How to shorten a text by up to 30% and improve clarity without losing information

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Abstract
What if everything you read was up to 30% shorter and more easily understood? What if everything you *wrote* was up to 30% shorter and more easily understood? Would that be a skill worth developing? Would your employer or clients notice if your work improved this much? Would their opinion of your skills change if they did? Reducing the number of words in a text without losing information is easier than you might think. Reducing or eliminating nominalisations (verbs turned into nouns or adjectives) and the passive voice can substantially improve the clarity of the text as well as shortening it. In this article, I review these two grammatical constructions, describe their strengths and weaknesses, tell how to recognise them, and explain when you can change them to improve your writing.

Introduction
"Nouns formed from other parts of speech are called nominalisations. . . I call them "zombie nouns" because they cannibalise active verbs, suck the lifeblood from adjectives, and substitute abstract entities for human beings."
Helen Sword[1]

In the 1970s and '80s, the introduction of the personal computer created the need for documentation manuals. Unfortunately, early manuals were poorly written and thus confusing and difficult to use. However, you couldn't really sell computers without effective manuals. In response, groups like the Society for Technical Communication became interested in ways to improve print documentation and electronic help menus. At about the same time, concerns about difficulties in understanding contracts, legislation, insurance policies, and other essential technical documents led to the Plain English movement[2] and the Paperwork Reduction Act.[3] These forces led to questioning traditional conventions of writing and to a new interest in research into technical communication to determine which factors of a text improve comprehension and which reduce it (see, for example, references[4-7]).

One of the seminal studies in this movement was conducted by Veda Charrow, a linguist at the American Institutes of Research, and her husband, Robert Charrow, a law professor at Howard University. In their 1979 study of how people understood jury instructions,[8] they identified several grammatical constructions of interest. In particular, they established that the confusion associated with legal documents – "legalese" – was the result of the interaction of three grammatical constructions: the passive voice, nominalisations, and negatives with qualifiers.

Here, I discuss the implications of the passive voice and nominalisations for medical-technical writers by presenting two guidelines. Rigorously applying these guidelines can shorten a text by up to 30%, without losing information and yet improving clarity in the process. What's not to like?

Guideline #1: Prefer the active voice but use the passive voice when appropriate
The most common sentence structure in English is probably agent (or subject)-verb-object, a structure called the "active voice": *The physician treated the patient*. In contrast, the "passive voice" – which is also grammatically correct – is structured object-verb-agent (or subject): *The patient was treated by the physician*. That is, the object of the first sentence, *patient*, is now the grammatical subject of the second sentence. The passive voice also always uses a form of the verb "to be:" is, was, were or has, have, or had been.

Most grammarians and most readers prefer the active voice, but no studies show that the passive voice by itself reduces comprehension.[4] In fact, where the doer of the action is unknown or is less important than the object and what happened to it, the passive voice is actually more appropriate. In, say, the methods section of a scientific article, the active-voice sentence, *We washed the specimens,* mentions the "we," which is unnecessary; the researchers obviously washed the specimens. The important point is that they were washed. Here, the passive voice emphasises the real subject; the specimens: *The specimens were washed.*

The passive voice also avoids assigning responsibility for the action and can thus be used disingenuously: *Mistakes were made*, rather than *We made mistakes*. For the same reason, it can also be used thoughtfully: *The prognosis of patients with this disease is generally poor*, rather than *Your prognosis is poor*.

Some authors recommend avoiding the passive voice at all costs,[9] but the research doesn't support this practice.[4] The passive voice is understood just as well as the active voice.[4] However, when the passive voice is combined with one or more nominalisations, comprehension suffers.[8] The combination increases not only the length of a sentence but also its grammatical complexity, and grammatical complexity reduces comprehension.[4,8] (Incidentally, shortening sentences, by itself, does not necessarily improve comprehension;[10,11] longer sentences just have more opportunities to be complex.[12] Many readability formulas use longer sentences as surrogates for increased complexity and so penalise their use.[4,13] The advice to use shorter sentences is not necessarily bad, it's just simplistic; based on correlation, not causation; and not supported by the research.)[4]

Guideline #2: Be careful of "nominalising" verbs into nouns or adjectives

A "nominalised" verb is one that has been changed into a noun or an adjective. For example, *to regulate* is the verb, *a regulation* is the noun, and *regulated* (e.g., a "regulated process") is the adjective. As with the passive voice, nominalisations are not always bad. However, they can force sentences to accommodate them by requiring certain grammatical changes, additions, and deletions that interfere with comprehension. Removing these nominalisations allows the sentence to be written more economically and clearly.

Note - In the following sections, SUBJECTS are in upper case, verbs are underlined once, and the nominalisations are underlined twice.

Appropriate uses of nominalisations

1. They can name ideas that are expressed only as nominalisations.

Example #1: *a clinical rotation*
Example #2: *an advanced directive*

2. They can name a subject that refers to a previous sentence.

Example: *WE analysed the data. This ANALYSIS indicated that the treatment was effective.*

3. They can name what would otherwise be the object of a verb.

Example: *The PHYSICIAN did not understand either the patient's intentions or his meaning (compared with: The PHYSICIAN did not understand either what the patient intended or what he meant).*

Problematic uses of nominalisations

1. Nominalising a verb requires adding a new verb to make the sentence complete again. The new verb is usually weak because the stronger verb has been nominalised. In the example below, the verb *sutured* has been nominalised as the noun, *sutures*:

Original: The SURGEON placed the sutures across the wound.
Revised: The SURGEON sutured the wound.

2. Nominalisations make sentences wordy and hard to understand:

Original: THERE was a review of the case and a finding by the committee, but no explanation was offered for the decision to retain the physician.
Revised: The COMMITTEE reviewed and ruled on the case but did not explain why it decided to retain the physician.

3. As direct objects, nominalisations turn concrete images into abstract concepts.

Original: The NURSE conducted an examination of the patient.
Revised: The NURSE examined the patient.
In the original, *examination* is an abstract concept, not a concrete noun, whereas *patient* is a noun we can see. Concrete terms communicate better than abstract ones, making the revised sentence more effective.

4. Nominalisations confuse the actor-action relationship**.**

Original #1: His REACTION was fast.
Revision #1: HE reacted quickly.
Ideally, the subject causes the action; nominalisations rarely do. In Example #1, *he* reacted; the reaction was just fast.
Original #2: Stain REMOVAL was complete.
Revision #2: STAINS were removed.
In #2, the *stains* were removed; the removal was just complete.

5. Nominalisations favour using other nominalisations**.** One of the best reasons to avoid nominalisations is that, just like potato chips, you can't have just one.

Original: The CONFUSION of the intern caused her failure on the test.
Here, using the first nominalisation, *confusion,* led to using a second nominalisation, *failure*.
Revised: The confused INTERN failed the test.

6. Nominalisations favour using prepositional phrases to compensate for the weak verb.

Original: The SURGEON tied the ligature [around the artery] to stop the bleeding.
Here, the prepositional phrase *around the artery* is necessary because the nominalisation *ligature* prevented its use as a verb.
Revised: The SURGEON ligated the artery to stop the bleeding.

How to find nominalisations

1. Nominalisations often follow the phrases "it is or was" and "there is, was, or are." Given that these constructions are subject and verb, they are complete sentences. They impart no information, however, and should not be used for that reason alone.
Original: THERE was considerable bleeding after the procedure.
Revised: The PATIENT bled considerably after the procedure.
2. Look for weak, generic verbs. The stronger verb in the revision also makes the meaning more specific:
Original #1: SHE used a scalpel to cut.
Revised #1: SHE cut.
Original #2: SAMPLES were taken for testing.
Revised #2: SAMPLES were tested.
Original #3:THEY made the decision to continue.
Revised #3: THEY decided to continue.
Original #4: HE performed the surgery.
Revised #4: He operated.
3. Look for several prepositional phrases.
Original: The REDUCTION [in the census] was caused [by the lack] [of a favourable response] [by physicians].
Here, returning to the active verb eliminates four prepositional phrases and reduces the sentence by 38%, from 16 to 10 words.
Revised: The LACK of a favourable physician response reduced the census.
4. Look for common word endings or suffixes.
When verbs are nominalised, the new word often has a distinctive ending (Table 1). Looking for these endings can help you find the nominalisations in your writing.

Avoiding nominalisations and writing in the active voice

Here is the proof that avoiding nominalisations and writing in the active voice are two of the most effective techniques for improving your writing.

Table 1. Common Nominalisations and Their Suffixes

Ending	Nominalisation	Original verb
-act	reaction, contraction	react, contract
-age	Package, passage	pack, pass
-al	removal, refusal	remove, refuse
-ance	assistance, variance	assist, vary
-ee	Employee, trustee	Employ, trust
-ence	conference, dependence	confer, depend
-ing	writing, feeding	write, feed
-ion	organisation, investigation	organise, investigate
-ment	assignment , resentment	assign, resent
-ure	failure, enclosure	fall, enclose

The first paragraph below contains 5 nominalisations, 3 passive sentences, and 111 words. The second contains no nominalisations, only 1 passive sentence, and 81 words. It's 27% shorter. The third paragraph has some additional edits and has 71 words. It's 36% shorter than the first one and more easily understood.

Paragraph 1: Once an injury to the neck has been recognised as severe, a physician and an ambulance should be summoned immediately. Primary emergency care involves maintaining normal breathing, treating for shock, and keeping the athlete quiet and in the position found until medical assistance arrives. Not until the physician has examined the athlete and has given his permission should transportation be attempted. The athlete should be transported while lying on his back, with the curve of his neck supported by a rolled-up towel or pad or encased in a stabilisation collar. Neck stabilisation must be maintained throughout the hospital procedure. If stabilisation is not continued, additional cord damage and paralysis may ensue.

Paragraph 2: When you suspect a severe neck injury, immediately summon a physician and an ambulance. Until medical assistance arrives, maintain the athlete's respiration, treat for shock, and keep her quiet and immobile. Do not move her without a physician's permission. When moving the athlete, keep her supine and stabilise her neck with a rolled towel or a pad under her neck or with a stabilisation collar. The neck must be stabilised, especially during transit, to prevent further damage to the spinal cord.

Paragraph 3: If you suspect a severe neck injury, call a physician and an ambulance. Until medical assistance arrives, maintain the athlete's respiration, treat for shock, and keep her quiet and immobile. Do not move her without a physician's permission. When moving her, keep her supine and stabilise her neck with a rolled towel or stabilisation collar. Her neck must be stabilised, especially during transit, to prevent further damage to the spinal cord.

Conclusion

As a medical-technical editor for more than 40 years, I can say that using the passive voice and nominalisations appropriately – that is, removing them when possible – is not only the technique I use most often, it is also the single most effective way to shorten and improve the clarity of a text. It takes time to learn how to recognise these grammatical features because they are so familiar that we don't think to question them. However, given the substantial improvements in shortening and clarifying the text, the time is well spent.

Conflicts of interest and disclaimers

The author reports no competing interests.

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Exercises

Recognising nominalisations

Instructions: Circle the subject of the sentence (uppercase in the example), underline the verb, and put parentheses around the nominalised verb (italicized in the example). Then, rewrite the sentence without the nominalisation and shorten it when possible, without changing the meaning:

"The PHYSICIAN created a *solution* to the problem."
"The PHYSICIAN solved the problem."

1. We performed a review of the relevant regulations.
2. The patient was taking deep breaths.
3. We need to take a different view of this new technology.
4. The change is an indicator of a deleterious process.
5. Preference is given to the use of titanium in artificial joints.
6. An increase in protein was observed.
7. Regeneration of the resin bed is achieved by a calcium chloride solution.
8. During inspiration, there is reversal of flow.
9. The reason an inventory was taken of the drawer was their suspicion of theft.
10. The committee has every expectation that it will reach a decision.

Recognising the passive voice

Instructions: Circle the subject (uppercase in the example), underline the verb once, and the object twice. Then rewrite the sentences in the active voice and shorten them when possible. In the revised sentence, again circle the subject and underline the verb once and the object twice:

"The SLIDE was read by the pathologist."
"The Pathologist read the slide."

1. The report has been filed by the library.
2. It has been reported that hemolysis occurs in severely burned patients.
3. The hospital was billed directly by the insurance company.
4. The drug is still being marketed by the company.
5. The bone had been broken by the fall.
6. The article will be written by the resident.
7. Sample processing is being done by an automated analyser.
8. There are several limitations in assessing diastolic filling with Doppler echocardiography.
9. A study was conducted to determine whether pH had an effect on the rate.
10. The patient's records are subject to evaluation after admission by a nurse.

Create your own nominalisations!

In the right-hand column, write a phrase that uses the verb as a noun or an adjective and one that revises the nominalisation back into the verb.

The verb *A nominalised phrase (the phrase with the active verb)*
"To choose" He made a choice. (He chose.)

1. To change
2. To break
3. To develop
4. To suture
5. To diagnose
6. To discuss
7. To inject
8. To compromise
9. To laugh
10. To prescribe

Answer key

Recognising nominalisations

1. WE performed a *review* of the relevant regulations.
Without the nominalisation: WE reviewed the relevant regulations.

2. The PATIENT was taking deep *breaths*.
Without the nominalisation: The PATIENT was breathing deeply.

3. WE need to take a different *view* of this new technology.
Without the nominalisation: WE need to view new technology differently.

4. The CHANGE is an *indicator* of a deleterious *process*.
Without the first nominalisation: The CHANGE indicates a deleterious process.

5. *PREFERENCE* is given to the *use* of titanium in artificial joints.
Without the nominalisations: TITANIUM is preferred in artificial joints.

6. An *INCREASE* in protein concentration was observed.
Without the nominalisation: Protein CONCENTRATION increased.

7. *REGENERATION* of the resin bed is achieved by a calcium chloride solution.
Without the nominalisation but in the passive voice: The resin BED is regenerated by a calcium chloride solution.
Without the nominalisation and in the active voice: A calcium chloride SOLUTION regenerated the resin bed.

8. During inspiration, THERE is *reversal* of flow.
The nominalization with the passive voice: Flow REVERSAL occurs during inspiration.
Without the nominalisation: FLOW REVERSES during inspiration.

9. The reason an *INVENTORY* was taken of the drawer was their *suspicion* of theft.
With one nominalisation removed and in the passive voice: The *INVENTORY* was taken of the drawer because they suspected theft.
With both nominalisations removed and in the active voice: THEY inventoried the drawer because they suspected theft.

10. The COMMITTEE has every *expectation* that it will reach a *decision*.
With one nominalisation removed: The COMMITTEE expects to reach a *decision* about that issue.
With both nominalisations removed: The COMMITTEE expects to decide that issue.

Recognising the passive voice

(Nominalisations are in talics)

1. The REPORT has been filed by the library.
In the active voice: The LIBRARY filed the report. (Or, as one resident once told me, "The report has been lost . . ." Possibly correct, but it's still in the passive voice.)
2. IT has been reported that hemolysis occurs in severely burned patients.
In the active voice: HEMOLYSIS occurs in severely burned patients.
3. The HOSPITAL was billed directly by the insurance company.
In the active voice: The insurance COMPANY billed the hospital directly.
4. The DRUG is still being marketed by the company.
In the active voice: The COMPANY still markets the drug.
5. The BONE had been broken by the fall.
In the active voice: The FALL broke the bone.
6. The ARTICLE will be written by the resident.
In the active voice: The RESIDENT will write the article. (Same resident as above, "The article will not be written . . ." Still in the passive voice, however.)
7. Sample *PROCESSING* is being done by an automated analyser.
In the active voice and without the nominalisation: The ANALYSER automatically processes the sample.
8. THERE are several *limitations* in assessing diastolic *filling* with Doppler echocardiography.
Without the empty subject and verb but with the nominalisation: Doppler ECHOCARDIOGRAPHY has several *limitations* in assessing diastolic *filling*.
In the active voice and without the first nominalisation: Doppler ECHOCARDIOGRAPHY is limited in assessing diastolic *filling*.
9. A *STUDY* was conducted to determine whether pH had an effect on the rate.
In the passive voice without the nominalisation: A STUDY was conducted to determine whether pH affected the rate.
In the passive voice with the object now in the subject position: The *EFFECT* on the rate was determined by the study.
In the active voice: The STUDY determined the effect of pH on the rate.
In the active voice : The STUDY determined the effect of pH on the rate.
10. The patient's RECORDS are subject to *evaluation* after admission by a nurse.
Without the nominalisation: The patient's RECORDS are evaluated after admission by a nurse.
In the active voice: A NURSE evaluates the patient's record after admission.

Create your own nominalisations!

1. To change
Changing behaviour is difficult (Behaviour is difficult to change)
2. To break
There was a break in her fever (Her fever broke)
3. To develop
We began to develop (We began developing)
4. To suture
He placed sutures to close the wound
(He closed the wound with sutures)
5. To diagnose
The diagnosis was cancer (Cancer was diagnosed
6. To discuss
We had a discussion (We discussed)
7. To inject
He received an injection (He was injected)
8. To compromise
We accepted the compromise (We compromised)
9. To laugh
He had a good laugh (He laughed)
10. To prescribe
He gave her a prescription (He prescribed)