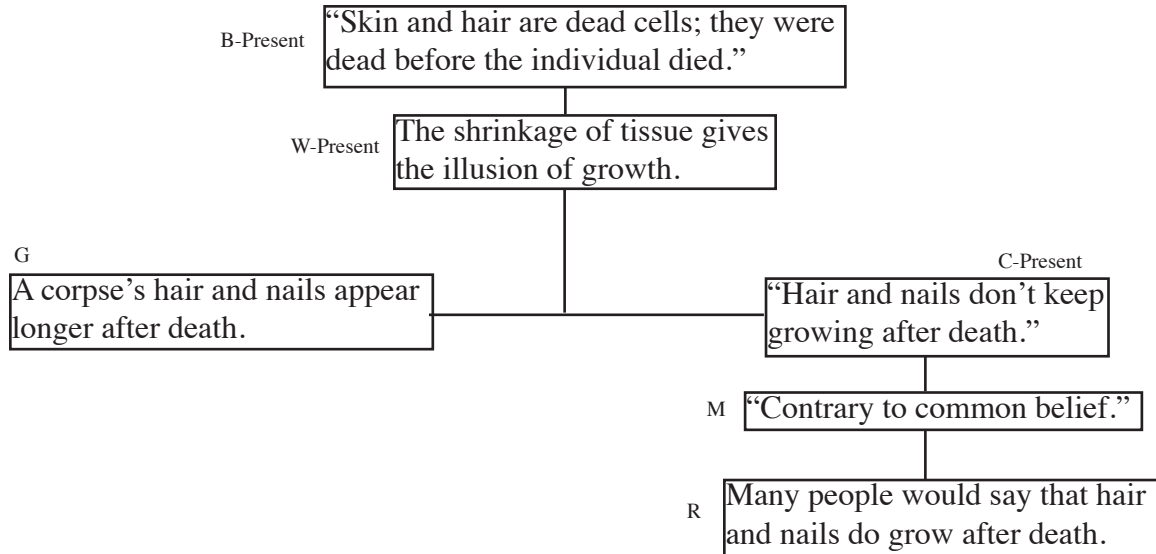


M10: “Although not every case holds true, bodies usually go through several predictable stages: fresh, bloated, and dry” (Mann and Williamson 45).

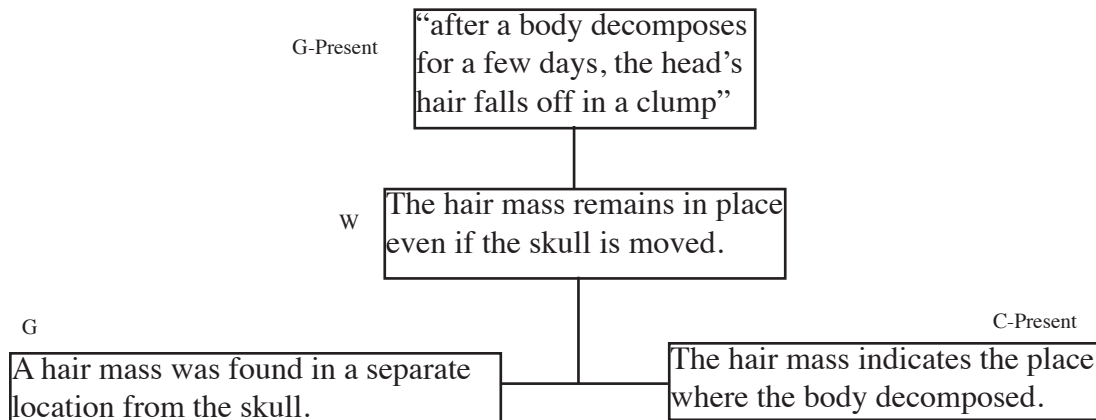


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M11: “Contrary to common belief, hair and nails don’t keep growing after death; it’s the shrinkage of tissue that gives this illusion. Skin and hair are dead cells; they were dead before the individual died” (Mann and Williamson 45).

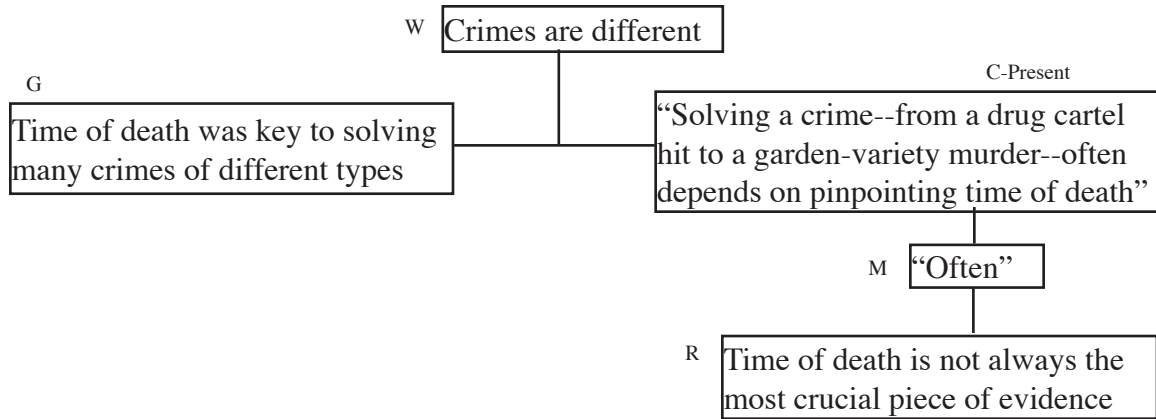


M12: “Finding the hair mass is important because, even if the skull rolls downhill, if you find the hair mass, you’ve found the spot where the body decomposed” (Mann and Williamson 46).

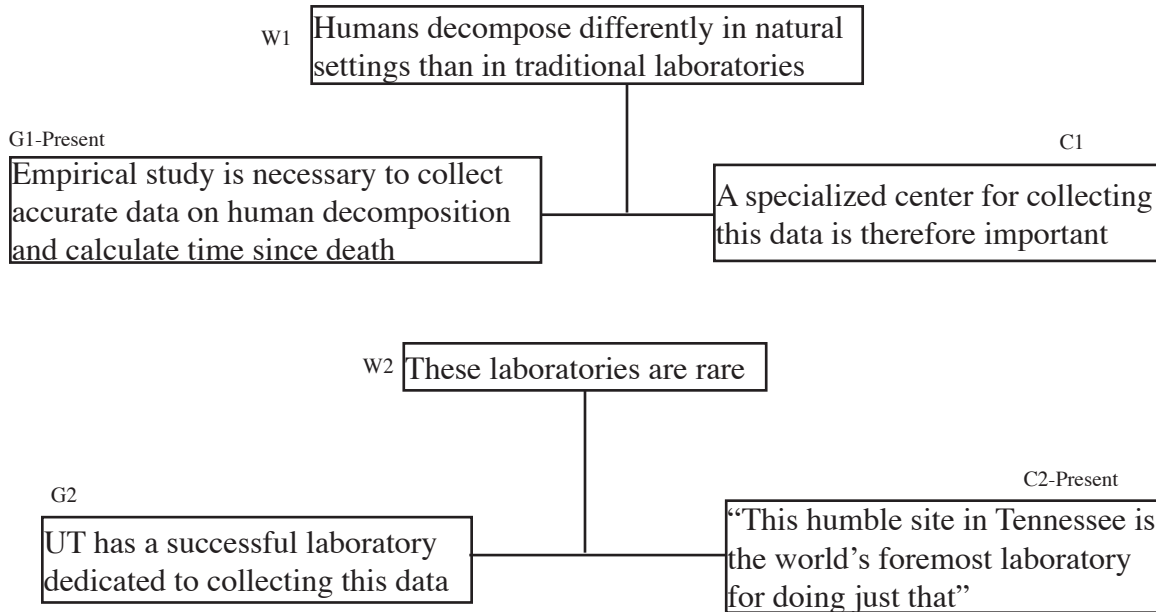


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NW1: “Solving a crime--from a drug cartel hit to a garden-variety murder--often depends on pinpointing the time of death” (Pederson).

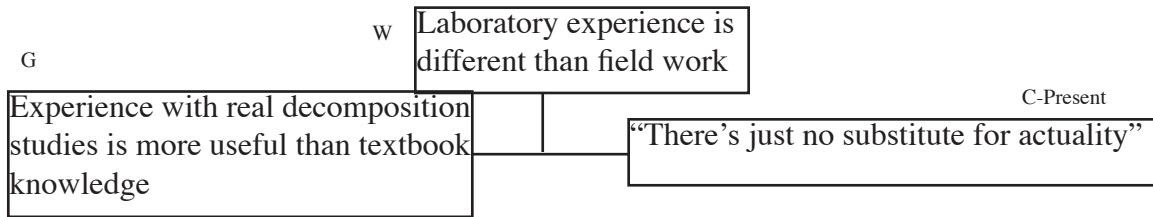


NW2: “To do so requires the empirical study of decomposing humans; this humble site in Tennessee is the world’s foremost laboratory for doing just that” (Pederson).

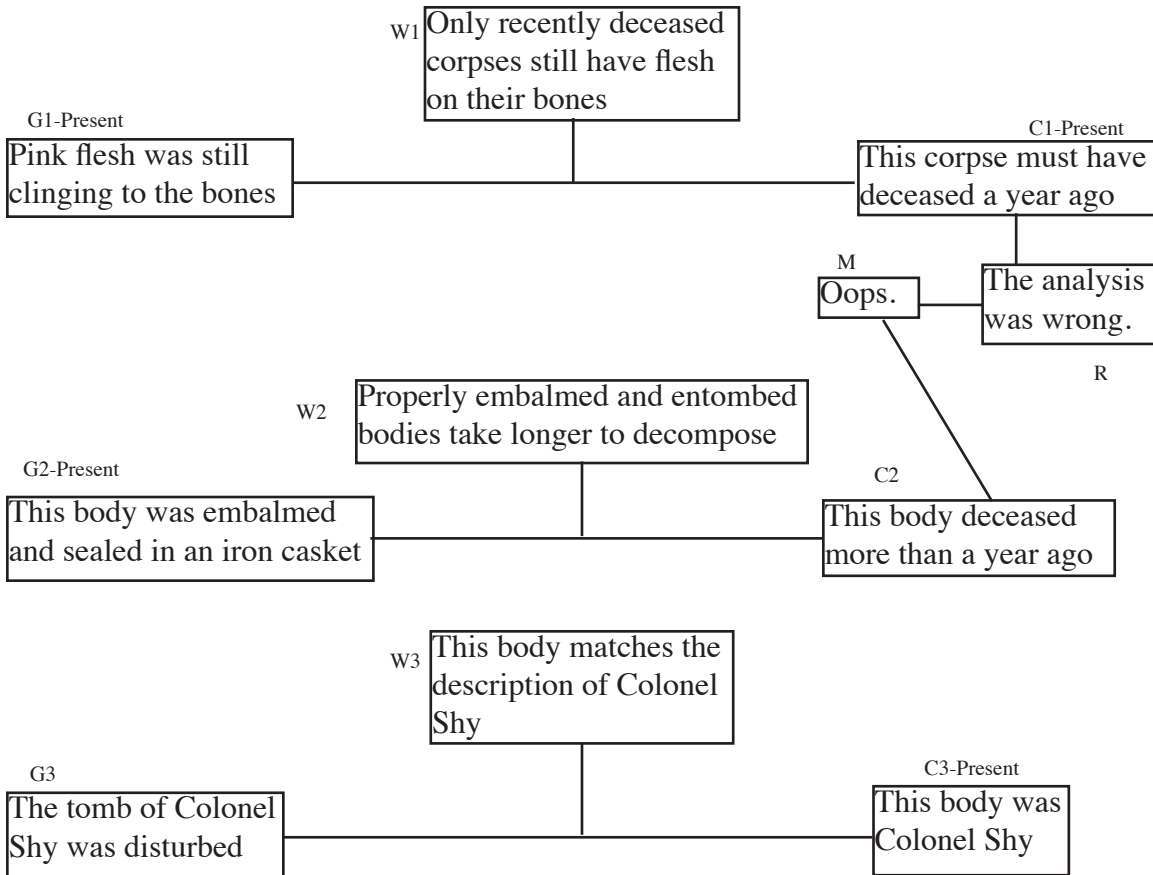


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NW3: “There’s just no substitute for actuality,’ says Quantico Special Agent Todd Mc-Call” (Pederson).

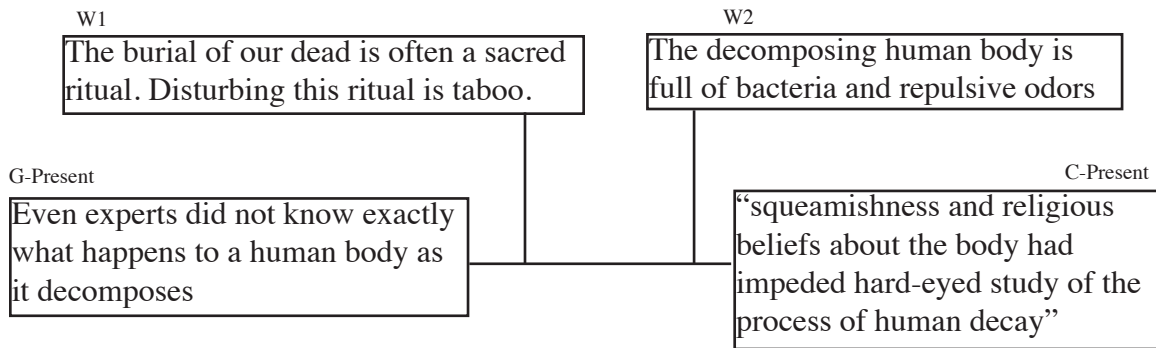


NW4: “Looking at the remains of pink flesh still clinging to the bones, Professor Bass estimated the time since death at one year. Oops. More research proved the dead man to be William Shy--a Confederate colonel embalmed and then entombed in an iron casket whose seal was finally broken by grave robbers” (Pederson).

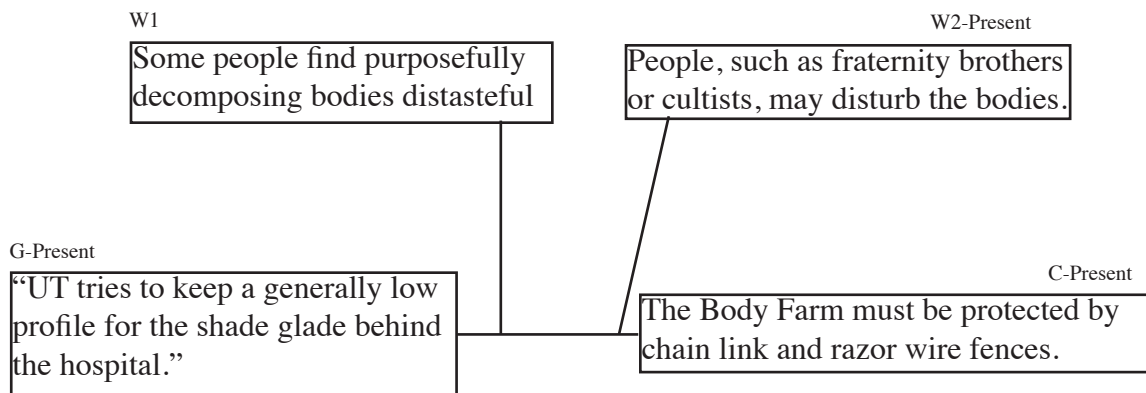


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NW5: “Bass realized then just how squeamishness and religious beliefs about the body had impeded hard-eyed study of the process of human decay. He still regards it as preposterous that 90 percent of people studying to be law-enforcement agents have never seen a corpse, or that, until the Body Farm, entomologists knew far too little about the remarkable parade of insects after death: from blowfly to maggot to carpet beetle” (Pederson).

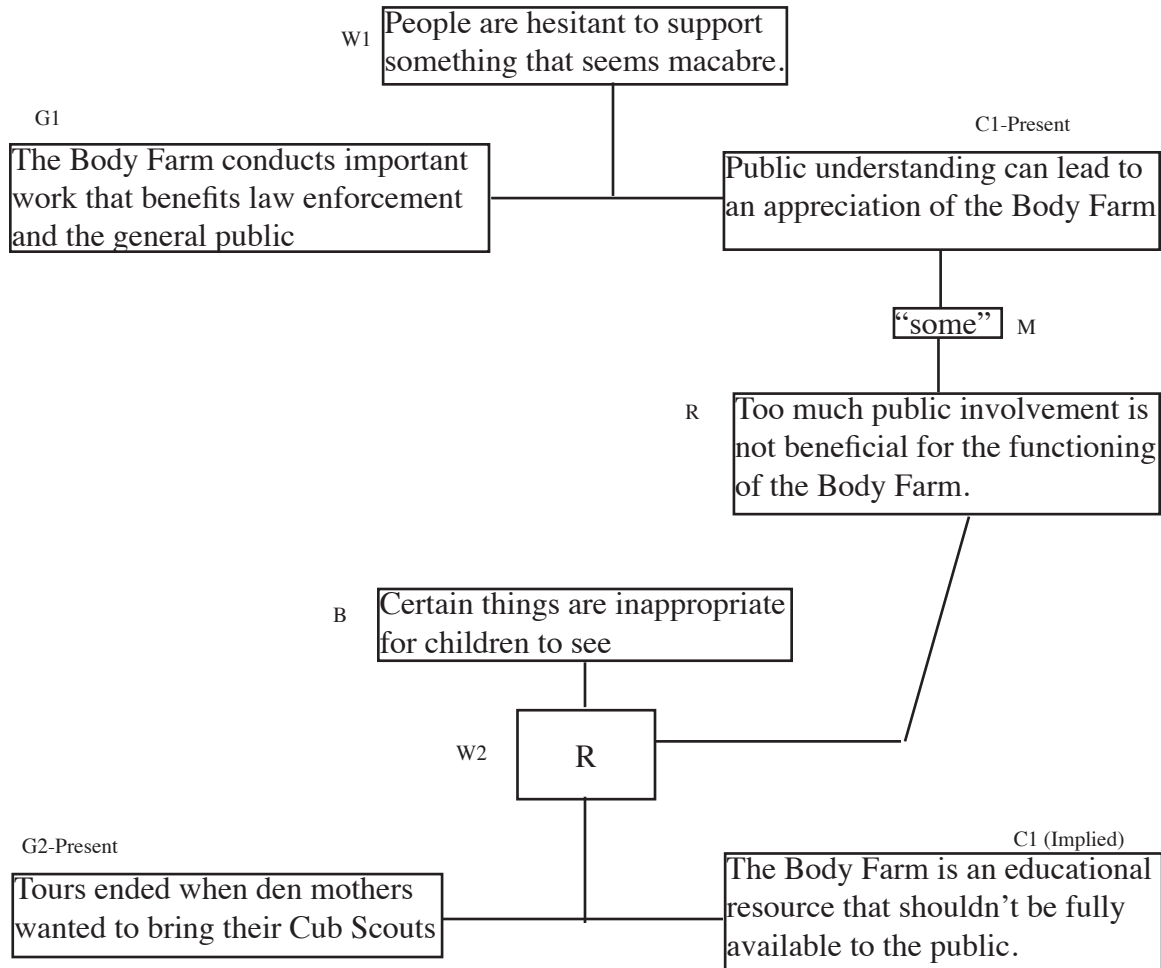


NW6: “UT tries to keep a generally low profile for the shade glade behind the hospital. Chain link and fencing topped with razor wire surround the two-acre site, partly to keep fraternity brothers--or Halloween cultists--from their midnight rounds” (Pederson).



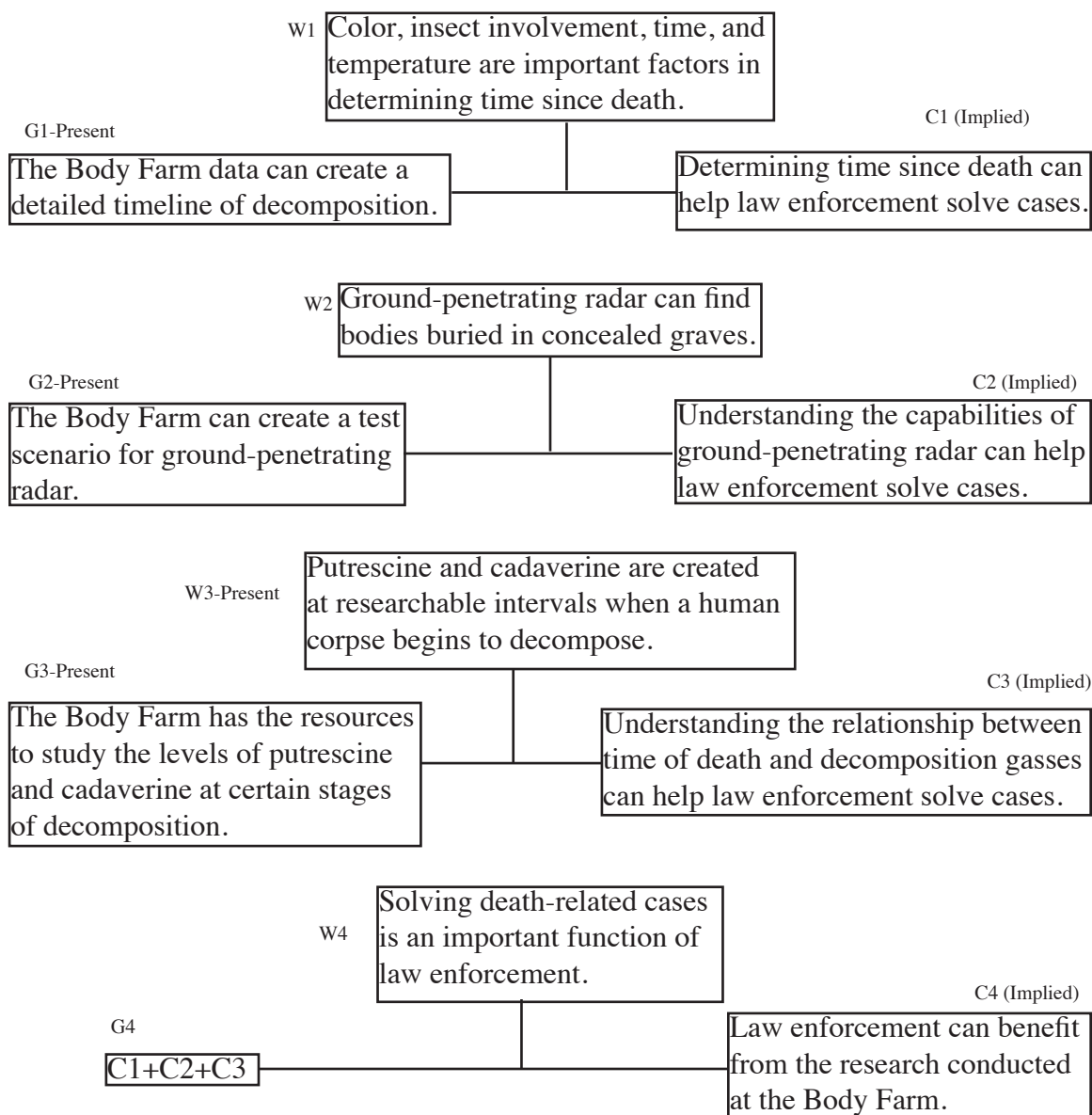
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NW7: “Bass thinks some level of public awareness can foster understanding. But tours of the farm ended after two den mothers called to ask if they could bring their Cub Scouts through” (Pederson).



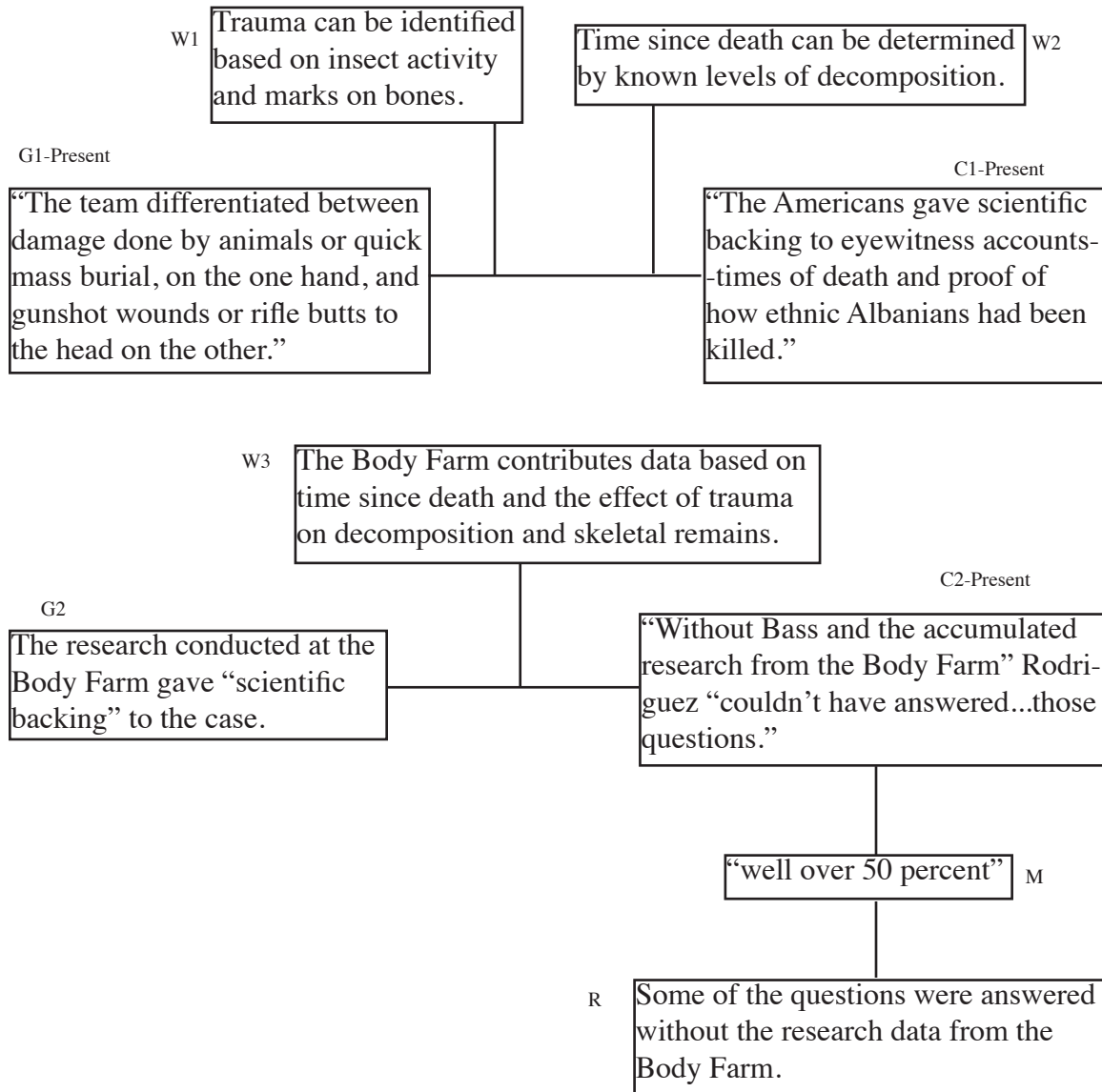
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NW8: “One pending goal: to produce an atlas for law enforcement that will provide what Murray Marks, a colleague of Bass’s who led the FBI classes and now heads the Body Farm, calls a ‘gold standard’ for decomposition--a page-by-page, color-by-color, insect-by-insect depiction of the process of human decay on a time and temperature line. Another: to bury multiple bodies under four pads of concrete of varying thicknesses so the FBI can test its latest ground-penetrating radar. A third: to pursue the biochemical breakthrough that will enable scientists to pinpoint time of death based on the level of once obscure gasses, like putrescine and cadaverine” (Pederson).



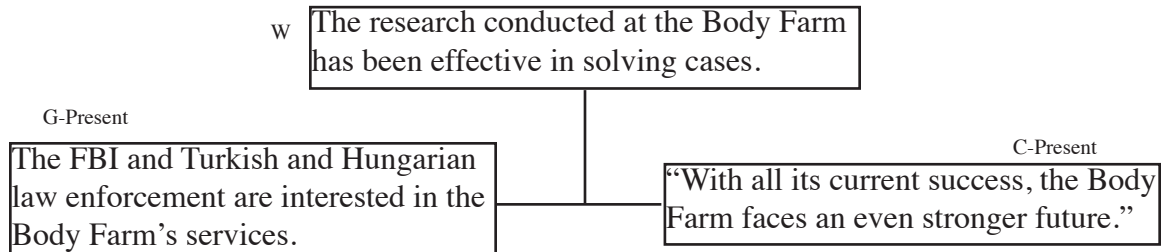
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NW9: “Without Bass and the accumulated research from the Body Farm, Rodriquez told NEWSWEEK, ‘I couldn’t have answered well over 50 percent of those questions’” (Pederson).

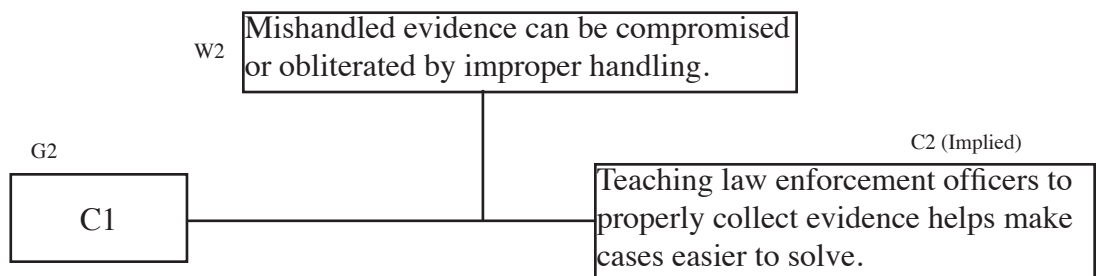
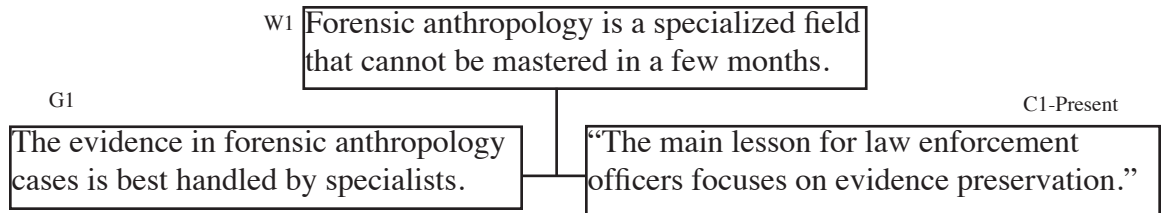


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NW10: “With all its current success, the Body Farm faces an even stronger future. The FBI will return with a second class next February. The State Department has just forwarded an inquiry from Turkish and Hungarian law enforcement, asking the Body Farm to take its decomposition show overseas for the first time” (Pederson).

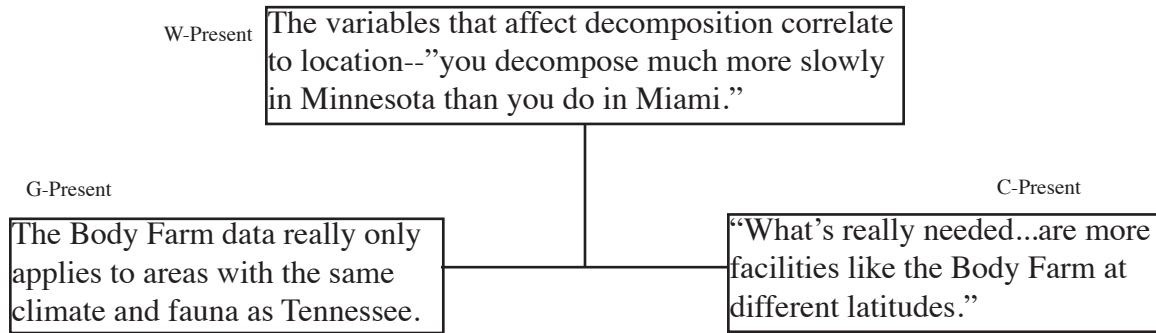


NW11: “Marks says the main lesson for law enforcement officers focuses on evidence preservation. ‘The point is not to turn them into forensic anthropologists but to teach them how to get the evidence into the hands of specialists’” (Pederson).

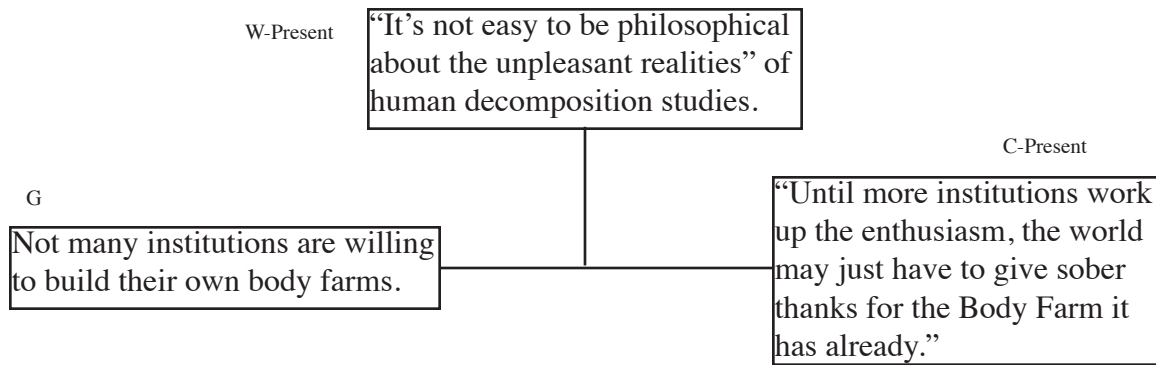


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NW12: “What’s really needed, Bass and Marks argue, are more facilities like the Body Farm at different latitudes. ‘You decompose much more slowly in Minnesota than you do in Miami,’ says Bass” (Pederson).



NW13: “It’s not easy to be philosophical about the unpleasant realities of this process. Until more institutions work up the enthusiasm, the world may just have to give sober thanks for the Body Farm it has already” (Pederson).



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Appendix B

Raw Data Tables

Table B.1: Set I, Data Collected from Classification of Toulmin Diagrams

Diagram	Element Type	Present? Y/N/Reiteration	Statement Type
Original Article (MEA=Maples et. al)			
MEA1	Ground 1	N	
	Ground 2	N	
	Ground 3	N	
	Ground 4	N	
	Warrant 1	N	
	Warrant 2	N	
	Warrant 3	N	
	Warrant 4	N	
	Claim 1	Y	5
	Claim 2	Y	3
	Claim 3	Y	5
	Claim 4	Y	5
	Rebuttal	N	
MEA2	Ground 1	Y	5
	Ground 2	N	
	Ground 3	N	
	Ground 4	Reiteration of Grounds 1-3	
	Warrant 1	Y	3
	Warrant 2	Y	3
	Warrant 3	N	
	Warrant 4	Y	5
	Warrant 5	N	
	Claim 1	Y	2
	Claim 2	Y	2
	Claim 3	Y	2
	Claim 4	Y	1
	Rebuttal 1	N	
	Rebuttal 2	N	
	Rebuttal 3	N	
	Rebuttal 4	N	
	Rebuttal 5	Reiteration of Rebuttals 1-4	

MEA3	Ground	Y	5
	Warrant	N	
	Claim	N	
MEA4	Ground	Y	5
	Warrant	N	
	Claim	Y	2
	Rebuttal	N	
MEA5	Ground 1	Y	5
	Ground 2	N	
	Warrant 1	Y	5
	Warrant 2	Y	3
	Claim 1	Y	3
	Claim 2	Y	3
	Rebuttal	N	
MEA6	Ground 1	N	
	Ground 2	Reiteration of Claim 1	
	Warrant 1	Y	3
	Warrant 2	Y	3
	Claim 1	Y	2
	Claim 2	N	
	Rebuttal	N	
MEA7	Ground 1	Y	5
	Ground 2	N	
	Ground 3	N	
	Ground 4	Y	5
	Warrant 1	N	
	Warrant 2	N	
	Claim 1	N	
	Claim 2	N	
MEA8	Ground	N	
	Warrant	N	
	Claim	Y	2
	Rebuttal	Y	2
MEA9	Ground 1	Y	5
	Ground 2	Reiteration of Claim 1	
	Warrant 1	Y	5

	Warrant 2	Y	5
	Warrant 3	Y	5
	Claim 1	Y	5
	Claim 2	Y	2
	Rebuttal	N	
Maples and Browning Accommodation (MB)			
MB1	Ground 1	N	
	Ground 2	N	
	Ground 3	N	
	Ground 4	N	
	Warrant 1	N	
	Warrant 2	N	
	Warrant 3	N	
	Warrant 4	N	
	Claim 1	Y	5
	Claim 2	Y	3
	Claim 3	Y	5
	Claim 4	Y	5
	Rebuttal	N	
MB2	Ground	Y	5
	Warrant	N	
	Claim	Y	2
MB3	Ground	Y	5
	Warrant	Y	4
	Claim	Y	5
MB4	Ground	Y	5
	Warrant	N	
	Claim	Y	
MB5	Ground 1	N	
	Ground 2	N	
	Ground 3	N	
	Backing 1	N	
	Backing 2	N	
	Backing 3	N	
	Warrant 1	N	
	Warrant 2	N	
	Warrant 3	N	

	Claim 1	Y	2
	Claim 2	Y	5
	Claim 3	Y	2
	Rebuttal 1	N	
	Rebuttal 2	N	
MB6	Ground	Y	5
	Warrant	N	
	Claim	Y	2
MB7	Ground	N	
	Warrant	N	
	Claim	Y	2
MB8	Ground 1	N	
	Ground 2	N	
	Ground 3	Reiteration of Claim 1 and 2	
	Warrant 1	N	
	Warrant 2	N	
	Warrant 3	Y	2
	Claim 1	Y	5
	Claim 2	Y	
	Claim 3	Y	2
	Rebuttal 1	N	
	Rebuttal 2	N	
	Rebuttal 3	N	
<i>New York Times Accommodation (NYT)</i>			
NYT1	Ground 1	N	
	Ground 2	Reiteration of Claim 1	
	Warrant 1	N	
	Warrant 2	Y	5
	Claim 1	Y	5
	Claim 2	Y	5
NYT2	Ground	Y	5
	Warrant	Y	5
	Claim	Y	5
NYT3	Backing	N	
	Ground	N	
	Warrant 1	N	

	Warrant 2	N	
	Warrant 3	Y	5
	Claim	Y	2
	Rebuttal 1	N	
	Rebuttal 2	N	
NYT4	Ground 1	N	
	Ground 2	N	
	Ground 3	Y	5
	Warrant 1	N	
	Warrant 2	Y	5
	Warrant 3	Reiteration of Claim 1 and 2	
	Claim 1	N	
	Claim 2	N	
	Claim 3	Y	5
NYT5	Ground 1	Y	5
	Ground 2	Y	5
	Warrant 1	Y	5
	Warrant 2	N	
	Claim 1	Y	2
	Claim 2	Y	5
	Rebuttal	N	

Table B.2: Set II, Data Collected from Classification of Toulmin Diagrams

Diagram	Element Type	Present? Y/N/Reiteration	Statement Type
Original Article (JFS = <i>Journal of Forensic Sciences</i>)			
JFS1	Ground	Y	4
	Warrant	N	
	Claim	Y	5
	Rebuttal	Y	4
JFS2	Ground	N	
	Warrant	N	
	Claim	Y	4
JFS3	Ground	N	
	Warrant	Y	4
	Claim	Y	4
JFS4	Ground 1	Y	4
	Ground 2	N	
	Warrant 1	Y	5
	Warrant 2	N	
	Claim 1	N	
	Claim 2	Y	4
JFS5	Ground	N	
	Warrant	N	
	Claim	Y	5
	Rebuttal	N	
JFS6	Ground	N	
	Warrant	Y	4
	Claim	Y	2
JFS7	Ground	N	
	Warrant	Y	4
	Claim	Y	4
JFS8	Ground	Y	2
	Warrant	N	
	Claim	Y	2
	Rebuttal	N	

JFS9	Ground 1	Y	2
	Ground 2	Y	2
	Ground 3	Y	5
	Ground 4	Reiteration of Claims 1-3	
	Warrant 1	N	
	Warrant 2	N	
	Warrant 3	N	
	Warrant 4	N	
	Claim 1	N	
	Claim 2	N	
	Claim 3	N	
	Claim 4	N	
JFS10	Ground	N	
	Warrant	N	
	Claim	Y	1
JFS11	Ground	Y	4
	Warrant	Y	4
	Backing	N	
	Claim	N	
JFS12	Ground	Y	4
	Warrant	Y	5
	Claim	N	
JFS13	Ground 1	Y	2
	Ground 2	Y	2
	Warrant	N	
	Claim	N	
JFS14	Ground 1	Y	4
	Ground 2	Y	4
	Warrant 1	N	
	Warrant 2	N	
	Claim 1	Y	4
	Claim 2	Y	4
	Rebuttal 1	N	
	Rebuttal 2	N	
JFS15	Ground 1	N	
	Ground 2	N	

	Warrant 1	N	
	Warrant 2	Y	4
	Claim 1	N	
	Claim 2	Y	2
JFS16	Ground 1	Y	2
	Ground 2	N	
	Warrant 1	N	
	Warrant 2	N	
	Claim 1	Y	2
	Claim 2	Y	1
	Rebuttal 1	N	
JFS17	Ground	Y	5
	Warrant	Y	5
	Claim	Y	4
JFS18	Ground	Y	5
	Warrant	N	
	Claim	Y	5
JFS19	Ground	Y	4
	Warrant	Y	5
	Backing	N	
	Claim	Y	5
Bass Accommodation (B)			
B1	Ground	N	
	Warrant	N	
	Claim	Y	4
B2	Ground	Y	5
	Warrant	Y	4
	Claim	Y	4
B3	Ground 1	Y	4
	Ground 2	N	
	Warrant 1	N	
	Warrant 2	Reiteration of Claim 1	
	Backing 2	N	
	Claim 2	Y	2

B4	Ground	Y	5
	Warrant	N	
	Claim	Y	4
B5	Ground	Y	4
	Warrant	N	
	Claim	Y	4
B6	Ground	Y	4
	Warrant	Y	4
	Backing	N	
	Claim	Y	2
B7	Ground	N	
	Warrant	N	
	Claim	Y	5
	Rebuttal	Y	5
B8	Ground 1	N	
	Ground 2	Reiteration of Claim 1	
	Warrant 1	Y	5
	Warrant 2	Y	2
	Claim 1	Y	2
	Claim 2	Y	2
B9	Ground	N	
	Warrant	Y	4
	Claim	Y	4
Mann Accommodation (M)			
M1	Ground	N	
	Warrant 1	Y	4
	Warrant 2	Y	5
	Claim	Y	5
M2	Ground	N	
	Warrant	N	
	Claim	Y	5
	Rebuttal	N	
M3	Ground	N	
	Warrant	Y	4

	Claim	Y	5
M4	Ground	N	
	Warrant	N	
	Claim	Y	4
M5	Ground	Y	5
	Warrant	N	
	Claim	Y	4
M6	Ground	Y	4
	Warrant	N	
	Claim	Y	4
M7	Ground	Y	5
	Warrant	N	
	Claim	Y	5
M8	Ground 1	Y	5
	Ground 2	Y	5
	Ground 3	N	
	Warrant 1	Y	4
	Warrant 2	N	
	Warrant 3	N	
	Claim 1	Y	1
	Claim 2	N	
	Claim 3	Y	1
	Rebuttal 1	N (Modifies Warrant 1)	
M9	Ground	Y	4
	Warrant	Y	4
	Claim	Y	5
	Rebuttal	N (Modifies Warrant)	
M10	Ground	N	
	Warrant	N	
	Claim	Y	2
	Rebuttal	N	
M11	Ground	N	
	Warrant	Y	5
	Backing	Y	4

	Claim	Y	4
	Rebuttal	N	
M12	Ground	N	
	Warrant	N	
	Backing	Y	4
	Claim	Y	4
<i>Newsweek Accommodation (NW)</i>			
NW1	Ground	N	
	Warrant	N	
	Claim	Y	2
	Rebuttal	N	
NW2	Ground 1	Y	4
	Ground 2	N	
	Warrant 1	N	
	Warrant 2	N	
	Claim 1	N	
	Claim 2	Y	4
NW3	Ground	N	
	Warrant	N	
	Claim	Y	5
NW4	Ground 1	Y	5
	Ground 2	Y	5
	Ground 3	N	
	Warrant 1	N	
	Warrant 2	N	
	Warrant 3	N	
	Claim 1	Y	2
	Claim 2	N	
	Claim 3	Y	5
	Rebuttal 1	N	
NW5	Ground	Y	4
	Warrant 1	N	
	Warrant 2	N	
	Claim	Y	4
NW6	Ground	Y	2

	Warrant 1	N	
	Warrant 2	Y	2
	Claim	Y	4
NW7	Ground 1	N	
	Ground 2	Y	5
	Warrant 1	N	
	Warrant 2	Reiteration of Rebuttal 1	
	Claim 1	Y	3
	Claim 2	N	
	Rebuttal 1	N	
NW8	Ground 1	Y	5
	Ground 2	Y	5
	Ground 3	Y	5
	Ground 4	Reiteration of Claims 1-3	
	Warrant 1	N	
	Warrant 2	N	
	Warrant 3	Y	5
	Warrant 4	N	
	Claim 1	N	
	Claim 2	N	
	Claim 3	N	
	Claim 4	N	
NW9	Ground 1	Y	4
	Ground 2	N	
	Warrant 1	N	
	Warrant 2	N	
	Warrant 3	N	
	Claim 1	Y	4
	Claim 2	Y	2
	Rebuttal 2	N	
NW10	Ground	Y	5
	Warrant	N	
	Claim	Y	5
NW11	Ground 1	N	
	Ground 2	Reiteration of Claim 1	
	Warrant 1	N	
	Warrant 2	N	

	Claim 1	Y	5
	Claim 2	N	
NW12	Ground	Y	4
	Warrant	Y	4
	Claim	Y	5
NW13	Ground	N	
	Warrant	Y	2
	Claim	Y	2

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