

Cohesive paragraphs, Part 1

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"The two capital secrets in the art of prose composition are these: first the philosophy of transition and connection; or the art by which one step in an evolution of thought is made to arise out of another: all fluent and effective composition depends on the connections; secondly, the way in which sentences are made to modify each other; for the most powerful effects in written eloquence arise out of this reverberation, as it were, from each other in a rapid succession of sentences."

—Thomas De Quincey
(1785-1859, English essayist)

Teachers, students, and the museum public have shown continuous interest in the Wiggle Monitoring Project. The functioning of the different ground motion monitoring stations in the first years of activity and the analysis of the first data recorded testify to the good quality of the data and the huge potential of this project for social and educational purposes. Scientists and researchers held discussions with teachers, students, and the public about the themes of research and the requirements for improved protection of the environment as well as disaster preparedness and mitigation. Finally, the constant support of local institutions helped us achieve the prototype monitoring network, while a number of national governments provided limited funds for meetings of teachers involved in the project on 1999 and 2000."

The preceding paragraph, adapted from a publication, is not complicated, but it is hard to understand. Individually each sentence is clear and follows the model developed in my last two columns: Characters and actions should match subjects and verbs. However, there is more to readable writing than sentence length or local clarity; cohesion is the next level up from local clarity. The struggle we all face is how to keep local clarity while casting sentences that fit their context and reflect the intent that first motivated us to write.

Information flow. In modern technical writing, we advise writers to use the direct, active voice and avoid the weak and indirect, passive voice. The following two sentences are (1) active and (2) passive:

- 1) Fluid injections in deep wells in which the downhole fluid pressure sufficiently reduces the effective frictional stress across a plane of weakness induce microseismicity.
- 2) Microseismicity is induced by fluid injections in deep wells when the injected fluid pressure sufficiently reduces the effective frictional stress across a plane of weakness.

Some authorities would automatically advise using the active voice. But what if the sentence were used in the following context?

*Editor's note: This column is the third in a series of tutorials adapted from Joseph M. Williams' book *Style: Toward Clarity and Grace*. The first two tutorials discussed writing clear sentences.*

Geophysicists are finding some astonishing new results about fracture and joint growth by studying microseismicity. [insert sentence (1) or (2)] By reducing the frictional stress below the in situ shear stress, we generate a local slip or dislocation that grows into a microseismic event.

Coherence dictates using (2), not (1)! This is because in the last part of the first sentence we introduce an important new character, microseismicity. If we use the active-voice sentence, microseismicity is not mentioned again until the end of the second sentence. This extensive distance between introducing and discussing microseismicity makes the passage choppy and disjoint—i.e., incoherent. This example illustrates two important issues.

First, the challenge of technical writing in English is that with every sentence, we must find the best balance between the principles of clarity, as discussed in the last two columns, and the principles of coherence that bond sentences into a full discourse. In that balance, "we must give priority to those features of style that make our discourse seem cohesive, those features that help the reader organize separate sentences into a single, unified whole" (Williams, *Style: Toward Clarity and Grace*, 1995).

Second, the example illustrates Williams' two complementary principles of cohesion: (1) Put at the beginning of a sentence those ideas that you have already mentioned, referred to, or implied, or concepts with which you can reasonably assume your reader is already familiar and will readily recognize. (2) Put at the end of your sentence the newest, the most surprising, the most significant information that you want to stress—perhaps the information that you will expand on in your next sentence.

These principles mean that as you begin a sentence, you must prepare your readers for new and important information. You do this by providing a familiar context out of which you build the unfamiliar, "from the known to the unknown" (Williams, 1995).

The beginning. The key to invoking these two principles is how you begin your sentences. It is harder to begin a sentence well than to end it well. To end a sentence you must decide only which idea, concept, etc., is the newest and probably the most complex, and imagine it at the end. The problem is to get there successfully. This means starting the sentence successfully.

The most important features of the beginning of the sentence are (a) transitioning or connecting it with that which preceded and (b) announcing the sentence topic—i.e., what you intend to discuss. I defer discussing transitioning and will discuss topic.

Williams (1995) states, "The topic of a sentence is its *psychological* subject. The psychological subject of a sentence is that idea we announce in the first few words of a sentence. It is almost always a noun phrase of some kind that the rest of the sentence characterizes, comments on, or says something about. In most English sentences, psychological subjects, that is the topics, are also grammatical subjects":

(Continued on p. 867)

(Writer's Block, from p. 839)

Microseismicity is induced by fluid injections in deep wells.

...

The sentence announces the grammatical subject, i.e., topic, microseismicity, and readers assume that the writer is going to discuss microseismicity.

Note that the sentence subject may not be the grammatical subject:

Regarding microseismicity, we can mitigate the potential danger by keeping the injection pressure below a critical level.

Here the grammatical subject, *we*, is not the psychological subject, but microseismicity, which is the sentence's topic. ■

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