

Techniques for Introducing Unfamiliar Terms

Running head: Introducing Unfamiliar Terms

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ABSTRACT

Purpose: This investigation identifies, classifies, and explains a wide range of techniques for introducing unfamiliar terms into a document. It enables professional writers to improve their writing. These techniques are also applicable to spoken discourse, including multimedia and interactive dialogs.

Method: The investigation employs a linguistic framework derived from applied linguistics, psycholinguistics, and eye-movement research. The framework consists of (1) the triad of term, class, and characteristic, most familiar in the context of formal definition, (2) the location of the unfamiliar term in relation to the other parts of the explanation, (3) the distinctive marking of the term, usually with quotation marks or italics, and (4) the effect of explanatory context.

Results: Certain syntactic constructions and also distinctive marking assure readers that either the unfamiliar term will be explained or that an explanation of the term is not necessary for a productive reading of the text. Class-first constructions are especially versatile in introducing unfamiliar terms. Ongoing changes in reading and writing may lead to changes in the techniques used to introduce unfamiliar terms. Special cases are examined: parenthetical constructions, “so-called” as a means to introduce unfamiliar terms, the uses of extra-linear display (above-the-line and pop-up definitions), the problem of multiple instances of unfamiliar terms in lengthy documents, and the distinctive practices we find in online help systems.

Conclusion: The linguistic framework developed here contributes to our understanding of how to introduce technical terminology and can improve the work of writers.

KEYWORDS

Terminology Explanation Definition Signaling Technical text

PRACTITIONER'S TAKEAWAY

- Linguistic analysis provides a new perspective on introducing unfamiliar terms in print and online documents.
- This new perspective extends previous thinking because it is more systematic, offers deeper-level explanations, and reveals a larger number of specific techniques that writers can add to their repertoire.
- It also makes better sense out of the practice of marking unfamiliar terms with italics and quotation marks, a practice specified but never adequately explained in style manuals.
- Its emphasis on the location of the term within the sentence and passage in which it appears is especially suited to the work of professional writers.

BIO

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Technical and professional communication often requires the introduction of terminology that will be unfamiliar to some or most of the intended audience. Unfamiliar terminology appears most often in documents on technical topics intended for general audiences. Unfamiliar terminology appears less frequently in technical documents written for highly technical audiences, for here the writer and audience share a great deal of technical knowledge and vocabulary (Bramki & Williams, 1984).

There are a great many ways to introduce unfamiliar terms into English language texts; other languages have different linguistic resources (Jian, Chen, & Ko, 2013). Each language must provide a great many choices because (a) different ways of introducing an unfamiliar term have subtly different meanings and different consequences for the further reading of the text and (b) because in each instance writers face particular constraints, making certain choices possible but excluding many others.

Proficient writers and especially technical communicators routinely use a wide range of techniques for introducing unfamiliar terms. But there is no reason to think that any individual writer is in command of all the techniques that he or she might find useful or has the in-depth understanding of these techniques to draw upon in problematical situations. Furthermore, this has not been an active research area, and few new insights have emerged in recent years. In the analysis that follows, I identify, explain, and classify a large number of techniques using a broad linguistic framework that provides an in-depth and systematized understanding of these techniques—some of which have never been looked at carefully. I also point out limitations in our understanding of some of these techniques, some changes that are taking place now, and some that are likely to take place in the next few decades.

In addition to supporting sophisticated professional practice, this analysis can benefit instructors teaching advanced technical communication courses and may perhaps form the basis for future research. This analysis and the techniques that derive from it apply to a wide range of document genres, including online help. The analysis and techniques apply as

well to oral discourse, including speech multimedia and interactive dialogs (e.g., Amazon's Alexa), if allowance is made for the phonology of spoken language.

The previous work most helpful to my investigation comes from the field of applied linguistics, especially from researchers who have developed pedagogies for non-native speakers learning to read, listen to, and write English. These linguists have devised numerous schemes for classifying all the ways in which unfamiliar terms can be explained when first introduced into discourse (Bramki & Williams, 1984; Flowerdew, 1992; Nation, 2013, pp. 122-26). I synthesize these classification schemes here:

1. Formal definition: The term is placed within a class and a distinguishing characteristic ("differentia") logically excludes other members of the class. Often but not always, formal definitions follow the formula An X is a Y that Z. For example: A dentist is a health care professional who treats conditions and diseases of the teeth and gums. The standard formula is not followed in this re-arrangement: The health care professional who treats conditions and diseases of the teeth and gums is the dentist.
2. Definition by placement within a class. For example: A dentist is a health care professional.
3. Definition by characteristic. The term is not placed within a class but is explained by one or more highly meaningful characteristics—including physical properties, composition, and function. For example: Dentists care for the teeth and gums of their patients. (This is often called an operational definition.)
4. Approximate formal definition. The explanation resembles a formal definition but by intention is imprecise in minor ways or does not fully meet the logical requirements of a formal definition. In certain contexts the rigor of a formal definition is not needed. The following is an approximate formal definition because it excludes dental assistants: Dentists are the health care professionals who care for the teeth and gums of their patients.

5. Explanation by means of one of the following: a synonym or paraphrase; the term's derivation (for example, its Latin roots); an antonym; or a comparison (An X like a Y but . . .).
6. Explanation by means of examples. For example: She was careful to eat a lot of legumes (beans, chickpeas, peanuts).
7. Explanation that arises from the context. For example, in a later section of this article I use my newly coined term "naked introduction" (by which I mean an unfamiliar term that is introduced into discourse without any sort of helpful technique). When the term appears in that section, there is no need for any sort of explicit explanation (including the explanation I have just provided) because its meaning has been implicitly established bit by bit within that section through examples and commentary.
8. Explanation that derives from a graphic or some kind of demonstration. As an example, the simplest and most direct way to explain the oral cavity to new dental students might be a diagram.

Within the field of technical and professional communication, guidance regarding unfamiliar terms is largely limited to textbooks, usually a chapter or section on definition (Reep, 2011) or technical description (Johnson-Sheehan, 2012). Textbooks always explain formal definition and often have a contrasting category—informal definition—a broad, catch-all category encompassing synonyms and paraphrase, placement within a class, explaining by example, and explaining by characteristic. A third category, in these and other textbooks, is expanded (or extended) definition or else technical description. This usually consists of a formal definition expanded through multiple means of topic development. (Note that in this article, I switch between using "definition" and "explanation" as the context suggests, without making a strict distinction between the two words. So too with "document" and "text.")

Style manuals (which in fact focus much more on usage than writing style) are important because they guide a wide range of professionals in preparing documents for

print and online publication. Style manuals discuss technical terminology almost entirely in the context of visually marking the term by means of quotation marks, italics, and (sometimes) boldface. Their guidance, I will argue, is inadequate

LINGUISTIC FRAMEWORK

The linguistic framework that underlies my classification and analysis of techniques for introducing unfamiliar terms follows:

1. The **triad** of term, class, and characteristic.
2. The **location** of the term in relation to the class and characteristic. Because of the importance of the location, my primary classification of techniques is this: term first, class first, and characteristic first.
3. The **distinctive visual marking** of the term.
4. The effects of **explanatory context** (Brusnighan & Folk, 2012). In many instances, there is lead-in text that precedes the explanation. Does this lead-in text help to explain the unfamiliar term, and is this explanatory context weak or strong? When the lead-in text establishes meaningful context for the explanation, the boundary between the lead-in text and the beginning of the explanation may be fuzzy.

The concepts embodied in this framework constitute a systematic perspective on introducing unfamiliar terms and enable precise and fine-grained analyses of individual techniques. The framework's emphasis on the location of the term within the sentence and passage in which it appears is especially suited to the work of professional communicators because writers need to achieve cohesion with the sentence immediately preceding and immediately following the explanation as well as desired stylistic effects, in particular emphasis (Halliday & Hasan, 1976).

In illustrating various ways to introduce unfamiliar terminology, I mostly use examples that are variations on Example 1:

Megatharp scritulation is a polymer technology that significantly increases the stiffness of plastics under heat and pressure by limiting the tharp density. [1]

I do so in order to make it easier for readers to compare the numerous syntactic constructions without the distraction of different content. Furthermore, this sentence employs an unfamiliar term—“megatharp scritulation”—that will be truly unfamiliar to all readers because the term is built around the meaningless morphemes “tharp” and “scrit.”

Example 1 is a standard formal definition in which the term is the first-appearing member of the triad. The class is “polymer technology.” The characteristic is “significantly increases . . . tharp density.” Note that the unfamiliar term is introduced without distinctive marking and without any lead-in text to establish context. Moderately strong context would be established if the sentence began like this: “The fabrication unit incorporates megatharp scritulation, a polymer technology that . . .” Still stronger is this: “The ionization chamber of the fabrication unit incorporates megatharp scritulation, a polymer technology that . . .”

Note also that I might have chosen a different morpheme as the suffix of my example sentences. For example, instead of the process morpheme “ulation,” I might have used the morpheme “ates.” In that case the unfamiliar term “megatharp scritulation” becomes “megatharp scritulates,” a plural noun indicating a family of substances:

Megatharp scritulates are additives that significantly increase the stiffness of plastics under heat and pressure by limiting the tharp density. [2]

Finally, you will see that my numbering of the example sentences occasionally includes brief annotations for clarification.

TERM-FIRST CONSTRUCTIONS

Traditionally phrased formal definitions (An X is a Y that Z) are one kind, but only one kind, of term-first construction. Term + characteristic constructions are also prevalent. Just a single well-chosen characteristic may be sufficient for the audience’s information needs:

A macro enables computer users to automate frequently performed tasks. [3]

Often the term appears initially at the end of a lead-in sentence, and its re-appearance at the beginning of the explanation achieves sentence-to-sentence cohesion, an aspect of the “given-new contract.” (Clark & Haviland, 1977):

The fabrication unit of the Colorado plant employs “megatharp scritulation.” Megatharp scritulation significantly increases the stiffness of plastics under heat and pressure.

[4. The characteristic is “significantly . . . pressure.” The lead-in sentence provides strong context.]

There are also term + class constructions:

Megatharp scritulation is an important polymer technology. [5]

As shown in the next three examples, class can vary greatly along a continuum between specificity and generality. Specific classes provide more information; general classes provide less. The level of generality of the class can extend even to content-free function words such as “something.” Note that, following accepted usage, the unfamiliar term in each of these examples has been given some form of distinctive marking (boldface, italics, quotation marks):

Megatharp scritulation is an advance in molecular-density polymer chemistry that significantly increases the stiffness of plastics under heat and pressure.

[6. The lengthy class—“an advance . . . chemistry”— is specific and informative.]

Megatharp scritulation is a technology that significantly increases . . .

[7. The class—“a technology”—is less specific and informative.]

“Megatharp scritulation” is something that significantly increases . . .

[8. The class—“something”—is only a function word.]

The next term-first construction is an approximate formal definition:

Megatharp scritulation is an important technology that was developed as a military R&D project. [9]

Readers immediately recognize that the characteristic “developed as a military R&D project” is far too general to exclude all other members of the class “important technology.” Many important technologies have been developed as military R&D projects. Readers, therefore, interpret the sentence correctly as conveying two separate facts about megatharp scritulation.

DISTINCTIVE MARKING AND “ASSURANCE SIGNALS”

Style manuals regularly specify some form of distinctive marking (or “treatment”) of special words, in particular the first occurrence of technical terms and key terms. This is the case with the *Publication Manual of the American Psychological Association* (American Psychological Association, 2009), the *Chicago Manual of Style* (University of Chicago Press, 2017), and Wikipedia’s *Manual of Style* (Wikipedia, 2018). However, the guidance they provide is inadequate.

Style manuals perform several different and somewhat conflicting functions. They aim to provide guidance that works well in each individual instance, but they also strive to promote or enforce consistency within documents and among classes of documents. They must also give writers reasonably quick answers rather than burden them with detailed discussions full of distinctions and caveats. Partly for this reason, style manuals very often use “technical” as a proxy for the more subtle concept of “unfamiliar” in their guidance on the complex issue of terminology. This lack of nuance, however, proves problematic. In the *APA Publication Manual*, the most influential of our style manuals, the guidance most pertinent to unfamiliar terminology is this item in a list of uses for italics (p. 105, section 4.21):

- Introduction of a new, technical, or key term or label (after a term has been used once, do not italicize it).

Note that “new” terms, in the sense of coinages, need not be technical or even difficult to understand. If we take “new” to mean unfamiliar terms (new to the intended audience), we have acceptable guidance, with the drawback that in many syntactic constructions italics are not needed with unfamiliar terms. The stipulation of “technical” is problematic because in a document written for a technical audience, there will be a great many technical terms (technical from the perspective of a layperson), but many of them will be entirely familiar to the audience. What then is the threshold for technicality? Key terms may be technical or non-technical, familiar or unfamiliar. If followed closely, the guidance offered here will result in the very extensive use of italics for terminology. To complicate matters, the *APA Publication Manual* offers a broader guideline stating “In general, use italics infrequently” (p. 104, section 4.21).

The relevant guidance in the *Chicago Manual of Style* (432–34, sections 7.49–7.53) focuses on emphasizing certain words, does not use the word “technical” or “unfamiliar” (except for “familiar” in regard to words from other languages), and is very generally phrased. The guidance in the *Wikipedia Manual of Style* is open-ended but straightforward: “The first occurrence of a technical term may be both italicized (or quoted)” (Wikipedia, 2018, “Words as words”).

The guidance provided in the style manual *Words Into Type* (Skillin & Gay, 1974, p. 218), long out of print but highly respected in its day, is better because it incorporates the idea of unfamiliar terminology:

An unusual or technical term presumably unfamiliar to the reader may be enclosed in quotation marks . . . or italicized . . . only the first time it is used.

Interestingly, the 1969 edition of the *Chicago Manual of Style* comes closer to the mark than the current edition because it calls attention to those technical terms that (being unfamiliar) are defined in the document (p. 143, section 6.45):

A technical term, especially when it is accompanied by its definition, is usually set in italics the first time it appears in a discussion.

We see that the close connection between distinctive marking and both technical and unfamiliar terminology has long been recognized. We also see that the guidance is problematic and, at its best, does little to increase our understanding of how to introduce unfamiliar terminology.

Experimental psychologists studying text processing and comprehension recognize distinctive marking as a form of text signaling that increases retention by indicating the importance of the term (Nevid & Lampmann, 2003; Lorch, Lorch, & Klusewitz, 1995). However, this broad, undifferentiated view of distinctive marking is of limited use to writers. Distinctive marking is ignored by Flowerdew (1992) and mentioned only glancingly by Bramki & Williams (1984) and Nation (2013).

Farkas (1983), drawing upon the psychophysiology of eye movement during reading and appealing to the common experience of readers, proposed that the distinctive marking of unfamiliar terms sends a useful signal to the reader. It signals the writer's awareness that the term is likely to be unfamiliar to the audience and assures readers that the writer will either explain the term or has written the document so that no more explanation than what the context has supplied will be necessary for a productive reading of the document. The signal, of course, is just a signal, not a guarantee that the writer will follow through.

Example 10 illustrates the problem that distinctive marking prevents:

We are seeing the widespread adoption of megatharp scritulation. Extensive testing has shown that . . .

[10. No distinctive marking is applied to "megatharp scritulation."]

Here the writer has not signaled in any way that he is taking into account the possibility that the reader doesn't know this highly specialized term. Reading includes a process of self-aware "comprehension monitoring" (Yang, 2002) in which readers recognize when they have encountered something they do not understand. Because of the "naked" introduction of the unfamiliar term in Example 10, the reader may well wonder if she is about to be left behind in the ensuing discussion. Will this gap in knowledge prove

troublesome? Are there likely to be more such unfamiliar terms? Perhaps the writer has misjudged the technical background of the intended audience. Perhaps the reader has picked up a document intended for an audience of which she is not a part. Distinctive marking prevents such moments of uncertainty by sending an “assurance signal” that the writer recognizes that the term will likely be unfamiliar to the reader. The problem is amplified in Example 11, where two highly specialized terms are introduced nakedly:

We are seeing the widespread adoption of megatharp scritulation. By limiting the tharp density, a significant increase . . . [11]

Whittlesea & Williams (2001) show that unexpected vocabulary, including meaningless terms, can generate an affective response of “surprise” and “uncertainty.” When style manuals prescribe distinctive marking for technical or unfamiliar terms, the reason may well be that their authors sense the momentary uncertainty that can arise from the naked introduction of such terms.

Eye-movement research confirms at the very least that problematic vocabulary disrupts the reader’s eye movement. It causes longer “fixations” (moments in which a short segment of text is processed), shorter “saccades” (jumps from one short segment of text to the next), less use of parafoveal vision (a field of view that is less clear than that of the central retina) in processing upcoming text, and more “regressions” (backward movements to re-process text) (Rayner, Pollatsek, Ashby, & Clifton, 2012). One important category of problematic vocabulary is an unfamiliar term. Just, Carpenter, & Woolley (1982, p. 231) report that unfamiliar terms such as “thermoluminescence” require a large amount of extra time (in this instance 1,369 milliseconds) for processing. Furthermore, significant problems with vocabulary can trigger high-order processing that readers will be aware of (Rayner et al., 2012, p. 172).

Eye-movement researchers very often devise experiments intended to test and advance models of reading. As a result, there are many experiments in which participants respond to strangely constructed (often ambiguous) sentences that would not occur naturally. Eye-movement researchers are also interested in how children learn to read, and conduct

studies in this area. But I have not found any eye-movement research that directly addresses the choices made by skilled writers in introducing unfamiliar terminology.

I myself experienced a moment of uncertainty and irritation, and I paused in my reading for at least a full second when I encountered the term “lidar,” which I had never seen before, while reading this passage from the print edition of *Bloomberg Businessweek*:

Driverless cars struggle with weather because it sidelines cameras and lidar, two of their four kinds of sensors: Cameras are useless in heavy snow and fog, and the lasers that emanate from lidar careen wildly off snowflakes and raindrops [12. Stock, 2018, p. 27].

It is interesting that my response to the unfamiliar term was not mitigated by the article’s earlier mention of two related concepts, sensors and ground-penetrating radar.

Judgments about moments of uncertainty must be made cautiously. Readers differ significantly in their technical backgrounds, reading skills, reading habits, reading histories, and even reading temperaments (Lee, 2005). Also, in each situation the reader has particular reading goals. Furthermore, each document is unique. The reader’s reaction to any passage in which an unfamiliar term is introduced will be conditioned by the genre and, to some degree, by all the text preceding the introduction of this term, including the reader’s possible perception of how well the writer seems to be attending to the audience’s information needs. In regard to reading goals, I will speculate that my affective response to encountering “lidar” would have included distress if I had been reading an important workplace document.

On the basis of this broad examination of the processing of unfamiliar terminology, I maintain that although there are numerous variables to consider and no experiments that bear directly upon the question, there is significant evidence that passages such as Examples 10–12 are apt to generate uncertainty in a mainstream reader who is unfamiliar with the term being introduced.

An important but very complex question is just how much physical distance there must be between an unfamiliar term and some indication that the term will be explained before

at least some readers experience uncertainty. In Example 13, the repetition of the unfamiliar term in the second sentence is a cue suggesting that the term will be explained:

The fabrication unit incorporates megatharp scritulation. Megatharp scritulation significantly increases . . .

[13. Should the first instance of the term be distinctively marked?]

This cue comes only two character spaces after the last letter of the term. On the other hand—as noted above—problematic vocabulary tends to halt the reader’s forward movement through the text, as do syntactic boundaries such as the end of a sentence and the beginning of the next. In constructions such as these, distinctive marking is certainly acceptable and perhaps advisable (especially to achieve consistency within a document and to follow a house style), but it is also plausible that a naked explanation would not be a problem for many readers given the small physical distance.

Finally, distinctive marking is not needed in situations in which the context makes clear that the writer assumes the audience is unfamiliar with the term:

Although we all welcome more durable consumer products, we rarely think of the research that leads to such advances. For example, outside of the field of polymer chemistry, few people have heard of megatharp scritulation. [14]

Paradoxically, however, in situations like this, the term may well be boldfaced in adherence to a different convention: the convention that specifies applying boldface or italics to a term that will be key in a discussion.

CLASS-FIRST CONSTRUCTIONS

Many class-first constructions are both effective and versatile in introducing unfamiliar terms. They send a strong assurance signal, preclude momentary uncertainty, and generally render distinctive marking redundant. These constructions use some kind of naming word or phrase such as “called,” “termed” or “known as” to connect the class to the term (usually with the indefinite article “a” or “an”), and they perform the speech act of

defining (Pearson, 1998). In so doing, they make clear that the writer understands that the term is likely to be unfamiliar to the reader.

Here the general class “technology” precedes the unfamiliar term:

A technology called megatharp scritulation significantly increases the stiffness of plastics under heat and pressure.

[15. This is an approximate formal definition. Other technologies may do the same.]

Looking back to our earlier discussion of distinctive marking, we can presume that distinctive marking, like class-first constructions, also sends its assurance signal by performing the speech act of defining, although in an implicit rather than explicit manner, using typography or punctuation (specifically quotation marks) rather than words.

Not all class-first constructions indicate that the term is unfamiliar. Here megatharp scritulation is being placed in the class of long-ignored processes. The information conveyed by the class phrase is noteworthy, but megatharp scritulation is not being introduced as an unfamiliar term:

When General Polymers first employed the long-ignored process of megatharp scritulation, the entire industry took notice. [16]

Note that there is no naming word connecting the class to megatharp scritulation and that the definite article “the” preceding the class implies that the reader is expected to know the term.

When class-first constructions do convey an assurance signal and when term-first constructions have distinctive marking, there is no need for the unfamiliar term to be explained *at all*. In the following example, with its focus on business, the reader doesn’t know whether the writer will take any further interest in the technology that is increasing revenue. But the reader does know that it will not be necessary to learn anything more about megatharp scritulation in order to productively read the text:

By implementing what is called megatharp scritulation, General Polymers increased revenue by 20%. Analysts forecast . . . [17]

It is, however, necessary, or at least highly advisable, to use quotation marks when a familiar word is being used in a highly specialized sense (essentially, as an unfamiliar term):

They employed a pressure-control valve called a “top-hat” to try to stop the flow. [18]

The quotation marks make it immediately clear that the writer is not referring to an actual hat, and they are highly advisable even when the context or the class makes clear that a familiar word is being used in a highly specialized way.

Example 19 demonstrates how a writer can split the explanatory content, placing a significant amount of explanation before the unfamiliar term in a class phrase expanded with a relative clause (“a cost-effective technology that improves . . . products”) and more explanatory content in a follow-up sentence:

They discussed a cost-effective technology that improves the durability of many consumer products. Known as megatharp scritulation, it significantly increases the stiffness of plastics under heat and pressure. [19]

One very useful function of class-first constructions and one that appears in many variations is identifying a particular discourse community to which the term belongs:

The fabrication unit incorporates a cost-effective technology that polymer chemists call megatharp scritulation. It significantly increases the stiffness of plastics under heat and pressure.

[20. The construction refers to the community of polymer chemists.]

The practice of identifying a discourse community includes constructions in which a writer indicates that the unfamiliar term is the writer’s own coinage: “An approach that I call megatharp scritonics.” [21].

Often there is no good reason to burden readers with an unfamiliar term that is not going to appear again in the document. Class-first constructions enable the writer to explain the concept while omitting the term:

They developed a polymer technology that increases the stiffness of plastics under heat and pressure. [22]

One potential pitfall is using an overly specific class word or phrase (in this case “tharp-density technology”) that will itself be unfamiliar to much of the audience:

The prototype employs a tharp-density technology known as megatharp scritulation to increase the stiffness of plastics. [23]

While class-first constructions add extra verbiage, we see that they are highly versatile. Finally, class-first constructions are often used in oral discourse to provide a stronger and more reliable assurance signal than is possible with pitch accent (the oral equivalent of distinctive marking) (Selkirk, 2003). I have many times heard both broadcasting professionals and casual speakers employ the phrase “something called a” before using a term that they think will be unfamiliar to the audience.

CHARACTERISTIC-FIRST CONSTRUCTIONS

Very often the need for cohesion or the desire for emphasis leads writers to choose a construction that will place the characteristic before the unfamiliar term. The thoughtfully discussed examples of characteristic-first constructions offered long ago by Britton (1964) remain interesting and useful today. Characteristic-first constructions do not require an assurance signal because the reader has read the explanation (or much of the explanation) before encountering the term. One could say that with characteristic-first constructions there are no unfamiliar terms (and no naked explanations) because the terms have been made familiar before being introduced.

Here is a straightforward characteristic + term construction:

Plastics can be made stiffer under heat and pressure using megatharp scritulation.

[24. The characteristic states what megatharp scritulation does.]

This next example adds an informative class phrase (“a cost-effective technology”):

The stiffness of plastics under heat and pressure can be significantly increased using a cost-effective technology known as *megatharp scritulation*.

[25. Even when it is not necessary, writers may still favor distinctive marking.]

It is also possible to place the class last in a characteristic-first construction. This might be done if the writer wants to focus attention on the class phrase (in this case “an exciting application of the . . . technology”) rather than the term:

Plastics can be made stiffer under heat and pressure using megatharp scritulation, an exciting application of the long-ignored “tharp-density” technology.

[26. The unfamiliar term appears after the characteristic but before the class.]

Note that distinctive marking has been applied to “tharp density,” another unfamiliar term that is part of the lengthy class phrase. This is because the characteristic-first construction explains megatharp scritulation, but not tharp density.

PROSPECTS FOR DISTINCTIVE MARKING AND ASSURANCE

SIGNALS

Awareness of the issues surrounding distinctive marking and assurance signals enables writers to make their own decisions about whether and how they will employ distinctive marking in term-first constructions, class-first constructions, and characteristic-first constructions. A writer might judge a naked explanation to be acceptable if the context partly explains the term or signals that it will be explained or if the term’s constituent morphemes are meaningful and/or if the beginning of the explanation comes a very short distance after the term. A naked explanation eliminates the extra verbiage of a class-first construction or the extra visual complexity of distinctive marking, thereby giving the document a cleaner, more contemporary look. If, however, the writer chooses to send an

assurance signal, the writer can choose between the lighter touch of distinctive marking or the stronger, more reliable verbal signal of a class-first construction—or can use both.

Looking to the future, we may see a smaller role for distinctive marking in the introduction of unfamiliar terms. There is a broad trend toward less punctuation and less use of distinctive marking, especially for expository writing on the Internet, and there are also more pervasive changes taking place in reading and literacy (Liu, 2005), including, of course, social media. Future readers, raised on the Internet and on the shortcut language of social media and texting (with their very different uses of distinctive marking), may not be able to reliably interpret distinctive marking when used for unfamiliar terminology.

If distinctive marking fades as a means to introduce unfamiliar terms, writers may compensate by making more use of class-first constructions, characteristic-first constructions, and other verbal techniques when they want to reliably indicate that an unfamiliar term is being introduced. Alternatively, writing practice may increasingly permit the naked introduction of unfamiliar terms. Another factor, discussed below, is that today's readers can often display the definitions of unfamiliar words through extra-linear means: dictionary look-up, above-the-line synonyms, and pop-ups. In response to changes in literacy and text-display technology, style manuals may eventually rely less on distinctive marking in their guidance on introducing unfamiliar terms. One reason I have long maintained an interest in unfamiliar terminology is that with the never-ending changes in language use and technologies that pertain to writing and reading, established answers are never final.

SPECIAL CASES AND CAUTIONS

Here is further discussion that includes some additional techniques for introducing unfamiliar terms. In some cases, the basis of my argument lies somewhat outside the linguistic framework presented at the beginning of this investigation.

Parenthetical constructions

Parentheses (along with commas and dashes) are often used to briefly explain unfamiliar terms, most often with a more familiar approximation that may be a true synonym, a paraphrase, or a class that functions much like a synonym. In the next three examples, the approximation is the class phrase “statistical technique.” In Example 27, the appearance of the unfamiliar term within parentheses indicates that the unfamiliar term is a non-essential item of information that the writer has included only for the benefit of the more technical part of the audience:

They employed a statistical technique (probability distribution) to assess . . .

[27. The class phrase is “statistical technique.”]

In Example 28, “a statistical technique,” appearing within parentheses, explains the unfamiliar term “probability distribution” but does not reduce its importance in the document:

They employed probability distribution (a statistical technique) to assess . . . [28]

When the term precedes the explanation in a parenthetical construction (including those that use dashes), the explanation will appear just a few character spaces after the term. Even so, a writer may choose to send a strong assurance signal by applying distinctive marking to the term:

They employed *probability distribution*—a statistical technique—to assess . . . [29]

“So-called”

You must take special care with “so-called.” This phrase has traditionally been used to express an ironic or skeptical stance toward a word and, by extension, the people who created or use it. A famous instance is Merle Haggard’s “Keep your retirement and your ‘so-called’ Social Security” [30. Haggard & Holloway, 1981]. Increasingly, however, “so-called” is being used straightforwardly as a verbal technique for introducing an unfamiliar term, somewhat akin to the class-first constructions seen above:

To be sure, there are different types of bull markets—so-called cyclical bulls that tend to run alongside a single economic expansion, as well as so-called secular bull markets that may last for more than a decade . . . [31. Lim, 2012]

We see that the phrase “so-called” is undergoing a process of change. Therefore writers who embrace the newer use of “so-called” as one more means to introduce an unfamiliar term must ensure that the context does not allow readers to mistakenly infer an ironic or skeptical intention.

Extra-linear display

Text-display technology often makes it possible for today’s readers to view definitions that are not formatted as traditional expository prose but rather are displayed outside the lines of text (“extra linearly”) when the reader performs an action (such as selecting or clicking) or turns on a feature. The dictionary look-up extensions available in web browsers enable readers to select a word and then view a pop-up definition of that word. The Word Wise feature in the Kindle eBook reader, when turned on, displays above-the-line synonyms or paraphrases for many words. (Other eBook readers also provide extra-linear definitions.)

Vanguard.com (Vanguard Group, 2018) allows readers to display in pop-up windows custom-authored definitions of financial terms, terms that are distinctively marked with dotted underlining. Such pop-up definitions could be implemented by help authors in Microsoft’s WinHelp (.hlp) format of the 1990s (Simon, 1995). Note that dotted underlining (or some comparable visual cue) sends an assurance signal because the reader knows that a definition is available for the term.

While extra-linear definitions are certainly useful, they have significant drawbacks. When a reader decides to display a pop-up definition on Vanguard.com or a dictionary entry in a web browser, the action (or actions) the reader must perform interrupts the process of reading. Kindle’s above-the-line synonyms and paraphrases almost certainly impede reading because they add significant visual clutter. Another limitation of the dictionary entries in browsers and the above-the-line synonyms and paraphrases in Kindle is that they are stock definitions stored in a dictionary file, not custom-authored definitions

crafted by the writer to fit the particular context. Finally, readers need to learn that these features exist and must choose to make use of them.

Despite these drawbacks extra-linear definitions serve as a means to broaden a document's audience to include readers who have less domain-specific background knowledge than those for whom the document was primarily designed. For example, Vanguard, we can assume, believes that most visitors to Vanguard.com know the meaning of "tax-deferred," and so to avoid burdening these individuals with an unwanted definition, the term is marked with dotted underlining so that the definition will be displayed only by the readers who want it. Along similar lines, authors of Kindle-published books can have some confidence that readers who are not well prepared to read their book will turn on Word Wise (if implemented for that title), and those who write for the web can at least hope that less prepared readers will use the dictionary look-up feature.

Multiple instances of a term

In the case of book-length documents, it may be desirable for writers to depart from the general principle of defining unfamiliar terms the first time—but only the first time—they appear. Readers do not remember everything they've read. Therefore, if the unfamiliar term re-appears after many pages, the writer may decide to treat this subsequent occurrence as though the term were being introduced for the first time. Furthermore, readers often jump around in lengthy documents, both print and online. We see then that the possibility of forgetting an explanation and the possibility of non-linear reading are two reasons why writers should have a strategy for the multiple occurrences of unfamiliar terms in a lengthy print or online document. In appropriate online environments, extra-linear definitions might well be central to such a strategy.

Explaining concepts in online help systems

Online help systems must at times explain an unfamiliar computer concept that is central to a particular feature. The explanation may appear in the introductory paragraph of a procedure topic or in an overview topic. Microsoft Word's overview topic "Create or run a macro" begins with a double definition of macros:

In Word, you can automate frequently used tasks by creating and running macros. A macro is a series of commands and instructions that you group together as a single command to accomplish a task automatically. [32. Microsoft Corporation, 2018a]

First, we see a definition by characteristic in which the characteristic is the purpose of macros (you can automate frequently used tasks). In this definition by characteristic, the phrase “you can” places the characteristic before the unfamiliar term. (Compare this to Example 3, in which “macro” appears before the defining characteristic.) Then a standard term-first formal definition (“A macro is a . . .”) adds more detail to the initial definition by characteristic.

What is distinctive about technical terminology in online help systems is that many computer terms (including those that appear in the steps of procedures) are introduced nakedly within help topics so as not to burden users with unneeded conceptual information. These are likely to be terms of secondary importance within the topic as well as terms we can call “semi-familiar,” meaning terms that will be familiar to most—but not all—of the users who are reading that particular help topic. For example, in Microsoft Word’s procedure topic “Make a macro available to all documents” there is mention—but no explanation—of the Normal.dotm template (Microsoft Corporation, 2018b). This practice of nakedly introduced terminology is viable—though not ideal—because help systems have rich features for navigation among the topics (hyperlinks, search, etc.), and so the user who doesn’t know about templates and the Normal.dotm file can navigate without much difficulty to help topics that explain these concepts. Even so, the kind of pop-up definitions implemented in Vanguard.com and WinHelp provide a very convenient means of defining secondary and semi-familiar terms.

CONCLUSION

This investigation employs a linguistic framework derived from (1) the triad of term, class, and characteristic, (2) the location of the term in the explanation, (3) the possibility of distinctive marking, and (4) the context. With this framework it is possible to identify, explain, and systematize a large number of techniques for introducing unfamiliar terms.

Professional writers and professionals who write very likely do not have all these techniques in their current repertoire and very likely can benefit from this classification and discussion.

This investigation also points to shortcomings in our understanding of distinctive marking and the function of assurance signals, and it points to changes in reading and writing we need to be looking out for. Because this investigation has moved quickly over many specific topics, it could very usefully be extended by tightly focused corpus-based studies (McEnery & Hardie, 2012), eye-movement studies, and other approaches as well.

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