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Put Some Punch in Your Pen

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You may be a great orator, but often written words carry and win a case. In dispute resolution, communicating clearly in writing can be difficult when presenting complex arguments. Many factors contribute to this challenge including competency level of the target audience, overlapping issues and interrelationships between various systems, trades, and people. This paper teaches how to simplify complex arguments by first introducing the basics of logic and logical reasoning. Then a simple set of rules is presented that facilitates writing clearly. Finally, a presented argument is analyzed and broken down into fundamental elements of evidences, assumptions and conclusions. The argument is logically reassembled, strengthened, and integrated into a final written form. Whether on the affirmative or defense, the tools given here will help authors add clarity to their written works.

LOGIC

There are several different fields of study involving logic. The most commonly known types include deductive logic and inductive logic. In deductive logic, statements (or premises) are initially made and assumed to be true. Then, through deductive reasoning, determination of what else must also be true follows. With deduction you can provide absolute proof of your conclusions, given that your premises are correct [1]. Inductive logic is a form of deductive logic that extends to less-than-certain, or probability-based inferences. Inductive argument premises provide some degree of support for the conclusion, but not absolute proof [2]. Because claims work always involves presentation of facts followed by conclusions, this paper focuses primarily on deductive logic.

Deductive logic is not new. Aristotle (384-322 BCE) was the first to study arguing and to formulate logic as a discipline. The form of argument that he identified and systematized used subject-predicate statements in a syllogism (two premises and a conclusion). Because this was the practical form of logic that was used until the nineteenth century, it is known as traditional logic [3] and follows the pattern of deductive logic today.

Logic is "the art and science of thinking" as explained in an 1888 text on logic by St. George Stock, M.A. of Oembroke College, Oxford: [4]

> § 19. The question has often been discussed whether logic is a science or an art. The answer to it must depend upon the meaning we assign to these terms.
> § 20. Broadly speaking, there is the same difference between science and art as there is between knowing and doing. Science is systematized knowledge; Art is systematized action. Science is acquired by study; Art is acquired by practice.
> § 21. Now logic is manifestly a branch of knowledge, and does not necessarily confer any practical skill. It is only the right use of its rules in thinking which can make men think better. It is therefore, in the broad sense of the terms, wholly a science and not at all an art.
> § 22. But this word 'art,' like most others, is ambiguous, and is often used, not for skill displayed in practice, but for the knowledge necessary thereto. This meaning is better conveyed by the term 'practical science.'
> § 23. Science is either speculative or practical. In the first case we study merely that we may know; in the latter that we may do. Anatomy is a speculative science; Surgery is a practical science. In the first case we study the human frame in order that we may understand its structure; in the second that we may assist its

needs. Whether logic is a speculative or a practical science depends entirely upon the way in which it is treated. If we study the laws of thought merely that we may know what they are, we are making it a speculative science; if we study the same laws with a view to deducing rules for the guidance of thought, we are making it a practical science.

§ 24. Hence logic may be declared to be both the science and the art of thinking. It is the art of thinking in the same sense in which grammar is the art of speaking. Grammar is not in itself the right use of words, but a knowledge of it enables men to use words correctly. In the same way a knowledge of logic enables men to think correctly, or at least to avoid incorrect thoughts. As an art logic may be called the navigation of the sea of thought.

In the above prose, notice how the author uses basic facts (which we presume to be true) as building blocks to draw the conclusion that logic is both an art and a science. To remove one of the blocks from the prose is to cause the author's conclusion to become unclear. Consequently, logical navigation of thought, or lack thereof, can make the difference between successful conveyance of credible facts and conclusions, or perceived ignorance.

DEDUCTIVE LOGIC

Generally speaking, there are three parts to arguments:

- Assumptions – Generally an unstated and necessary piece of evidence upon which the argument depends in order to be true.
- Evidence – Information provided by the author to support the conclusion. And,
- Conclusion – The point the author is trying to make.

Deductive reasoning is the process of using evidence that leads to a conclusion. Where assumptions are made, the range of interpretation is broad (see figure 1). As more evidence is presented, that range becomes narrower until there can only be one logical conclusion.
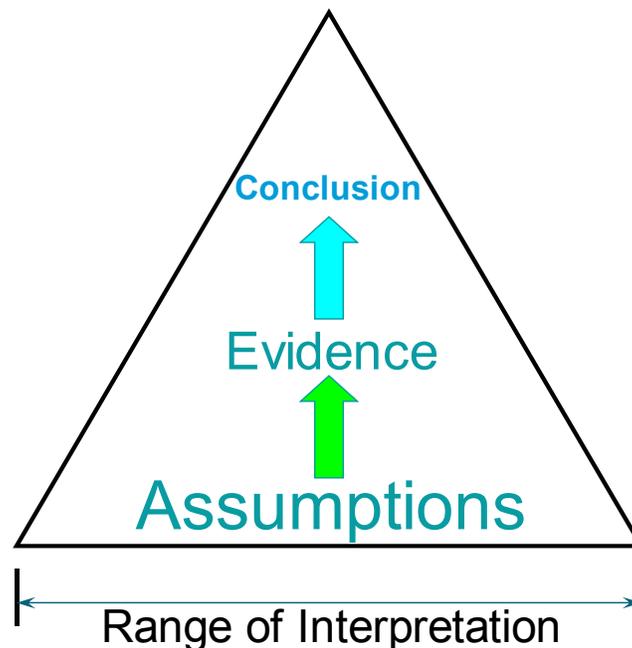

Figure 1─Argument Pyramid

A number of keywords provide indications that the author is presenting evidence:

- Given that…;
- Because…;
- Since…;

- The reason for…;
- The project record shows that…;
- The contractor notified the owner of…;
- Mr. Smith testified that . . .;
- On March 20th, the contractor notified . . .; and
- [Any given statement as fact]

Likewise, there are several keywords signaling conclusions:

- As a result . . .;
- Therefore . . .;
- Thus . . .;
- Consequently . . .;
- So . . .;
- Obviously . . .; and
- Clearly . . .

It is critical that you understand the intent of the author's argument. A few rules to follow include:

- Stay within the context of the information provided by the author. Readers tend to interject personal experiences when interpreting arguments, which can distort clear understanding of the author's intent.
- Separate evidence from conclusions. In a form of simple mathematical addition, words can be aligned to help the reader understand each element of the argument:

$$\begin{aligned} &\text{Evidence(s)} \\ +\ &\underline{\text{Assumptions}} \\ =\ &\text{Conclusion} \end{aligned}$$

- Conclusion answers "What" – What is the author trying to tell me?
- Evidence explains "Why" – Why does the author believe the conclusion to be true?
- Identify assumptions – What else must also be true for the author's conclusion to be true?

To attack and defeat an argument, disprove the author's presented evidence(s) or assumption(s). Conversely, to defend a conclusion, verify that the evidence and assumptions presented are factual and defensible.

LOGIC AND WRITING

Writing begins with the author's thoughts. Even good authors, however, sometimes struggle to put those thoughts onto paper. William Zinsser, author of 17 books – many directed at teaching others to write well – and writing instructor at Yale's Branford College and presently at Columbia University indicated, "there's almost no pedagogical task harder and more tiring than teaching somebody to write." [5] Many people fear writing because they experience difficulty doing so. Zinsser holds that good writing is facilitated by requiring students to write in every curriculum. As an example,

> A science-minded student, if he were encouraged to write about a scientific or
> technological subject... would discover that writing is primarily an exercise in logic
> and that words are just tools designed to do a specific job [6].

Whereas writing is an exercise in logic, it follows that sound logical thought is a prerequisite to writing well. Still, according to Zinsser,

> Writing is hard work. A clear sentence is no accident. Very few sentences come out
> right the first time, or even the third time. Remember this in moments of despair. If
> you find that writing is hard, it is because it **is** hard. [Emphasis in original] [7].

This paper focuses on organizing one's thoughts and arguments logically such that writing them clearly becomes easier.

CLARITY IN WRITTEN COMMUNICATIONS

In his book, "**On Writing Well**" Zinsser presents several chapters on how to communicate effectively through writing [8]. Central to clear written communication is to read it from the viewpoint of the target audience. Common writer errors include:

- Grammatical and typographic errors (referred to as "noise" which detracts from the author's intended message).
- Misuse of words (avoidable by simply using a dictionary to understand the real meaning).
- Clutter (i.e., using 10 words where one word suffices). And,
- Wrong style choice (e.g., mixing first and third person, or past / present tenses).

Committing any one or more of these errors lessens the effectiveness of the writing. Examples of poorly written work products encountered by the author follow.

Example 1
As Written – 54 Words

> The Owner's provided design drawings formed the basis for the contractor's as-bid quantities upon which its price to the owner was predicated. By supplying this criterion, the owner impliedly warranted to the contractor the adequacy of this information for use in design and construction as a matter of law in the state of Ohio.

Breakdown
First Sentence

Original Text	Comment/Critique
The owner's provided design drawings	1. The key subject is the contractor's bid quantities, not the owner's drawings 2. Active vs. passive style. The author used a passive style whereas an active style is more direct [9]. Active style puts the subject as the doer. In passive style, the subject is acted upon. 3. Compound noun, try to simplify (e.g., "owner's drawings" or "contractual drawings" which are known to the target audience to have originated with the owner.)
formed	1. Unclear in how owner's drawings can "form" in the verb sense of the word. 2. Poor word choice and does not sync with the subject. Per dictionary.com the definitions for "form" follows, but none convey the intent of the author: –verb (used with object) 31. to construct or frame. 32. to make or produce. 33. to serve to make up; serve as; compose; constitute: The remaining members will form the program committee. 34. to place in order; arrange; organize. 35. to frame (ideas, opinions, etc.) in the mind. 36. to contract or develop (habits, friendships, etc.). 37. to give form or shape to; shape; fashion. 38. to give a particular form or shape to; fashion in a particular manner: Form the dough into squares. 39. to mold or develop by discipline or instructions: The sergeant's job was to form boys into men. 40. Grammar. a. to make (a derivation) by some grammatical change: The suffix "-ly" forms adverbs from adjectives. b. to have (a grammatical feature) represented in a particular

	shape: English forms plurals in "-s". 41. Military. to draw up in lines or in formation.
the basis	1. The bid quantities were based on the drawings.
for the contractor's as-bid quantities	1. This is the subject and is better positioned at the first of the sentence rather than a direct object embedded in a prepositional phrase
upon which its price was predicated.	1. Redundant and therefore unnecessary to include

Second Sentence

Original Text	Comment/Critique
By supplying this criterion,	1. As written, "the basis" is the criterion, but it makes logical sense that the owner drawings establish the criteria for the bid quantities, which is plural; therefore, the word "criteria" makes more sense
the owner	1. Correct subject used here
impliedly warranted	1. "impliedly" is found in some dictionaries, but is not commonly used 2. Either the owner warranted it or did not. As written, an "impliedly warranted" warranty is less than an implied warranty, and therefore means nothing contractually.
to the contractor	1. Reader expects to hear what was warranted following the verb in the sentence (direct object follows the verb) 2. This is the first prepositional phrase in the sentence
the adequacy	1. Adequacy means something different from accuracy. The author speaks to <u>accuracy</u> (i.e., the condition or quality of being true, correct, or exact; freedom from error or defect; precision or exactness; correctness) of information provided by the owner, rather than <u>adequacy</u> which addresses sufficiency (not correctness) for a particular purpose. 2. The word "adequate" is an adjective, which describes the information the author speaks of. The author has transformed the adjective into a noun thereby necessitating additional words to clarify
of this information	1. "information" is the direct object of the verb "to warrant" 2. This is the second prepositional phrase in the sentence
for use	1. Third prepositional phrase
in design and construction	1. Fourth prepositional phrase
as a matter	1. Fifth prepositional phrase
of law	1. Sixth prepositional phrase
in the State	1. Seventh prepositional phrase
of New York.	1. Eighth prepositional phrase. 2. Like the sound of a car unwilling to start, the reader becomes exasperated by the rhythmic beat of ongoing prose 3. Prepositional phrases can usually be consolidated or deleted without sacrificing meaning.

Re-written and simplified to 21 words

> The contractor's bid quantities were based upon the owner's drawings. Under state law, the owner warrants the accuracy of this information.

Summary of Example 1

The original 54-word paragraph was reduced to just 21 words in simplifying each sentence and eliminating several prepositional phrases. Additionally, the original version conveys uncertainty and an inductive likelihood argument whereas the re-written version is absolute and deductive. Further, the re-written version shows that the contractor's bid was based (past tense) on the owner's drawings and that even though the event happened in the past, the law today (present tense) still applies.

Example 2

    As written – 72 Words

> Contractor found itself in a position where the DOT perceived a safety issue with the developer directed aesthetic design and the DOT standards. The developer refused to keep its contractual obligation and provide written direction to resolve the issue and DOT would not approve the plans for construction to the contractor. In addition, DOT admitted that they were holding the contractor to a higher design standard in design than the DOT standards.

Re-written and simplified to 32 words

> Despite the contractor's proof otherwise, the Developer breached its contractual obligation in failing to provide written direction and securing DOT approval. Additionally, DOT admitted to holding the contractor to a higher design standard.

Summary of Example 2

    Similar exercise of example 2 is omitted herein, but results in the re-write are similar. Word count dropped from 72 to 32 in conveying the same message.

Example 3

    The following example shows how a single word can make an otherwise simple sentence confusing.

> Southern California is dominated by a major tectonic feature known as the San Andreas fault.

    By definition, "dominate" means 1. to rule over; govern; control. 2. to tower above; overlook; overshadow. Just how a tectonic feature can rule over, govern, tower above or overlook Southern California is unclear. The reader is left to guess at what the author really meant. For example, the sentence could be interpreted:

> The San Andreas fault runs the length of Southern California.

>   Or,

> The San Andreas fault is a dominant tectonic feature in Southern California.

>   Or,

> All tectonic features in Southern California originate from the San Andreas fault.

    Any of the above may be correct, or none of them may be correct. The reader simply cannot know because it was written by someone else.

Example 4

    The following sales email contains a typographical error that immediately destroys credibility:

>   Every much features a daring new combination of the season's best exotic fruit. Click here to view the full exotica schedule and learn more!

    The sender meant to say that every "month" a new combination of fruit was available, but that is not how the sentence reads. Instead of focusing on fruit as intended, the reader wonders why the company cannot take the time to proof read its materials. What evidence exists to suggest they can process an order correctly? How will they treat personal credit card information?

    Similar errors in an exert report or legal briefing spread doubt of the author's abilities and all content in the document. The correction is simple: Proof read everything before issuing it. It is also helpful to have others proof read the written work before releasing it.

Example 5

Quotations are commonly used in written reports. Such quotations can serve as strong evidence in making a point, but frequently they must be scrutinized and placed into proper context to ensure correct understanding. The following quote was written on an injury report as the sole evidence for a worker's compensation claim:

> Hurt back on deck screwing studs

Further investigation revealed the worker was a carpenter who experienced back pain while using a drill to erect a stud wall. This conclusion may appear obvious, but as written, the words begged for misinterpretation.

Verbal communications can mimic the same error. The following quote was overheard on a flight:

> Sir, can you bring your shade down? It's right in this gentleman's eye.

The argument presented by the flight attendant was simple. If the window-seated passenger pulled down the shade, the isle-passenger would no longer be discomforted by having the sun shining in his eye. As stated literally, however, one of the passengers had a window shade in his eye, which of course was not the intended message. The flight attendant's actual quote could not stand alone in written form without detracting from the intended argument.

Recap

The above examples are not comprehensive of all possible misfires in written communications, but instead touch on commonly observed errors. Stated plainly, a few simple rules that facilitate clear written communication in claims work include:

- Keep sentences simple and concise; avoid using excessive prepositional phrases.
- Choose to write in the active voice where possible because this style is more direct than a passive voice.
- Use a dictionary; understand the meanings of words used.
- Proof read written work before release to verify interpretation and to catch typographical, punctuation and grammatical errors.

Presenting logical arguments in writing is made more effective by following these rules.

COMMON LOGICAL FLAWS

Authors frequently commit logical errors when presenting arguments. When errors are exposed, arguments fail. A comprehensive list of logical fallacies is lengthy and beyond this paper's scope, however, a few common flaws observed in claims work is presented in table 1.

Table 1 Common Logical Flaws in Claims Writing		
Logical Flaw	**Example**	**Comments**
Incorrect Evidence: The evidence presented simply does not apply to the issue at hand.	Contractor was unable to commission the power plant because the all of the plants died and landscaping had to be redone.	Unless some extraordinary reason exists, Landscaping has no bearing on the equipment needed to commission the plant.
Unwarranted Assumptions: The argument's conclusion depends upon an assumption to be true with is later demonstrated to be false or unwarranted.	Subcontractor X placed the wrong concrete mix in the foundation. As a result, Subcontractor X must pay to remove and replace the foundation.	There may be another reason why the mix was placed. For example, Subcontractor X may have been instructed by the prime contractor to place the mix.
One/Few to Many: Applying facts of one or few to a group or large population.	Ron is a labor union member interested in maximum pay for the least work. Therefore, all labor union members are interested earning the highest wages for the least work.	One example does not mean that the same applies to an entire group or population.

Table 1 Common Logical Flaws in Claims Writing		
Use of Percentages: Using percentages instead of actual numbers to support an argument	Contractor was late 30 percent of the time. Therefore, Contractor is responsible for 30 percent of the total project delay.	How is time measured? What if contractor only worked for half of the total construction days?
Filler / "Red Herring" Tactics: The argument focuses on other issues not germane to the primary subject matter.	I understand that we delivered the lumber package late, but you punctured the water main and failed to call the utility about it.	Late lumber package is the key subject, not the water main puncture, which is irrelevant to the subject.
Significance: An improper conclusion is drawn by misinterpretation of the significance of a statement.	Because there was a one percent increase in unemployment last month, it follows that a period of higher unemployment is developing.	More information is needed to gauge significance of the increase. One month increase does not necessarily indicate a trend of many months to follow.
Non Sequitur ("it does not follow"): Jumps to a conclusion without basis within the argument.	Owner Y is notorious among contractors for being overly strict. Therefore, contractors should never work for owner Y.	A strict owner is not a logical reason for contractors not to seek working for them

ANALYSIS OF AN ARGUMENT

The following example presents a simple argument as if written for a claim. The argument begins with one piece of evidence and a single conclusion. This simple argument is made stronger by identifying assumptions and adding evidence.

> Given that the contractor failed to provide sufficient workers on the project, the contractor is responsible for five weeks of delay.

> Evidence 1:   Contractor failed to provide sufficient workers.
> Conclusion: Contractor is responsible for delay.

The author's intent is to assign delay to the contractor. The argument was then broken into evidence and the conclusion. Assuming the presented evidence to be true, we then ask ourselves, "What assumption(s) is necessarily true for the author's argument to remain true?" Staying within the context of information provided by the author we identify an assumption:

> Assumption 1:   Contractor's insufficient number of workers was the only cause for the delay.

If the objective were to destroy the argument, one needs to demonstrate that there was another reason for delay. To strengthen the argument, an expert analysis could be used to validate this assumption. Presume that such an analysis actually took place, after which the argument would be revised to add more evidence:

> Evidence 2:   An expert's productivity analysis shows that the contractor had internal knowledge that its failure to meet the schedule was caused by its own insufficient manpower.

Again, the question is asked, "What assumption(s) exist that must necessarily be true to support the conclusion now?" Two additional assumptions are identified:

> Assumption 2:   The expert's analysis is accurate.
> Assumption 3:   The expert's analysis is unbiased.

A thorough evaluation of the expert's analysis would follow. If errors are found therein, the argument fails. To demonstrate non-bias, the argument could be revised yet again with additional evidence:

Evidence 3:   Project records X, Y and Z clearly show that all subcontractors complained of being delayed where work overlapped with the contractor.

The subcontractors now speak for themselves through their own contemporaneous documentation, rather than an expert rendering an opinion.

The process of again identifying assumptions is made. Arguably, the process cycles in an endless loop, but eventually the range of interpretation as shown in figure 1 becomes narrow enough to logically draw a single conclusion. Assuming this point is reached here, the final argument then becomes:

The contractor failed to provide sufficient workers as demonstrated in the expert's analysis. The analysis relied upon the contractor's own contemporaneous records. Results show that the contractor had internal knowledge of its labor deficiencies, that those deficiencies were delaying the project and that all subcontractors whose work overlapped with the contractor were also delayed. Consequently, the contractor is responsible for five weeks of delay.

This final argument is much stronger than the original, simplified version. For construction claims, strengthening this argument as indicated above requires significant amount of analysis and preparation of an expert report. Likewise, to defeat it also requires significant effort. The cliché "Truth finds daylight" applies here. Arguments supported by facts and evidence win.

Clear written communications are critical to establishing logical arguments. Arguments may be broken down into evidences, assumptions and conclusions. Strong, convincing arguments provide sufficient evidence to support assumptions and lead to logical conclusions. Using concise text in the active voice is more direct and effective than long, drawn out prose. Anything which detracts from the author's intended message should be avoided.

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