Piled Modifiers, Buried Verbs, and Other Turgid Prose in the *American Political Science Review*

Peter DeScioli, *Stony Brook University, USA*
Steven Pinker, *Harvard University, USA*

ABSTRACT   Academic writing is notoriously difficult to read. Can political science do better? To assess the state of prose in political science, we examined a recent issue of the *American Political Science Review.* We evaluated the articles according to the basic principles of style endorsed by writing experts. We find that the writing suffers most from heavy noun phrases in forms such as noun noun noun and adjective adjective noun noun. Further, we describe five contributors that swell noun phrases: piled modifiers, needless words, nebulous nouns, missing prepositions, and buried verbs. We document more than a thousand examples and demonstrate how to revise each one with principles of style. We also draw on research in cognitive science to explain why these constructions confuse, mislead, and distract readers.

In 2010, President Obama signed into law the Plain Writing Act, which requires federal agencies to write in clear language. The law offers hope to citizens everywhere who squint in agony to decode the cumbersome terminology, baffling abbreviations, and tortuous circumlocutions that bureaucrats reel off with thoughtless abandon. When citizens need facts about health care, housing, and immigration, they should not have to suffer through clumsy jargon and mind-bending syntax. The government should make sense.

So, too, should the articles *about* government, particularly in the premier journals of political science. Yet, scholarly writing is infamously verbose, vague, and tedious to read. Surveys of academic journals show that most scholars across all fields flout the basic principles of good writing (Sword 2012a). More generally, specialists from every profession contrive idiosyncratic terms and opaque phrases that drag down their sentences. Can political science, like the government, do better?

Take this sentence from a recent article:

> Within these cases, increasing publicity is likely to be consequential to the de-legitimation of non-state violence when three important conditions obtain.

The same ideas could be expressed more concisely and concretely:

> Publicity tends to undermine vigilantes under three conditions.

We collected this example and over a thousand more from an issue of the *American Political Science Review (APSR)*. We looked for the most common faults that encumber writing in political science. In this article, we describe these problems and the principles of style for improving them.

Many sentences in the *APSR* suffer from heavy noun phrases suspended by weak verbs such as *be, have, do,* and *make.* The noun phrases acquire their bulk when the writer clusters multiple nouns and adjectives in forms such as noun noun noun and adjective adjective noun noun. The last noun in the cluster is the head of the noun phrase, and the words before it are modifiers that modify the head. Here are some examples with the head of each phrase underlined:

- precinct-level incumbent party electoral <u>support</u>
- socially generated political <u>information</u>
- canonical probabilistic record linkage <u>model</u>
- today's cutting-edge quantitative social science <u>research</u>
- more nationally focused and ideologically conservative <u>coverage</u>
- knowledge-based service sector <u>economy</u>
- borderline statistically significant five-percentage-point <u>increase</u>

Peter DeScioli (ORCID) *is associate professor of political science at Stony Brook University. He can be reached at pdescioli@gmail.com.*
Steven Pinker (ORCID) *is Johnstone Family professor of psychology at Harvard University. He can be reached at pinker@wjh.harvard.edu.*

- historical monthly mean air temperature and precipitation data
- large-scale, racially-disparate voter demobilization
- political science's deliberative democracy and organizational behavior's procedural justice literatures

We will see that these swollen phrases defy the principles of good writing found in every style manual (Fowler 1926; Garner 2003; Gowers 1954; Strunk and White 1959; Sword 2012a; Williams 1990; Zinsser 2006). Specifically, we examine five contributors to heavy noun phrases and other turgid prose: piled modifiers that obstruct the head noun at the end; needless words like redundant heads and modifiers; nebulous nouns that add little meaning and require too many modifiers; missing prepositions that could better specify relations; and buried verbs that entomb actions in static nouns.

We also explain why these constructions feel so ungainly, invoking research in cognitive science about how people comprehend written language (Pinker 2014). Namely, a sentence feels burdensome when our mind's parser struggles to resolve lengthy phrases, deep nesting, and ambiguous branching that tax its working memory.

Good writing, then, is not only a matter of aesthetics but also a matter of cognitive costs and benefits. The cost is the time and effort a reader spends to understand a sentence, and the benefit is the new understanding it conveys. Fluent writing is more profitable for readers, conveying more meaning at a lower cost.

The main reason to write clearly is obvious: the point of writing is to convey ideas to readers so obscure writing wastes our efforts and diminishes our research. Do readers understand our ideas as we intended? Do they stop on the first page and decide it is not worth decoding? If readers misunderstand or give up, the research might as well not exist. And even if readers eventually decipher the message, it is still inconsiderate to waste their time and effort. This reflects badly on the writer, which brings up a third reason: good writing earns the reader's trust. Investigators make many decisions behind the scenes that affect the quality of their work. When their writing is accurate, logical, and thoughtful, readers can be reassured that the rest of the research was conducted with the same care.

Table 1 presents sentences that illustrate common faults. As we mentioned, a persistent problem is the bloated noun phrase. Some sentences teeter under the load of not just one but three or four of these phrases. In every case, the sentence flows more gracefully when we revise the bulky phrases. Let's look at the principles for doing so.

Piled Modifiers

Noun phrases become unwieldy when writers pile modifiers before the head. Consider this example:

> Contrary to abstract national economic aggregates (e.g., GDP or unemployment rates), which they receive in the form of mass-mediated—and politically disputed—information, voters can gauge (local) economic conditions "au natural" from various direct and more subtle cues in their residential setting.

Figure 1 shows the first pile, *abstract national economic aggregates*. The head of the phrase is the noun *aggregates* (underlined) at the end, which has three modifiers piled before it. To unstack the pile, we substitute *indicators* as the head and move the modifiers into a prepositional phrase that follows the head. We omit the modifier *abstract* because it is obvious. After revising the remaining piles, we can state the point more directly:

> Voters do not need to gauge the local economy from indicators of the national economy such as GDP or unemployment; they can just look around their neighborhood.

Piled modifiers are easy to recognize and revise. Scan a sentence for nouns and count the modifiers before each one. Phrases with more than one modifier deserve a second look. Often, we can unpile the modifiers and lay them out in prepositional phrases or relative clauses (modifiers introduced by *that* or a *wh-* word).

Modifiers are not the same as adjectives. In modern linguistics, grammatical functions such as modifier, subject, object, and head are distinct from grammatical categories (parts of speech) such as noun, verb, and adjective. Nouns can be modified by other nouns, by verbs, or by entire phrases. For example, the phrase *highly connected voter networks* (table 1, first sentence) consists of the head noun *networks* preceded by three modifiers: the adverb *highly*, the adjective *connected* (derived from the verb *connect*), and the noun *voter*.

The main reason to write clearly is obvious: the point of writing is to convey ideas to readers so obscure writing wastes our efforts and diminishes our research.

TURGID PROSE IN POLITICAL SCIENCE

To assess the state of prose in political science, we examined 18 articles from a recent issue of the *APSR* (volume 113, issue 2). We analyzed the articles according to the principles endorsed by experts in English usage (Fowler 1926; Garner 2003; Gowers 1954; Strunk and White 1959; Sword 2012a; Williams 1990; Zinsser 2006), justified and refined with insights from the psychology of language (Pinker 2014). We also follow the methods of usage guides: we present a principle, provide examples that violate the principle, and revise the examples to show how they improve. To document common problems, we collected more than 1,000 errant phrases and revised each one. We examine subsets of these examples and present the full set with citations in the online appendix.

Writing experts advise authors to unpile modifiers. The reasons begin with the maxim to apply modifiers sparingly. Mark Twain (1880) famously remarked, "When you catch an adjective, kill it. No, I don't mean utterly, but kill most of them—then the rest will be valuable." In *The Elements of Style*, Strunk and White advise, "Write with nouns and verbs, not with adjectives and adverbs" (1959, 68). These authors conflated the grammatical category "adjective" with the grammatical function "modifier," but the point is the same: effective writing emphasizes "nouns and verbs, not their assistants" (Strunk and White 1959, 68).

The problem only worsens when the modifiers pile up. Worst of all is the noun pile, in which the head noun is crushed by a mound of

Table 1
Original and Revised Sentences from the *APSR*

ORIGINAL	REVISED
We propose a simple model in which incumbent malfeasance revelations can facilitate coordination around less malfeasant challenger parties in highly connected voter networks, even when voters update favorably about incumbent party malfeasance.	We propose a simple model in which networks of voters use revelations of an incumbent's malfeasance to coordinate with one another and support the challengers, even when the voters are biased to favor the incumbent.
Socially generated information affected participants' subjective evaluations of the president, even if it did not affect evaluations of the economy.	News learned from peers influenced participants' opinions of the president but not the economy.
When the state is predatory, the availability of informal enforcement mechanisms, which are stronger in homogeneous communities, can facilitate the provision of local public goods and support private economic activity.	When the state is predatory, communities with a shared culture are better at enforcing cooperation to provide public goods and support trade.
Extreme policy positions that may emerge from narrow coalitions yield (or protect) extreme distributional outcomes, from highly equal communistic regimes to highly unequal elite-dominated regimes.	Narrow coalitions may choose extreme policies that distribute wealth very equally or very unequally.
Even though consumers on average appear to prefer the more local-focused and ideologically moderate (pre-Sinclair) mix of coverage to the more national-focused and ideologically conservative (post-Sinclair) mix, Sinclair management still opted to reduce local heterogeneity in coverage across its stations by substituting centrally produced, nationally focused conservative segments for locally produced, less partisan content.	Although consumers appear to prefer local news without a political slant, Sinclair still shifted coverage toward national news with a conservative slant.
Prior causally-oriented research has estimated cues' effects in exogenous networks, but not in the naturally-occurring communication networks that legislators themselves choose to form.	Previous experiments examined how legislators learn from peers they were assigned to, but not how they learn from peers they choose themselves.

Note: The underlined text indicates heavy noun phrases on the left and the corresponding revisions on the right.

Figure 1
Piled Modifiers and an Unpiled Revision
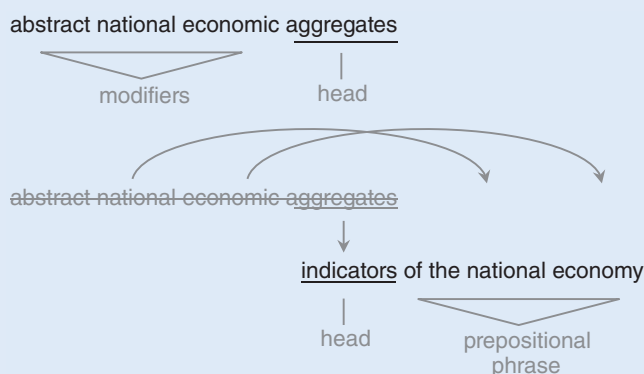
other nouns conscripted as modifiers. Here are some examples from the *APSR*:

- incumbent party vote share
- networks' coordination and information diffusion mechanisms
- fixed-effects dynamic panel regression models
- postdemocratization income inequality dynamics
- target group's detection technology
- individual-level housing price change variable
- PCC's street-level drug business
- accountability and preference aggregation functions
- absolute value percentage-point shifts

Gowers (1954, 103) calls this problem the "headline phrase" caused by the "excessive use of nouns as adjectives," and he laments that "its abuse is corrupting English prose." In *Garner's Modern American Usage*, Garner calls this a "noun plague," and he explains:

Readability typically plummets when three words that are ordinarily nouns follow in succession…as when writers refer to a *participation program principal category* or the *retiree benefit explanation procedure.* (2003, 557)

The guidelines for the Plain Writing Act advise writers to "avoid noun strings" (plainlanguage.gov). In *On Writing Well*, Zinsser (2006, 76) warns of the "disease that strings two or three nouns together….Nobody goes broke now; we have money problem areas. It no longer rains; we have precipitation activity or a thunderstorm probability situation. Please, let it rain."

In *The Sense of Style*, Pinker (2014) shows how the classic maxims of writing are consequences of the psychology of understanding language. The mind represents meanings in a web of ideas. The nodes are concepts that represent people, objects, places, and events; the links between the nodes represent their attributes and relations. To communicate a portion of this web to another person, the speaker or writer must linearize it into a string of words that can be produced one at a time. After receiving this string, the listener or reader must recover the corresponding portion of the speaker's web of ideas. We perform this magic by using rules of syntax as a cipher to convert networks of concepts into strings of words and back again. When the syntax is convoluted, the mind becomes taxed by unresolved fragments of trees that burden working memory.

A writer who piles modifiers places several cognitive hurdles in the path of the reader (Pinker 2014). In the syntax of English, the head of the noun phrase precedes its complements and generally

appears as the first or second word in the phrase. Piled modifiers tax working memory because the reader encounters a series of modifiers before finding out what they modify. Further, the piled modifiers create ambiguity because each modifier could apply to the head or to another modifier in between (Stageburg 1968). For example, in *canonical probabilistic record linkage model*, what is probabilistic: the record, the linkage, or the model? Even when it eventually becomes clear, ambiguous syntax delays the reader's parser as it evaluates multiple branchings that are consistent with the string of words.

The costs multiply when we add several piles to a sentence and then combine these convoluted sentences into inscrutable paragraphs. A reader can concentrate to resolve a heavy phrase every so often but one after another soon becomes illegible. Across sentences and paragraphs, readers need to keep track of the characters and events that connect the author's arguments and narrative (Pinker 2014; Williams 1990). They look for the nouns—particularly the head nouns—to find the main characters, including the ideas and facts of an argument. When the head nouns are crowded by piles of modifiers, readers can easily lose the thread.

exacerbated reaction to a contemporaneous trigger simplifies to *a momentary overreaction.* The phrase *could potentially be imposing negative externalities on the quality* simplifies to *could be reducing the quality.*

Trimming needless words reduces the cognitive demands on the reader. Every additional word forces the reader's mind to recall its meaning and to fit it into the sentence's syntactic tree (Pinker 2014). Each time we repeat a bulky phrase, the costs accumulate. Readers, moreover, assume that each word adds a new element of meaning (Grice 1975). When words are redundant or superfluous, the reader stalls to look for a new actor or object or quality where none is to be found.

Nebulous Nouns

Noun phrases may be clouded by nebulous nouns. Table A2 in the online appendix presents examples. To clear them up, replace abstractions with more precise and imaginable words. Strunk and White (1959, 21) advise, "Prefer the specific to the general, the definite to the vague, the concrete to the abstract." Garner (2003, 9) calls the problem "abstractitis."

> *The costs multiply when we add several piles to a sentence and then combine these convoluted sentences into inscrutable paragraphs.*

Needless Words

Needless words swell noun phrases and sentences. Let's look at some examples from the *APSR* presented in table A1 in the online appendix. We can revise them by following the prime directive from Strunk and White (1959, 23): "Omit needless words."

Many modifiers are implied by the head noun or previous material. In an article about merging data, the analyses must follow the merge so there is no need to specify *post-merge analyses* (18 times). Stating that the mayor is malfeasant generally implies that challengers are not so an author probably does not need to spell out *less malfeasant challenger parties* (11 times). In an article about experiments, there is no need to specify *experimental* participants, *experimental* treatments, *experimental* results, *experimental* research, and *experimental* design (47 times).

We can also economize by applying modifiers once or as needed. After an author clarifies that she means *information diffusion* (22 times), *socially generated messages* (8 times), or *probabilistic record linkage* (10 times), she can simplify to *diffusion*, *messages*, or *linkage* when it is clear that the modifiers still apply. Consider how we would tell a story about a truck. After we clarify that a man drives a *four-wheel-drive pickup truck*, we would not repeat that he drove the four-wheel-drive pickup truck, turned the four-wheel-drive pickup truck, parked the four-wheel-drive pickup truck, and so on. Once we state the type of truck, we can simply say *truck*, applying modifiers as needed rather than compulsively.

Similarly, we can sever any head that is redundant. Experimenter demand implies an *effect*, an instrumental variable implies an *approach*, and the local economy already has *conditions*. Short phrases also improve: we can rewrite *inequality levels* (54 times) as *inequality*, *voting behavior* (7 times) as *voting*, and *survey instrument* (5 times) as *survey*. Inequality is about levels, voting is a type of behavior, and a survey instrument is simply a survey.

Beyond the noun phrase, needless words circle around an idea that could be stated directly. For instance, the phrase *an*

Nebulous nouns expand noun phrases by requiring too many modifiers. The head of a noun phrase, whenever possible, should be a concept that we can visualize rather than a metaconcept, that is, a concept about concepts such as *level*, *outcome*, *approach*, *model*, *process*, *framework*, *perspective*, *mechanism*, *activity*, *information*, and *context.* Metaconcepts are too wispy to convey the images that ground ideas in experience. Authors reach for modifiers to compensate but as Strunk and White (1959, 68) advise, "The adjective hasn't been built that can pull a weak or inaccurate noun out of a tight place."

For instance, the noun *context* could refer to anything, so it is a baffling choice when the author means *neighborhood*, as in *local residential context.* Once we replace the head with *neighborhood*, we can drop the modifiers. Similarly, *information* is so vague that the writer must add modifiers to narrow the meaning, as in *incumbent performance information*, that is, misspending, and *socially generated information*, to wit, talking. The heads of these phrases need transplants, not band-aids.

Many generic heads bubble-wrap the object that the author has in mind, obscuring its shape and material: *activity* for trade, *resources* for funds, *sentiment* for resentment, *attitudes* for opposition, and *structure* for law or threat. Instead, use the specific noun and put the referent in plain sight. Similarly, we can often replace abstract, polysyllabic modifiers with concrete, concise, and familiar words, such as replacing *endogenous organizational* with *private*, *highly heterogeneous* with *very different*, and *egotropic pocketbook* with *personal finances.*

Notice how nebulous nouns can transform any ordinary idea into academese: Take a concrete idea (such as an apple), refer to it with a broad category (*unit*), and then add modifiers to compensate (*edible seed dispersal unit*). With similar alchemy, we can transmute a forest into a *perennial ecosystem context*, a love letter into *amorous attitude information*, and petting a cat into *feline affection provision.*

Nebulous nouns also accumulate when we forgo a specific verb. When discussing people who *engage in criminal behavior*, we could choose the specific verb *commit*, as in people who *commit a crime*. Similarly, we could choose the specific verb *comply*—just two syllables—to replace *adopt external behaviors that are compatible*. And instead of writing that jail sentences *have a negative causal effect on* voting, in the popular jargon of causal inference, we could choose a specific verb that succinctly expresses causation and negative effects: jail sentences *decrease*, *reduce*, *deter*, or *discourage* voting.

Nebulous nouns burden the reader's mind with too many possible meanings. Abstract concepts refer to wide categories with more members than narrower concepts, so the reader may struggle to imagine the scene or may be misled by unintended images. Cognitive psychologists distinguish concepts by their generality: subordinate, basic, and superordinate, such as *starling*, *bird*, and *animal*, respectively (Rosch et al. 1976). Basic concepts are easier to visualize and remember than superordinate concepts. And people reason more logically with concrete concepts. For instance, the notorious fallacies in Bayesian reasoning (Tversky and Kahneman 1974) disappear when participants judge facts presented in natural frequencies (e.g., "In every 1,000 women, 10 have breast cancer") rather than abstract probabilities (e.g., "The probability that a woman has breast cancer is 0.01") (Gigerenzer and Hoffrage 1995).

Missing Prepositions

Another contributor to stuffy verbiage is the missing preposition (see table A3 in the online appendix). Instead of jamming nouns and adjectives together, authors can clarify how they are related with prepositions like *of*, *for*, *on*, *by*, *with*, *before*, and *against.*

Gowers advises, "*nursery school provision* is not at present regarded as a proper way of saying *the provision of nursery schools*" (1954, 104). In *Writing Successfully in Science*, O'Connor recommends, "Insert verbs or prepositions between groups of three (or at most four) nouns, or nouns plus adjectives" (1991, 104). Similarly, Walsh recommends, "these modifiers should be framed with a few extra words and moved to the back" (2000, 97).

By using a preposition to move a modifier after the head, the reader learns what the phrase is about before adding modifications. Beginning with the head noun also clarifies ambiguous syntax. The phrase *high- and low-inequality autocratic countries* is slow to understand because the mind must evaluate alternative nestings. But *autocracies with high and low inequality* is clear from beginning to

table A4 in the online appendix). The verb in a sentence brings it to life in the theater of our imagination. As Sword explains, "Verbs power our sentences as surely as muscles propel our bodies" (2016, 5). Vigorous sentences stride with actions such as *reveal*, *punish*, *estimate*, *govern*, and *impede*, even when they describe abstract ideas. Sluggish sentences waste the precious slot for an energizing verb on generic relations like *be*, *have*, *do*, and *make* and then bury the action in static nouns: *revelation*, *punishment*, *estimation*, *governance*, and *impediment.*

A noun derived from a verb is called a nominalization. Nominalizations serve as shorthand for an event that was previously presented (Pinker 2014; Williams 1990). But nominalizations become compulsive among academics and bureaucrats who discuss the same events so many times that they forget readers need to see them played out. Garner calls them "buried verbs" and advises, "Buried verbs ought to be the sworn enemy of every serious writer" (2003, 117). Sword (2012b) calls them "zombie nouns" because "they cannibalize active verbs."

Nominalization turns verbs into more fodder for swelling noun phrases. The phrase *incumbent malfeasance revelation*, for example, stuffs the verb *reveal* inside a noun and jams its object, *malfeasance*, before the nominalization instead of after the verb. Similarly, the phrase *prison-based criminal governance* encases the action *govern*, which forces the cast of characters out of the natural order: leaders govern gangs from prison.

Freeing verbs clears the needless words that grow like weeds around a grave. Instead of writing *there is an empirical contribution in this paper by providing new evidence*, we can unearth the verb *contribute* and simplify to *this paper contributes new evidence*. Instead of *institutions through which public legitimation can be accomplished*, we can free the verb *legitimize*, restore its object, violence, and simplify to *institutions that legitimize violence.*

In general, when writers bury the verb in a noun, the reader must stop to exhume the action, find the subject and object, which are often missing, and then mentally rearrange these concepts to follow the natural order in English: subject, verb, object. We can easily spare readers the trouble by expressing actions with verbs so they can find the subject and object in the standard slots and mentally animate the scene right away.

Baffling Abbreviations

Along with the five remedies for bulky phrases, another should be avoided: abbreviations. Abbreviations represent an unfair bargain:

> *When writers bury the verb in a noun, a reader must stop to exhume the action, find the subject and object, which are often missing, and then mentally rearrange these concepts to follow the natural order in English: subject, verb, object.*

end. The preposition also pinpoints how the modifiers modify the head. In *anti-refugee political engagement*, the reader gropes for what is being engaged; in *political engagement against refugees*, the mystery is solved. Also note the overuse of *-level*, *anti-*, *pre-*, and other hyphenated compounds in place of a preposition. A *firm-level field experiment* obscures that the experiment is *on* firms.

Buried Verbs

A final maxim is "Let verbs be verbs"—do not mummify them into nouns with suffixes like *-tion*, *-ication*, *-ment*, *-ing*, and *-ance* (see

the writer saves a few keystrokes while the reader is forced to memorize an arbitrary sequence, pause repeatedly to recall the translation, and backtrack when recall fails. Examples from the present sample include *EDEs* (91 times), *DMA* (43 times), and *SWIID* (12 times). Instead, writers can shorten long phrases with an informative nickname (see plainlanguage.gov, "Minimize Abbreviations"). For example, we could use *demand* for *experimenter demand effects*, *area* for *designated market area*, and *inequality database* for the *Standardized World Inequality Indicators Database.*

CONCLUSION

A half century before the Plain Writing Act, the British government confronted the obscurity of officialese by inviting Sir Ernest Gowers to compose a writing manual for officials. The book, *Plain Words*, was issued to every department and became a classic of writing style. Prime Minister Winston Churchill, a Nobel Laureate in Literature, championed the cause: "I am in full sympathy with the doctrine laid down by Sir Ernest Gowers" (UK Parliament 1954).

Like the governments it studies, political science depends on writing to communicate accurately and efficiently. Analyzing the pages of the *APSR*, we found more than a thousand ungainly phrases suffering from piled modifiers, needless words, nebulous nouns, missing prepositions, and buried verbs. By revising many examples and explaining how and why we did so, we hope to have shown that these problems are easy to recognize and improve.

Writing is particularly important in the science of politics (Orwell 1946). With clear and precise sentences, political scientists can share their insights about vital issues such as democracy, war, and justice with their professional peers and concerned citizens alike.

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SUPPLEMENTARY MATERIALS

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