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### Writing and Editing

## Bonding Agents for Unit Modifiers

by Brad connatser

The number-one problem with technical prose is its density. Technical people like to stack technical words one on top another, creating a stack known as a portmanteau, which means “a large leather suitcase that opens into two hinged compartments.” When writers create such jam-packed word "suitcases", they squeeze out the little words that help the reader understand the relationship between words—little words such as “of,” “in,” and “for.” These little words are called function words, and they include connectives (prepositional phrases), articles, helping verbs, and the “to” in infinitives, all of which are very important for fluid reading.

Subject-matter experts (SMEs), such as the engineers I work with, are economical, always worried about budgets. However, “fewer words” does not always translate into “easier to read.” In an effort to condense a text, SMEs often create portmanteaus. Here’s a before-and-after example to illustrate the point:

### Before

Power quality event signature recognition may lead to early warning of incipient equipment failure modes.

(Function words: may, to, of: total = 3)

### After

The ability to recognize the signatures of power quality events may lead to an early-warning system for predicting the incipient failure of equipment.

(Function words: The, to, the, of, may, to, an, for, the, of: total = 10)

Function words convey the relationships between content words (nouns, adjectives, and verbs). Without function words, the reader struggles to determine those relationships. Function words are important to comprehension because of something called phrase collapsing.

You may have heard of “the magic number 7, plus or minus 2.” It’s the reason that pundits recommend that procedures contain fewer than 10 steps. A man named George Miller reviewed many experiments on short-term memory and found an interesting common thread. Most of these experiments indicated a limit of 7 chunks of information, on average, that our short-term memories are able to keep in an active state (The Psychological Review, 1956, vol. 63, pp. 81–97). Although Miller’s assertions are subject to debate, we can agree, in principle, that there is a limit to what we can retain in short-term memory when we concentrate and try to remember things. However, when we read, our goal is not to memorize but to make sense. Therefore, we have to leave a room for processing in our short-term memories.

For example, when we encounter the portmanteau “on-site mechanical fabrication detailed electrical interconnections,” we have six terms to deal with—six seemingly unrelated terms. So we stop reading and start trying to decipher the cipher. However, when we include the function words, we enable short-term memory to collapse phrases into chunks of meaning.

For example, if we re-write our example as “detailed diagram of electrical interconnects for on-site fabrication equipment”—as inelegant as it sounds—we end up with one manageable chunk of meaning. “Detailed diagram” collapses to form one chunk (A), which combines with “electrical interconnects” to form a chunk of meaning (A+B). “On-site fabrication equipment” collapses to form a chunk (C), which combines with (A+B) to form one main chunk ([A+B]+C).

What is really important to remember is the role of the function words, notated above by the plus character (+), in phrase collapsing. Without function words, we cannot readily collapse phrases because we have no phrases to collapse, only a portmanteau that we must rummage through to create some sort of meaning—we will more likely skip this unpacking than go through it.

## **Not All Stacks Are Bad**

All sorts of phrases exist in our linguistic world. Noun phrases, verbal phrases, prepositional phrases, absolute phrases, subordinate phrases—any “sequence of grammatically related words without a subject and a predicate.” Sometimes a short phrase of two or more words can jointly modify a linguistic element—such as a noun or another phrase—without requiring the words to be “unpacked.” However, these short adjectival phrases, called unit modifiers, must be bonded together so the reader can understand the relationship between a unit modifier and the linguistic element that it modifies.

The following sections discuss methods for marking a unit modifier for the reader. These methods, which I call bonding agents, communicate to the reader that certain words should be interpreted as one unit of meaning (thus the phrase unit modifier). Bonding agents include hyphenation, capitalization, italics, quotation marks, and convention.

## **Hyphenation**

Hyphenation is a thorn in the collective side of technical communicators. Writers and editors must frequently confront the quandary of whether or not to hyphenate, often with dubious results. Most SMEs do not consider hyphenation in word strings, assuming that readers are smart enough to figure out the relationship between words. However, when the reader starts figuring things out, he or she stops reading. Furthermore, without hyphens or some other sort of

bonding agent to guide the reader to the correct interpretation of a string of nouns and adjectives, a string of words can frustrate the reader, turning him or her into a critic of the author.

Here is an example to illustrate the point: “The man eating fish was caught just offshore.” Here, the omission of the hyphen between man and eating creates an ambiguity. Did the man who was eating fish get caught? Or did a fish that eats men get caught? Hyphenation (man-eating) removes all ambiguity by properly tying together all members of the unit modifier (man and eating). In the same vein, a “dry cleaning agent” is Ajax, whereas a “dry-cleaning agent” is benzene. “Small business woman” is a derogatory term, whereas “small-business woman” is a respectful one. “European history teacher” is a teacher of history who is a European, whereas “European-history teacher” is a teacher of European history. These are all simple examples of common unit modifiers. It is the uncommon unit modifier to which technical communicators must give due attention. The intended meaning of “European history teacher” can be readily figured, but a unit modifier with which the reader is unfamiliar is likely to cause misreading, unless the elements of the modifier are properly bonded.

### Capitalization

Capitalization provides another way to indicate membership in a unit. For example, proper names are capitalized, and this treatment bonds the elements of a name. For example, “the James Joyce way” contains two proper names (a first name and last name) that jointly modify way. Here’s another example: “International Monetary Fund partners.” The initial capitalized letters in the proper name “International Monetary Fund” bond the elements of the unit modifier.

### Italics

The italic typeface is also useful for bonding elements. For example, this treatment can be used with foreign phrases, where hyphenation would violate common usage. One example is the phrase *in situ*, which is generally not hyphenated, but can be joined by the bonding force of italics. Another use for bonding a unit modifier through italics is when the modifier is emphasized. For example, consider the following:

He had that *holy cow!* look on his face.

Here, “holy cow!” is an emphasized unit modifier that modifies the word look.

### Quotation Marks

Quotation marks can be used to bond a direct quote that modifies a linguistic element or what are called nonce terms, terms that are used on only one occasion. Newly coined terms are often put in quotation marks. For example, “a ‘no surprises’ culture” contains a unit modifier bonded by quotation marks that indicate “these two words work together.” In the next example, the impulse to hyphenate may be too great, but the quotation marks, a strong bonding agent, work just as well: This Program targets smaller “hard to reach” producers with production rates of 6,000 barrels of oil per day or less. However, quotation marks can also indicate sarcasm or disbelief, depending on the context and tone.

### Convention

Specialized discourse is another term for jargon. Within the jargon of a particular industry—such as electrical engineering—the common treatment of terms used in written discourse establishes a convention. Any violation of such a convention tells the reader that the author is “not one of us.” In my line of work, one such convention is the treatment of the phrase “power quality.” This term is never hyphenated, even when it is used as a unit modifier, such as “power quality troubleshooting.” In this particular specialized discourse, the two words that make up the term—power and quality—are recognized as belonging together by convention.

### **Conclusion: Playing with Strings**

As technical writers and editors, we can clarify the relationship between words in a string by unpacking them or by indicating their unified purpose (unit modification) by using a bonding agent. In the best of circumstances, we have enough time and budget to untangle the tangles of words, but sometimes we have to settle for simple indication, such as hyphenation. The point here is to avoid overkill. If the elements of a unit modifier are already treated with capitalization, italics, or quotation marks, there is no need to hyphenate.

**Brad Connatser** managed a publications department for an engineering firm for nearly 12 years. He holds degrees in engineering technology and English. In a previous career, he taught technical writing, creative writing, English composition, rhetoric, and journalism at Temple University and Maryville College. His research includes applying cognitive psychology to technical communication.

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