



Title	Four principles to help non-native speakers of English write clearly
Author(s)	Bower, John R.
Citation	Fisheries Oceanography, 20(1), 89-91 https://doi.org/10.1111/j.1365-2419.2010.00568.x
Issue Date	2011-01
Doc URL	http://hdl.handle.net/2115/44630
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Type	article (author version)
File Information	Bower (2011).pdf



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Four principles to help non-native speakers of English write clearly

JOHN R. BOWER

Faculty of Fisheries Sciences

Hokkaido University

3-1-1 Minato-cho

Hakodate, Hokkaido 041-8611, Japan

akaika@fish.hokudai.ac.jp

phone/fax: +81-138-40-8896

Abstract: The goal of scientific writing is clear communication of facts and ideas. Many books are available that explain the myriad of English grammar rules but clear communication requires more than just correct grammar; it also requires an understanding of how people read English. This paper briefly describes the structure of English prose and lists four principles to help non-native speakers improve their writing. The first two deal with individual sentences, focusing on the importance of the stress position and the subject-verb link. The final two deal with series of sentences, focusing on the importance of cohesion and coherence.

Key words: English language, scientific writing

There are many useful guides available to non-native speakers of English that explain the myriad of English grammar rules (*e.g.*, Day (1999), Strunk and White (2000), University of Chicago Press (2003), Coghill and Garson (2006)), but to communicate clearly in writing requires more than just correct grammar; it also requires an understanding of how people read English. Readers not only read words, they interpret prose based on its structure, which also affects the prose's readability. Ignorance of this structure is a main cause of unclear writing by non-native speakers.

The purpose of this paper is to briefly describe the structure of English prose to help non-native speakers improve their writing. The first two topics (*Stress position* and *Get to the point using characters as subjects and actions as verbs*) deal with individual sentences, and the final two (*A sense of flow* and *Coherence*) deal with series of sentences. Much of the information presented is summarized from the writings of Williams (1995, 2003), and Gopen and Swan (1990).

Stress position

Readers of English naturally emphasize information that comes at the end of a sentence, which is called the “*stress position*”. They look to the end of a sentence for rhetorical emphasis and expect the last few words to be significant, so this is where you should put the emphatic words of a sentence. The ends of sentences should also be used to communicate long and complex phrases and clauses, and unfamiliar technical terms.

The importance of the stress position can be seen by comparing the following two sentences:

1. Sperm whales feed on giant squid.
2. Giant squid are fed on by sperm whales.

Both comprise the same facts, but they tell us different things; (1) is about sperm whales and emphasizes that they *feed on giant squid*, whereas (2) is about giant squid and emphasizes that they *are fed on by sperm whales*. Clear writers position the emphatic information in a sentence where readers expect to find it.

Get to the point using characters as subjects and actions as verbs

The most common sentence patterns in English have the subject first, followed by the verb; together, they form the heart of the sentence. But in many other languages, such as Japanese and Korean, the subject and verb of a sentence often occur far apart. Native

speakers of these languages must understand that readers of English look for the subject-verb connection and expect to see it early in the sentence. They also expect the verb to immediately follow the subject. You can meet these expectations by revising long subjects into short ones and by removing interruptions between the subject and verb. After the subject-verb connection is made, you can then introduce longer and more complicated material.

A simple and effective way to connect subjects and verbs is to make the main characters of your sentences, which can be any entity, real or abstract, that you focus on through several sentences, the subjects of verbs expressing their actions. Compare the two following sentences (in each sentence, the subject is bold-faced, and the verb is underlined):

3. A substantial **decline** of phytoplankton in the world's oceans occurred during the past century.
4. **Phytoplankton** declined substantially in the world's oceans during the past century.

In (3), the sentence's main character (*phytoplankton*) is not the subject, and its action (*decline*) is not a verb. In the clearer and more readable sentence (4), the character is the subject, and the verb names its action.

A sense of flow

For a series of sentences (henceforth referred to as "passage") to read clearly, readers need more than individually clear sentences; they need a cohesive flow of information within the passage. The following pair of examples illustrates the importance of flow:

5. Our study site was the Bay of Bengal. Seven species of fishes were collected in the bay. Three major groups of zooplankton were fed on by the fishes. Copepods were the most abundant zooplankton prey. Euphausiids and chaetognaths composed the other prey.
6. Our study site was the Bay of Bengal. In the bay, we collected seven species of fishes. The fishes fed on three major groups of zooplankton. The most abundant zooplankton prey were copepods. The other prey comprised euphausiids and chaetognaths.

When I ask graduate students in Japan which passage reads more smoothly, more than 90% choose (6), but they have difficulty explaining why.

A passage is cohesive when each sentence begins with information that the reader is already familiar with. This is the case for each sentence in (6). For example, the second sentence begins by referring to the bay, which was introduced in the first sentence, and the third sentence begins by referring to fishes, which were introduced in the previous sentence.

If a sentence starts with information that is new or unexpected, it can briefly confuse readers until they reach information that links back to the previous sentence(s). This is the case for each sentence in (5). For example, in the second sentence, the reader has no idea how the subject (“seven species of fishes”) is related to the previous sentence until reaching the end of the sentence.

The reader needs and expects perspective and context at the start of a sentence. You can create a cohesive sense of flow in writing by beginning sentences with information that the reader is familiar with and ending them with information that the reader cannot anticipate in the stress position.

English grammar guides often advise to avoid writing in the passive voice, but it is sometimes superior to the active voice. If you are not sure which voice to use, choose the one that will help the reader move smoothly from one sentence to the next. The passive voice is preferable if it puts familiar information first in the sentence and the new, complex information last. The main reason it exists in the language is to improve cohesion and emphasis.

Coherence

Cohesive flow of information in a passage does not guarantee coherency, as can be seen in the following example:

More than 350 species of sharks inhabit the world ocean. The world ocean contains approximately 97% of all of Earth’s water. Water has a relatively high boiling point due to hydrogen bonds that form between water molecules. Water molecules are polar due to the arrangement of their unshared pairs of electrons. Electrons were discovered by J.J. Thomson in 1897.

The grammar is correct, and the end of each sentence flows smoothly to the start of the next, but the passage is incoherent. For a passage to be coherent, the words beginning

each sentence must constitute a limited and related set of words that tell what the passage is about. In the example above, the string of topics in each sentence (sharks, world ocean, water, water molecules, and electrons) is unfocused.

To write coherent paragraphs, consider constructing them around two sections: a short opening segment (issue) and a longer subsequent segment that explains, establishes or develops the statement made in the issue. Near the end of the issue, which can range in length from one to several sentences, readers expect to see a sentence that specifically articulates the paragraph's point.

Summary

The advice in this note can be summarized in four principles:

1. Place the emphatic words of a sentence at its end.
2. Revise long subjects into short ones, and remove interruptions between the subject and verb.
3. Begin sentences with information familiar to the reader and end them with new and, therefore, significant information.
4. Begin sentences constituting a passage with consistent topics.

When writing English, you must balance principles that make individual sentences clear (1 and 2) and those that make a series of them cohesive and coherent (3 and 4). All are important, but priority should be given to writing cohesive and coherent prose.

The main purpose of scientific writing is not to present information, but to communicate it. By applying these principles, non-native speakers of English can become better writers and communicators.

Acknowledgements

I thank Dmitry N. Tychinin (Russian Academy of Sciences) for commenting on an earlier draft of this note.

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