Assembly for the Teaching of English Grammar Journal

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The ATEG Journal

Assembly for the Teaching of English Grammar

An Assembly of

The National Council of Teachers of English

ATEG Co-Presidents

Sean Ruday
rudaysr@longwood.edu

Sharon Saylors
saylorsb@pgcc.edu

ATEG Vice President

***ATEG Journal* Lesson Plan Editor**

Bradley Bethel
bradley_bethel@abss.k12.nc.us

***ATEG Journal* Editor**

Peggy Wilson
pwilson@umd.edu

Call for *ATEG Journal* Submissions

The *ATEG Journal* is ATEG'S peer-reviewed journal, published annually. Seeking to foster discussion and analysis of the teaching of English grammar at all levels PK-16, we solicit manuscripts that describe best practices of grammar instruction. We encourage submission by all who are passionate about English grammar instruction, including university and college faculty members, PK-12 educators, and graduate students.

Types of Submissions

We welcome original manuscripts on the teaching of English grammar. We accept the following types of submissions:

- Empirical studies (3,000–3,500 words, including references)
- Theoretical- and research-based discussions of teaching practices, including methods and techniques (3,000–3,500 words, including references)
- Critical essays grounded in literature (3,000–3,500 words, including references)
- Lesson plans grounded in literature (3,000–3,500 words, including references)
- Interviews with prominent literacy and language education scholars and PK–16 educators (please consult with the editor prior to submitting an interview)
- Reviews of books, textbooks, software, and other teaching materials (500–1,000 words)

We encourage presenters at the annual ATEG conference to submit article versions of their presentations.

For inquiries about other types of submissions, please contact the editor.

Suggested Topics Related to the Teaching of English Grammar

The following are suggested topics related to English grammar instruction:

- Methods, techniques, and classroom practices
- Language change and variation
- Teacher education
- The writer's workshop
- Writing, speech, literature, and all forms of discourse
- Technology
- Policies, standards, or assessments
- Materials development or curriculum design
- Diverse student populations, including emergent bilinguals and students from diverse home language backgrounds

Submission Requirements and Procedure

- Please follow the guidelines below for all submissions:

- Submissions should conform to APA style and should be a minimum of 3,000 words and not exceed 3,500 words, including references. Reviews should be between 500–1,000 words, including references. For inquiries about longer submissions, please contact the editor.

- For article-length manuscripts, include an abstract (maximum 150 words) on the first page. Begin the body of the manuscript on the second page.

- Submit manuscripts as Word documents, double-spaced, in 12-point Times New Roman.

- Attach a separate Word document that contains tables and figures.

- Submissions should be formatted according to the guidelines set by *Publication Manual of the American Psychological Association, 7th Edition,* including page numbers, references, margins, and headings.

- Article submissions (empirical studies, discussions of teaching practices, and critical essays) will be blind reviewed by two referees; therefore, these manuscripts should exclude author information and any references to the author.

- For lesson plan submission, please contact the editor.

- It is the author's responsibility to ensure the submission is original and that paraphrased information and quotations are cited correctly.

To submit your manuscript, please send an email to the editor at *pwilson@umd.edu.* In the subject line of your email, type "ATEG Journal submission and your first and last name". Attach your manuscript as a Word document. Also, attach a title page as a Word document that includes the following information:

Manuscript title:

Date of ATEG Journal submission:

Contact author's name:

Contact author's email:

Contact author's telephone number:

Contact author's bio: *Include one to three sentences of biographical information.*

If there are additional authors, include their name(s) and the same information required of the contact author listed above, as well as the order of authorship.

The editor will respond as soon as possible and appreciates your patience.

Message from the Editor

The last time I served as editor of a publication, it was my high school newspaper. Suffice to say, that was a LONG time ago – decades, in fact. When asked to step into the role for the annual *ATEG Journal,* I hesitated. Our outgoing editor, Kevin K. Thomas, left big shoes to fill. My decision to take on the challenge, I admit, was prompted mostly by guilt. As a member of ATEG for over 30 years, I decided it was high time for me to contribute to the Assembly's work in a meaningful way. Now here I am, excited to have taken on the charge and grateful to have been asked.

Across the years that I have been attending ATEG conferences and faithfully reading the *Journal*, I have seen the consistent, unwavering commitment of our members to empower **all** learners with confidence, proficiency, and dexterity in their use of this uniquely human gift of language. Contributions to the 2024 issue continue the tradition. Included is an article on new considerations for the often-reviled staple of English teachers wielding red pens, the dreaded sentence diagram. Sean Barnette recommends this tool for engendering critical thinking among his high school students as they analyze sentences and evaluate the diagramming system itself. You will also find a descriptive narrative by Ann Ellsworth, teacher educator, about capturing an opportunity with her prospective elementary teachers to share a basic grammatical concept with their own students. And Milo Schield presents a strong case for acknowledging the natural connection between statistical/mathematical presentations and grammatical terminology and concepts, building upon that connection to improve both the presentation and interpretation of data, especially relevant in this day of misinformation.

Two book reviews are included, as well. Sherry Saylors shares her delight in Anne Curzan's new book, *Says Who? A Kinder, Funner Usage Guide for Everyone Who Cares About Words (2024),* and Kevin Moberg explores *Adventures in English Syntax* by Robert Freidin (2020).

As we persist in striving toward inclusive grammar pedagogy and empowerment in communication for all learners, one of my favorite quotations from W.E.B. Dubois comes to mind: "I realized that while style is subordinate to content, and that no real literature can be composed simply of meticulous and fastidious phrases, nevertheless solid content with literary style carries a message further than poor grammar and muddled syntax."
(Dubois, W.E.B. "A Negro Student Goes to Harvard at the End of the 19th Century. *W.E.B. Dubois: A Reader,* ed. David Levering Lewis, New York: Henry Holt and Company. 1995, pp. 280-81.)

Persist, we must. It's only fair.

Peggy Wilson, Editor

July 1, 2024

Message from ATEG's Leadership Group

ATEG prides itself on being an organization that promotes innovative grammar instruction and on supporting teachers as they incorporate these kinds of practices in their classrooms. Just as the 2024 ATEG conference theme is *Equity in Grammar Instruction,* the *ATEG Journal* is a manifestation of the innovative ideas about grammar instruction that ATEG values. The journal has become an essential venue for sharing ideas about grammar innovations that center students, maximize their learning experiences, and create meaningful instructional opportunities. The ideas expressed in this issue are representative of important thinking about the power and possibilities of grammar instruction.

We as a leadership group are very proud of the journal and are excited to share it with you. We hope that the ideas, innovations, and insights presented here inspire you to think even further about the impact of grammar instruction. In his book *A Writer's Notebook: Unlocking the Writer Within You*, Ralph Fletcher invites the reader to write by asking "What moves you?" As you read this issue, we invite you to answer that same question. Perhaps your answer will inspire you to apply some of the ideas you read about to your teaching, or even to share your thinking in a future *ATEG Journal* issue!

Thank you, as always, for your support of ATEG!

Sincerely,
Sean Ruday, ATEG Co-President
Sharon Saylors, ATEG Co-President
Bradley Bethel, ATEG Vice President
Peggy Wilson, *ATEG Journal* Editor

Using Sentence Diagrams to Promote Critical Thinking

Sean Barnette

Abstract

Although often disparaged by scholars and by the public, sentence diagraming is an especially promising method of promoting critical thinking because it provides both a visual vocabulary for expressing grammatical analysis and the means to identify and critique the limitations of that very vocabulary. Any system of diagramming must balance the competing demands of comprehensiveness and elegance and will thus involve compromises and imperfections, which offer opportunities for students to critique the system. In particular, the system of diagramming attributed to Reed and Kellogg (1881) does not allow students to express fully accurate analyses of expletives, absolute phrases, and other complex constructions. Students should be encouraged to learn a diagramming system in order to explore its limitations and thereby develop critical thinking skills.

Every December for the past few years, a one-panel cartoon has made its way around the internet. The cartoon shows Ebenezer Scrooge sitting up in bed, looking horrified as a robe-clad figure beside him proclaims, "Mr. Scrooge, you have been very bad" (Writing, 2018). But in the comic, this sentence is written not as the ghost must have said it, but on a sentence diagram. Dismayed, Scrooge responds, "Nooo…not sentence diagrams!!" The joke, of course, is that sentence diagrams are more terrifying than ghosts or even than a confrontation with of one's own selfishness, greed, and possible damnation.

Scrooge is not alone in his feelings. Indeed, in the popular imagination, sentence diagramming is often associated with drudgery, confusion, and inflexible authority. Among English teachers and scholars, antipathy to sentence diagramming is also widespread. As early as 1955, an NCTE report declared that sentence diagramming "is of little value" in writing instruction because "if a student can diagram, he doesn't need to" (p. 135). More recently, the linguist Steven Pinker has complained that the Reed-Kellogg diagramming system—the system that most people have in mind when they think of sentence diagramming—is "not a particularly good one, with user-unfriendly features" that make it more trouble than it's worth (2014, p. 78). Admittedly, one can find pockets of enthusiasm for sentence diagramming, often motivated by nostalgia or aesthetics rather than by reflective pedagogy (e.g., Summers, 2014). But while I do share an aesthetic appreciation for the logical and visual aesthetics of the Reed-Kellogg diagramming system, I am not convinced that such an appreciation alone justifies diagramming as a pedagogical practice, especially given the scholarly consensus against it. In this article, I hope to offer a better reason to teach sentence diagramming. Specifically, I argue that sentence diagramming is valuable precisely because its graphic features provide a system—a set of rules—in which students can practice critical thinking.

Invectives against diagramming usually assume that the goal of teaching it is to improve students' writing, and the research does clearly indicate that direct, isolated grammar instruction rarely improves students' writing (NCTE, 1985). And, to be fair, Reed and Kellogg do claim that their system is meant to improve students' writing (1881, p. 3-4). Nonetheless, improvement in writing is not the only goal of most English courses. Another goal common to most English classrooms is critical thinking, even if teachers may define critical thinking in different and sometimes inconsistent ways (e.g., Foundation, 2019). While not disputing the value of these various definitions, for the purposes of this article I define critical thinking as the ability to critique a system by rigorously following its own logic. Critical thinking means using a system to identify, explain, and attempt to resolve inconsistencies in the system itself. In other words, critical thinking is disciplined—it has to play by a set of rules—but it also aims to expose flaws in the system in which it works. It is that aim which I argue makes it critical.

The Function of Diagrams

To understand how diagramming can promote critical thinking, we should first consider just what diagrams are and what they do. Diagrams are visual representations that encode grammatical information. To be useful, a diagramming system must therefore balance two competing demands: comprehensiveness and elegance. A comprehensive diagram would convey to its viewers all the available grammatical information about an utterance, whereas an elegant diagram would be clear and simple enough that it could be parsed easily. Elegance, in other words, demands encoding only that grammatical information that readers are most interested in, thereby minimizing clutter or redundancy. Because no system can be both perfectly comprehensive and perfectly elegant, any system of diagramming will have limitations in what it can express clearly. Recognizing and responding to these limitations requires critical thinking.

As a result of this tension between comprehensiveness and elegance, different diagramming systems emphasize different grammatical information, depending on their purpose. For example, our standard writing system produces diagrams—visual representations of spoken language—that encode both word order and word boundaries, the latter of which are salient to speakers and grammatically meaningful but not typically realized in speech (spoken language being a generally continuous stream of sound without pauses between words). Another example of diagrams can be seen in the familiar syntax trees; like written speech, these generally encode word order but more importantly encode phrase groupings. In Figure 1, for example, the diagram shows the division between subject NP and predicate VP, as well as subdivisions within each. Finally, Reed-Kellogg diagrams encode both phrase groupings and syntactic roles, differentiating not only between subjects and predicates, but among headwords and modifiers, as well as different types of predicates and different types of dependent clauses. My argument going forward focuses on Reed-Kellogg diagrams, but it is important to remember that the principles of diagraming that allow for critical thinking—that is, the ways that a system balances comprehensiveness and elegance in order to encode visually certain information—will be at work in any system of diagramming.

Overall, then, one argument for teaching diagramming is simply that diagrams provide a way to express concisely our analysis of a sentence's grammar. Indeed, diagrams can provide a handy visual vocabulary for describing the relationships among elements in a sentence. Diagramming is not an end unto itself, but a means to allow us to talk about grammar. Ultimately, our (and our students') analyses are what matter because through analysis students develop and demonstrate their understanding of grammar. In other words, diagramming provides an efficient way to communicate our analyses and thereby, as Norman and Remler (2021) point out, promote students' metalinguistic awareness.

At the same time however, due to the demands of comprehensiveness and elegance, diagramming systems may not always provide perfect ways to communicate our analyses, because "graphical entities chosen to express the analyses always constrain what kind of relations can be represented" (Mazziotta, 2020, p. 79). Ambiguities may arise, or arbitrary conventions may interfere with clarity. Therefore, part of teaching diagramming must involve teaching students to be on the lookout for such imperfections, regardless of which diagramming system a teacher uses.

Ambiguity in the Reed-Kellogg System

While many readers are no doubt familiar with the diagramming system developed by Alonzo Reed and Brainerd Kellogg (1881), a few features of its visual encoding will become important later in this paper, so I wish to mention them here. First, in the Reed-Kellogg system, the main horizontal line of a diagram is reserved for the headwords of the main role-players in a clause: subjects, verbs, and objects or complements. Second, words and phrases that modify those headwords are placed below the words they modify. As a corollary to these two principles, nouns that act adverbially are placed on horizontal lines connected below the verb they modify. Finally, headwords that are not syntactically related to a clause (e.g., interjections or in some cases coordinating conjunctions) are placed on separate horizontal lines above the clause. These features, among others, are the "rules of the game" that constitute the Reed-Kellogg diagramming system. They are also, therefore, the rules that govern and enable critical thinking when we encounter grammatical structures that don't fit neatly into the system, or whose diagrams betray tensions within the diagramming system itself.

Importantly, despite diagramming's current reputation as "old-school" and therefore inflexible, Reed and Kellogg (1881) recognized that grammatical analysis is not always black and white. For them, the goal of diagraming a sentence was not to "get the diagram right," but to use the diagram to express a particular analysis. We see this priority demonstrated in their textbook *Higher Lessons in English*, in which they analyze the following example sentence: "He went out as mate and came back captain" (1881, pg. 53). In their reading, both "mate" and "captain" are subject complements (Reed and Kellogg call them "attribute complements"), and in their diagram "as" floats above "mate" as a conjunction. However, they admit that alternate readings are possible: "Some would say the conjunction *as* connects [the complement "mate"] to *he*; but we think this connection is made through the verb *went*, and that *as* is simply introductory. This is indicated in the diagram" (1881, p. 53). In this instance, Reed and Kellogg

argue for a particular grammatical analysis, which they express primarily through their visual representation.

Another example in which Reed and Kellogg (1881) acknowledge a debatable analysis is the sentence "He did what was right" (p. 97). In this case, they argue that the "what" clause is actually a relative clause modifying a tacit direct object, and that is how they diagram it. Importantly, they do acknowledge that "Another way . . . is preferred by many of the ablest grammarians" (p. 97). Again, what we see is that diagramming is not (or rather, should not be) a skill taught for its own sake, but instead a system to facilitate and even encourage discussion of competing grammatical analyses.

These examples of alternative analyses are important because they show us that diagramming can be a tool for grammatical argument. This means that, despite the apparent authority their eponymous diagramming system has developed over the decades, Reed and Kellogg did not see their analyses as beyond question. If we can help students to recognize that fact, they will be better equipped to think critically when they encounter new, complex, or ambiguous grammatical constructions, and that is the best reason to teach diagramming. In the next section, I consider two such cases in which the tensions in the Reed-Kellogg system invite critical thinking.

Hard Cases: Expletives and Absolutes

One grammatical construction for which the traditional diagram invites pushback is the expletive "there." Traditionally, expletive *there* is diagrammed on a separate horizontal line above the subject, as in Figure 2. This position signals that *there* is not syntactically related to the rest of the sentence, similar to an interjection. But this similarity raises a problem: the expletive *there* cannot be removed from a sentence in the same way that an interjection can; its removal requires changing the word order of the sentence, so clearly there is some grammatical relationship between "there" and the rest of the clause. To diagram expletive *there* in the traditional way thus miscommunicates how *there* acts in the sentence. The same visual structure (a horizontal line above the subject) is being used to communicate different syntactic facts in different examples: how is one to know which analysis is being presented?

Perhaps the traditional diagramming of expletive *there* makes more sense if we compare it with a complementizer like *that*, as in "The evil frog believed that he could frame our hero." In this case, *that* is diagrammed on a horizontal line above the noun clause which it signals (see Figure 3). In this case, the traditional way to diagram expletive *there* seems more reasonable; it, too, marks a clause. However, most grammars will classify *that* as a conjunction (and its diagram in fact recalls the diagram for coordinating conjunctions that join independent clauses: a horizontal line above the clause), and expletive *there* is clearly not working to conjoin clauses. Again, therefore, we see that the traditional diagram for the expletive *there* miscommunicates: it says that *there* works like an interjection (when it does not), or that it works like a conjunction (when it does not).

This miscommunication presents an opportunity for students to think critically, in the sense that I have defined that term. Unsatisfied with the traditional analysis, students can draw on their understanding of sentence diagramming to express alternative

analyses for the "there" expletive. The two most common analyses, at least among those my students tend to produce, treat "there" as a subject, with a second noun (an agent) appearing either as a subject complement or as an appositive to the subject (see Figure 4). Neither of these alternative analyses is beyond argument, but that is the point. The diagrams that express them use the principles of the Reed-Kellogg system in order to argue for the (apparent) relationships between words in a sentence. When students produce diagrams such as those in Figure 4, they are claiming that the word "there" stands in a particular relationship with the other words in the sentence.

Let us consider a second construction for which the traditional Reed-Kellogg diagram may express an inadequate analysis: absolute phrases, such as "Leonardo, his hand outstretched in recognition, seemed surprised." The traditional understanding of absolute phrases is that they, "by definition, [have] no grammatical connection to any part of the sentence" (Rogers, 2002), and therefore they are usually diagrammed as noun phrases floating above the clause with which they are associated (see Figure 5). And while it is true that absolute phrases have no *syntactic* relationship with a clause, they clearly have a *semantic* relationship: they typically supply information about the time or reason for an action, or the manner in which an agent carries out an action. It thus seems that the traditional manner of diagraming absolute phrases fails to communicate an important element of their meaning and use.

An elegant alternative to the traditional diagram was suggested by a student of mine. During a lesson on absolutes, she pointed out that these phrases could often be understood as elliptical prepositional phrases. In many cases, the preposition "with" can be inserted at the beginning of an absolute phrase without altering the meaning (e.g., "Leonardo, [with] his hand outstretched in recognition, seemed surprised."). My student suggested that we treat absolute phrases in the same way as we treat other noun phrases that carry adverbial force, diagraming them on horizontal lines attached below the verb they modify, as in Figure 6.

My point is not that my student's analysis of absolute phrases is better than the traditional one (though I think it is better). My point is that in order to arrive at her analysis, my student had to draw on her understanding of several facts: that absolute phrases are noun phrases, that nouns can act adverbially (and that the examples we were considering did so), that the Reed-Kellogg system for diagramming already has a way to handle adverbial nouns, and—most importantly—that the goal of diagramming is to express a grammatical analysis, not vice versa. Understanding these facts about the Reed-Kellogg system allowed my student to think critically: to examine and resolve an inconsistency in the system using the logic of the system itself.

Conclusions: Using Diagrams to Promote Critical Thinking

The examples above do not exhaust the possibilities for students to think critically about diagramming in the Reed-Kellogg system. Similar opportunities arise if we consider objects or compliments that are themselves the subjects of infinitive verbs (e.g., "The senator wanted him to confirm her understanding."), or comparative expressions (e.g., "Walking into Mordor may be even more difficult than usual."). Beyond these and other complex constructions, any sentence may provide an opportunity for students

to practice critical thinking if they can identify ways in which the traditional diagram misleads or omits important information.

In their article in this journal, Norman and Remler (2021) argue that teaching sentence diagramming can promote students' metalinguistic awareness, especially if diagramming allows students to take "academic risks" (p. 23). The sort of risks that Norman and Remler discuss involve students who diagram structures incorrectly but who, in doing so, demonstrate a developing understanding of grammar and a corresponding increase in confidence. Surely these sorts of risks are essential to students' learning. I would extend Norman and Remler's argument to say that diagramming can foster another sort of productive risk-taking: the questioning of traditional grammatical explanations. It is a risk—an important one—for students to consider the traditional analysis of a grammatical construction and then to argue, based on the rules of the diagramming system they have studied, that there's a better way to diagram that construction. Diagramming can give students a visual vocabulary to think critically and creatively about grammatical analysis, particularly in instances where traditional analyses may be unsatisfying. In other words, yes, students can learn to diagram as they learn the fundamentals and traditional vocabulary of grammar. But as teachers, we should also help students use diagramming to push at the boundaries of this tradition, to consider alternative analyses to anomalous constructions. In doing so, we foster not only grammatical understanding but creativity and critical thinking.

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Finding Purpose in the Unexpected: Co-creating Knowledge with Teacher Candidates

Ann Ellsworth

Abstract:

This essay affirms the importance of instructional pivoting, changing plans to address an unexpected opportunity to cover requisite content for teacher candidates as they anticipate their capstone semester of student teaching. A multi-part lesson about collective nouns and how they impact singular versus plural verb forms resulted in K-8 elementary education majors revisiting grammar concepts from grade school that they would likely soon be teaching to children. Motivated and curious prospective teachers engage with language concepts in a dynamic language lesson that empowers them as future teachers.

Introduction

Writing serves to communicate and is informed by conventions that guide spelling, grammar, and punctuation. I was reminded of this reality recently as I was idly scrolling through my email. An ordinary request from a teacher candidate became the unexpected catalyst for a lesson on collective nouns—what they are and how to select the correct form of the verb in sentence constructions.

As I was glancing through my messages, I spied a student request that gave me pause. Rereading it, I noted what appeared to be a gap in the writer's understanding of an essential grammar point: subject-verb agreement. While normally I likely would not have halted my survey of emails, the message came from a student in my English Language Arts (ELA) methods class, who was placed in a local school for their fifth-grade practicum experience. As a senior faculty member in the Department of Education at a land-grant university in a rural state, I teach several of the required ELA courses for K-8 elementary education majors, which gives me an appreciable understanding of how these classes work in concert to build teacher candidates' literacy knowledge. Realizing that collective nouns in sentences might be a topic this young teacher would be covering with her fifth graders, I decided to set aside the scripted plans I had for the next day's lesson and focus on grammar.

This essay describes how a message from a university student provided the impetus and context to address a language element not on the syllabus that resulted in a two-day transformative learning experience. Realizing that this short but impactful collective nouns lesson promised potential for other teachers, I shared the circumstances with the second author, also an ELA teacher. During our conversations, we thought to consolidate our insights about the importance of recognizing and using those teachable moments to harness student interest and provide memorable language lessons. Our recommendations follow a recounting of the classroom experience. We explore and acknowledge students' contributions in elevating those unplanned moments that maximize learning.

Background

Like instant coffee, text messages and email communications are quick to prepare and functional in purpose. Teacher candidates (TCs) often approach writing as they would text messaging, with a rushed message that lacks careful proofreading. One such item appeared in my inbox: "Hi Professor. My group of practicum students are reading *Where the Red Fern Grows.* Ideas needed. Please help!"

The TC, assigned to a fifth-grade classroom for their practicum placement, was expecting assistance in planning lessons around a novel study, but I observed a secondary, albeit unidentified request: To review subject-verb agreement, especially with collective nouns. As I am familiar with this fifth-grade classroom and the cooperating teacher's ELA curriculum, I knew that the TC would be working with parts of speech as part of a district-wide initiative to teach the science of reading, which involves the two major skill bundles of language comprehension and word recognition. First identified by cognitive developmental psychologist Hollis Scarborough (2001), the "reading rope" as it has been dubbed, has strands within each bundle that increase the "consolidation of skills needed for strategic and automatic processes to support children" becoming skilled language users (Fisher, et al., 2023, p. 5). Grammar knowledge fits under the language structure strand of the reading rope. Montana State Standards (n.d.) identify correct usage of collective nouns in written expression as a targeted skill. The Common Core State Standards require students to apply their knowledge of how English functions and to use effective language (Moberg, 2020).

In analyzing this email transmission, I realized there was a need to provide support on two levels. Norton (2009) argues the value of developing professionalism and pedagogical content knowledge, explaining that "Praxis is particularly important…the fusion of theory and practice when reflection and action come together" (p. 45). Teacher preparation programs focus on helping prospective teachers develop the content knowledge and skills needed to teach a particular subject or subjects. Moreover, such programs strive to develop professional attitudes and behaviors. John Edwards and Bill Martin (2016) argue for careful selection of skills that build trust and equip TCs to respond to their K-8 learners. Caring teachers who practice ethical and trustworthy behavior nurture the well-being of students and prioritize a learner-centered, spontaneous learning culture.

Collective Nouns Lesson

The lesson sequence described below came from my understanding of praxis, fertilized by a commitment to mentor those entering the profession. Realizing that perhaps other TCs might benefit from a short lesson on this language concept, I determined that our next class would showcase collective nouns. Novice practitioners, receptive to learning what will help them pass the comprehensive assessment completed at the end of their student teaching capstone semester, would be receptive to this change of schedule.

<u>Day 1</u>

Class started with a bell-ringer, and the featured task-of-the-day directed students to be text detectives and locate an error in this sentence: *That stunning bouquet of roses are going to probably win a blue ribbon at the fair.* TCs turned to their table partners, murmuring, and then one student tentatively wondered aloud if it had something to do with the verb. That worked. Taking this opening, I made a split-second decision that a review of grammar labels would be an additional, necessary first step. What were the essential elements of a sentence? A complete idea, a subject and a verb, or predicate. When a student sought clarification about *noun* and *subject*, another learning opportunity surfaced. Together we defined a noun as a person, place, thing, or idea, but explored how function changes, based on a word's function within a sentence. For example, in *The teacher gave a homework assignment*, *teacher* is used as the subject. In *The principal gave the teacher a favorable review, teacher* is the direct object. In *The principal gave the keys to the teacher*, *teacher* is the object of a prepositional phrase. TCs shared that they recalled learning these language labels in elementary school and expressed that the spontaneous grammar review was helpful. Ruday (2019) observes that discussing topics with pre-service teachers with a particular goal in mind provides a space for reflection about language use. Attentive teachers gather data from classroom interactions that improve and sharpen their teaching (Kolln & Gray, 2013; Norton, 2009). When teachers attend to student responses and complete in-the-moment spontaneous assessments, they can fine-tune their pedagogical decisions and make adjustments.

With background in nouns established, the class transitioned to *verb* and *predicate*, agreeing to use *verb*, which matched the label used in practicum contexts. TCs shared their understanding of major verb types, which included general definitions of action versus to-be verbs. One student ventured that action verbs are easier to identify but that to-be verbs are not as obvious. With this foundation established, the class then examined the bell-ringer sentence. When asked to identify nouns, students confidently offered *bouquet, roses, ribbon,* and *fair*. With these words labeled, finding the verb *are* became easier. To make explicit the connection between the subject and the verb, on the whiteboard, I circled *bouquet* with a red marker, noting that color is effective in highlighting contrasting elements in a sentence. A short discussion about noun markers, or determiners, helped students understand that *the, a,* and *an* signal nouns and often signal the subject. With a blue marker, I circled the verb and drew an arrow from *bouquet* to *are*. In unison, we read the subject/verb set: *The bouquet are.* Through discovery, TCs realized the correct verb form would be *is* and observed how the descriptive prepositional phrase added to "the bouquet" separated the subject from the verb. An epiphany. TCs had not realized that phrases could separate what is often side-by-side positioning of subjects and verbs, especially in reading material designed for early and developing readers. Once TCs understood that prepositional phrases serve as descriptive elements to modify nouns, verbs, and other words in the sentence, they felt more confident in associating the subject with the verb. As a class we agreed that finding prepositional phrases helped to simplify the sentence and make the subject and verb connection more apparent. Learning that, in this way,

sentences could be trimmed, or simplified, proved a helpful strategy. The new parsed sentence would be: *The bouquet is going to win (a prize.)*

TCs learned that *collective nouns* refer to a grouping of objects as a single entity. Brainstorming a couple of initial familiar examples involving animals—a herd of buffalo, a school of fish—they were able to generate more: a pod of whales, a school of dolphins, and a herd of cattle*.* Class ended with TCs completing exit tickets, a familiar routine that invites reflection about a concept learned. The recurring topic from this set of exit tickets was the ah-ha moment of the subject-verb collective nouns lesson and a request to have more practice.

This classroom scenario illustrates a couple of valuable lessons. Of utmost importance is the role of instructor to check-in and through astute observation assess students' engagement with and understanding of concepts presented. Appreciating the dynamic nature of the teaching-learning endeavor means that teachers adjust instructional focus as needed. When instructors are willing to change plans and redirect the lesson for one that matches students' questions, authentic learning occurs (Moats, 2023). According to Willingham (2009), individuals are naturally curious and "mental work appeals to us because it offers the opportunity for that pleasant feeling when it succeeds (p. 10). For TCs, content learning matters. At this stage in their teacher development, they are motivated to get it right and experience the satisfaction of knowing how to deliver a lesson that would keep their prospective grade school learners' attention. Having a mindset of puzzling and asking questions springboards thinking (Willingham, 2009). The curious mind wonders and explores cognitive possibilities.

Day 2

The next class period, TCs looked to the whiteboard where the day's opening language riddle was displayed: *After lunch, the team of soccer players were advised to meet the bus in the school parking lot.* Directed to identify the subject, verb, and prepositional phrases served as the initiating review exercise. Next, they were to determine the correct verb form. Completing these tasks generated a good deal of excited chatter, reflecting TCs' growing confidence and interest in sentence structure.

The centerpiece for the day's lesson was a shared reading of Ruth Heller's *A Cache of Jewels,* a richly illustrated picture book that offered abundant examples of collective nouns. Knowing that read-alouds serve as effective instructional tools (Ganske, 2013), I introduced Heller's text, directing TCs to listen carefully and to jot down at least five examples of collective nouns. A few examples from this colorfully illustrated book are presented below:

- cache of jewels
- hive of bees
- a litter of puppies
- an army of ants
- a pod of whales
- a string of diamonds
- a cluster of grapes

After the oral sharing of collective nouns, the class created what one student called a "collective noun rule"— namely, that if there is a collective noun in a sentence, the verb will be singular. This insight was of singular importance and reflected learner comprehension of the grammatical aspects of the lesson.

To close the lesson, TCs brainstormed other ways to teach collective nouns. Ideas, including bringing in manipulatives—for example, a faux arrangement of flowers to represent a bouquet or a group of colored markers to represent a set—reinforced TCs understanding of and confidence with this grammar topic. As a surprise, I produced a mystery box and invited a student to open it. Inside was a bag of jelly beans with a sentence taped to it: *This bag of jelly beans is a treat for collective noun experts*. Students burst into spontaneous applause, and the jelly beans were readily consumed. At the end of class, excited chatter about the lesson accompanied their exodus from the room.

Teachers confirm a lesson's success when students talk about the concepts (Willingham, 2009). The authors reflect that the spontaneity of the lesson on a topic not listed on the course syllabus unfolded in a way that respected learners and capitalized on a teachable moment. Finding the inherent value of those unanticipated opportunities illustrates how language learning can be a vibrant, dynamic, and motivating feature. The lively lesson sequence highlighted grammar conventions and language labels—parts of speech. Moreover, TCs experienced how a grammar lesson could be playful, informative, and engaging. Russian psychologist Lev Vygotsky's zone of proximal development suggests instruction that is neither overly simple nor too difficult to maximize learning (1978). Working on issues or content at of the right level of difficulty is rewarding, whereas working on problems that are too easy or too hard is unpleasant (Willingham, 2009). In classrooms, the reality is such that sometimes students cannot opt out of the activity; consequently, with frustrating tasks, their minds can be somewhere else. The solution centers on work that poses moderate challenges. My decision to extend the lesson and teach collective nouns proved to be an example of cognitive work that engaged TCs as co-constructors of knowledge, thus building their reflective thinking skills.

Discussion and Recommendations

The small class size, 14 students, contributed to the camaraderie and trust developed during the semester in this learning space. Willingham (2009) writes that students often "refer to good teachers as those who 'make the stuff interesting'" (p.65). In other words, the effective instructor has a way of interacting with learners that they find engaging. According to Willingham (2009), classrooms are interactive spaces and "the emotional bond between students and teacher—for better or worse—accounts for whether students learn (p. 65). When a lesson is presented that has relevance for learners—in this case, the application to teaching fifth graders—interest and engagement increases (Smagorinsky, et. al., 2007; Stringer, et.al., 2010).

Presented here as a sequence of activities centered around sentence features— namely, nouns, noun types or categories, and verbs— this classroom vignette illustrates how a lesson in a teacher preparation methods class can spur prospective

teachers to think about and apply the concept to their field placement assignment. We offer this lesson illustration as an example of a robust link between on campus and in-the-field application. In the weeks that followed, TCs continued to reference the collective nouns lesson and suggested ways to link it to other course topics. Based on this teaching scenario, the authors offer three recommendations.

Recommendation One: Be alert for those organic teachable moments to use student feedback, communication, or questions to propel learning.

The collective noun detour resulted from a student email correspondence with the instructor, resulting in rich learning for a wider audience of TCs, not just the originator of the email. Instead of ignoring the grammar construction of the email, I chose to use the occasion to provide meaningful instruction that accomplished several objectives. In teaching future teachers, we must provide authentic modeling, which comes from the instructor and real-world contexts. The ebb and flow of a workplace environment mirrors what can happen in classrooms. Dynamic, engaging contexts are the heart of memorable learning.

Recommendation Two: Talk with students about features/aspects of language as part of daily lessons.

When students are encouraged to observe, discuss, and question, the classroom becomes a vibrant laboratory where lexical discoveries are celebrated. Language is not sacrosanct or outside of users' control. Instead, learners ought to dive in, explore, ask questions, and build knowledge together. Using Vygotsky's zone of proximal development as a guide, learners are able "to draw upon what they already know to expand their knowledge of words" (Gansky, 2013, p. 6). In the lesson presented above, TCs had partial knowledge about sentence elements; when probing more carefully into the concepts of nouns and verbs, students also clarified their understanding of grammar categories. Co-constructed knowledge secures participant buy-in and can get beyond surface understandings.

Recommendation Three: Practice the skills in engaging ways.

As Mary Poppins (1964), the beloved character in the eponymous movie, is fond of saying, "In every task that must be done, there is an element of fun. Find the fun, and snap, the job's a game." While skill-n-drill worksheets and grammar textbook exercises have guided grammar instruction in the past and been a source of debate, research in the last few decades points to purpose-driven language learning and grammar teaching (Benjamin, 2007; Smagorinsky et.al., 2007). In the classroom, when students talk about and work with language, learning accelerates. In the college classroom described in this article, heightened awareness of nouns, verbs, and prepositional phrases were three unexpected learning targets not identified on the course schedule of topics. Yet, what resulted was a bonus lesson that TCs could use in their practicum placements.

Conclusion

Preparing college students to be teachers carries significant responsibility. While TCs are in methods classes, their instructors can mentor and model praxis that embodies

reflective, intentional instruction. The collective noun lesson illustrated a learning opportunity that capitalized on flexibility and involved pivoting from a planned lesson to a new topic that prioritized learners. In extending TCs' existing knowledge about language features, novice teachers learned about collective nouns, yes, but they also co-constructed the lesson through active participation. Arguably, change in the routine invigorated and refocused learner attention. In exploring language, cognitive processes cannot operate alone. Students must tap background knowledge and share a safe environment that encourages risk-taking. The lesson described above contained these requisite elements. To support developing teachers as independent, self-aware, reflective, and confident language users means they first have to see this modeled in the college classroom. Then the potential exists to transfer these skills and dispositions to K-8 classrooms and their future students. Language learning occurs best when it has utility for the user, and the user has agency to manipulate it.

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Using English to Help Students Understand Quantitative Ideas

Milo Schield, New College of Florida

Abstract:

While symbols are often used in the teaching of mathematics and statistics, it is important to acknowledge how important and integral ordinary English is in interpreting, presenting and communicating the data and in describing mathematical relationships. This paper argues that students' skill with basic grammatical concepts and vocabulary from elementary grades through high school can enhance their quantitative literacy — their computational thinking — and augment their understanding of quantitative operations. The recommendations in this paper are prompted by observed deficiencies in college-level students who failed the entry-level critical thinking exam or who had difficulty dealing with ratios in a statistical literacy course. Recommendations range from having students study common prepositions as early as third grade to teaching statistical literacy alongside Algebra 2 in tenth grade. Student evaluations following a grammar-based statistical literacy course confirm the value of using ordinary English in improving their quantitative literacy.

Background:

Mathematics tends to focus more on the pattern or form of a situation and less on the particulars. Outside mathematics, the focus is on the particulars: the matter at hand. As Lee Child's Reacher often says, "Details matter in an investigation." That is true in understanding arithmetic and in life. Students may be turned off by the emphasis on symbols in algebra. By showing these students how to use ordinary English in their quantitative thinking, teachers may be able to motivate students who struggle with symbolic thinking – or by the technical use of ordinary English.

Grade-Level Tasks

The following presents examples of how the two can be easily integrated in both math and English classes to supplement learning in each. They can be taught at various grades depending upon when students encounter related topics in arithmetic. While all of the following are suggestions, they provide practical ideas for demonstrating to students the overlap and applicability of seemingly disparate concepts. All the ideas recommended can be taught in English classrooms without a mathematician, a computer and without any symbols or formula. All those ideas recommended before 10th grade can be taught in one or two class periods without using any numbers.

Third grade

My wife and I adopted two children (age 7 and 9) who had been taken away from their parents. A counselor told us that these children would have special difficulty with subtraction and division because those arithmetic operations represented separation – and separation would remind these children of the loss of their parents.

There is an alternate explanation for why most children are much better at addition and multiplication than they are at subtraction and division. Addition and multiplication

are order independent. "Two plus three" equals "three plus two." "Two times three" is "three times two." Subtraction and division are order dependent. "Three take away (minus) two" is not the same as "two take away (minus) three." "Three divided by two" is not the same as "two divided by three." I doubt that teachers are asking students to calculate two minus three. But when asked to describe subtraction, third graders may not recognize the difference. They may have created a rule: subtract the smaller from the larger. This may work in third grade, but it won't work once students deal with negative numbers. Teachers should focus on helping students properly verbalize what they are doing.

Consider two common prepositions: "to" and "from." These prepositions can be used in situations that don't involve order. The distance from Pittsburg to Miami is the same as the distance from Miami to Pittsburg. These prepositions can indicate order. A teacher may describe an argument as moving "from a premise to a conclusion." Students may nod, but they don't see an arrow starting with the premise and finishing at the conclusion. Students may confuse "take the cookie from Jim and give it to Judy" with the inverse. Students may confuse "subtract five from three" with "subtract three from five."

Students may confuse "borrow" with "lend" or "loan." This confusion may disappear if students focus on the preposition naturally following each word: We borrow *from* someone; we lend *to* someone. Order dependencies are common. They may involve other prepositions such as "in" and "by." Students may confuse "divide two into six" with "divide six into two" or "divide two by six."

Consider the common preposition "of." This is a multi-purpose preposition. It can specify time (the 12th of July), measurement (a pound of sugar) or location (west of the Alleghenies). More generally, "of" shows relationships such as belonging to (the lands of the King, the seat of her car).

A third grade teacher said that she taught fractions using *of* (Four of the five students rode the school bus). Note that in each case the noun or pronoun following "of" is what is primary (July, Alleghenies, King, car and students) and what precedes "of" is secondary since it stands in relationship to what is primary. Thus, saying "five out of four students rode the bus" would be improper.

Fractions can be introduced using a pie chart where the part (a slice) is part of the whole (the pie). Not only does the pie chart introduce fractions visually, but it reinforces the importance of grammar where order is crucial.

Having students verbalize these order-dependent operations using English is an important part of their education. It grounds and integrates their thinking and highlights the operational order in arithmetic.

Sixth grade:

By this grade, students are accustomed to saying "two times three is six." They may not realize that "two times three" is ambiguous. It can mean six is "two times as much as three" or it can mean six is "two times more than three." This mistake is all too common. Yes, "six is two times three" and yes, "six is more than three", so it seems

natural to say that "six is two times more than three." In fact, "two times more than three" means "two threes added to a base of three." This gives nine – not six.

Students may try to reverse things. If nine is "two times more than three", then isn't three "two times less than nine?" But "two times less than nine" is a minus nine: 200% off. If a price said "100% off", it should be free. If the price said "200% off", we'd expect to be paid to the amount stated on the tag.

Yet the phrase "times less" appears in the everyday media and in scholarly publications like Scientific American without implying negative amounts. Once again context matters – something English teachers are prepared to handle. Whenever the item in question cannot (or is unlikely to) go negative, then the expression should be interpreted differently. For example, Pike's Peak is more than twice as tall (in altitude) as is Denver Colorado. There is no misunderstanding when someone says that Denver's altitude is two times less than that of Pike's Peak.

Some students have difficulty with ratios – another ordered relationship. They confuse "miles per gallon" with "gallons per mile." They confuse wanting a "low student-teacher ratio" with wanting a "low teacher-student ratio": a "low ratio of teachers to students."

For more on the grammar-math overlap, see Orr (1989) and Whittin and Whittin (2010).

Seventh Grade.

Students have been introduced to whole-number fractions (1/4), decimal fractions (0.25) and to percentages (25%). Arithmetically, the relationship is quite simple. Students may not realize that the preposition "per" is involved in percentages.

First, the word "percentage" includes "per": per-cent or per 100. Students may not recognize that percentages can indicate part-whole relationships (70% of all veterinarians are women) as well as percent change (Consumer prices were 9.1% higher in June 2022 than in June 2021)[1] or percent difference (Women make 22% less than men)[2]. Notice what follows the percent sign: *of* for part-whole versus a comparative (more/less, bigger/smaller) for a change or difference. Statisticians tend to focus on means and medians. But the "per" statistics (percent, percentage, rate per) are much more common.

Second, there are two closely related named ratios[3]: "percent" and "percentage." When describing part-whole ratios, both refer to percent fractions. They differ in wording (syntax) and usage[4].

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1   https://www.bls.gov/charts/consumer-price-index/consumer-price-index-by-category-line-chart.htm
2   https://www.npr.org/2024/03/12/1237505064/equal-pay-day-women-gender-pay-gap
3   The named-ratio families include percentage (fraction, and share); rate (prevalence, and incidence), chance (odds, risk, likelihood, and probability), and likely (prevalent).
4   Although every usage of named ratios involves Standard English grammar for parts of speech, the named ratios have different grammatical rules indicating their part and whole (numerator and denominator). In using the percent named ratio, modifiers have the same part-whole status as whatever they modify. In using the percentage named-ratios, relative clauses following percentage indicate the part (the percentage of men who smoke). In using the rate named ratios, the phrase "rate of" introduces the part (the rate of death) unless there is a countable adjective (that is not a possessive) preceding rate (the death rate) in which case "rate of" introduces the whole (the death rate of civilians). In using the chance

- The "percent" named-ratio is clause based (51% of babies are male): the entire clause is needed to identify the part and the whole. The "percentage" named ratios is phrase-based (The percentage of babies who are male is 51%): the two phrases are sufficient to identify the part and whole.

- Although "percentage of" can introduce the part, "% of" is restricted to introducing the whole. This simplifies learning these two similar named ratios for these students.

- Finally, these two named-ratios (percent and percentage) differ in their usage. Percent is a unit of measure – like inches or volts. Percentage is what is being measured – like height or voltage. We don't ask "what percent of students passed?" We ask, "What percentage of students passed?"

These differences between percent and percentage cause problems for students. Arguably, the percent named ratio is simpler. But the percentage named ratio is needed for comparisons of percentage and for titles of tables and graphs, where a common part is involved (the percentage of unemployment).

Eighth grade

Students should be taught the difference between an association (observed) and causation (often unobserved). Here are some examples:

- People who shave their face tend to be taller than people who shave their legs. Will a change in shaving change one's height? Of course not.

- Suppose that ice cream sales in Canada tend to increase as burglaries increase (and vice versa). Does this mean burglaries would decrease if Canadians ate less ice cream? No.

Students need to learn the difference between disparity and discrimination (and their connection with association and causation). Not all racial and sexual disparities are due to discrimination.

- If 95% of those in prison are men, but men are 48% of the population, then this is a huge disparity. Has anyone ever argued that the criminal justice system discriminates against men? Should we incarcerate more women?

Ninth grade

Students should be introduced to the idea that statistics are more like words than numbers. This may seem counter-intuitive. Numbers seems absolute, unchangeable. Words depend on the context. To set the stage consider this story. It shows how the situation can change after taking something into account.

> A father and his children were on a New York subway. The children were out of control: jumping on seats, yelling, and throwing things. The father did nothing. He slumped forward looking down at the floor, his head between his

and likely families of named ratios, 'to' introduces the part (our chance to win). But in the ratio family, 'to' introduces the whole or denominator (the ratio of men to women). In Schield's previous papers and textbook, these named-ratio families are described as distinct "grammars" since different families have different rules indicating the part and whole. This use of "grammar" is non-standard and may be ill-advised if not improper. .

> hands. Finally, an unhappy onlooker called on the father to take control of his kids. The father looked up sadly and said they had just left the hospital where his wife, the children's mother, had just died. Immediately the onlookers' negative judgments were transformed into pity for the father and his children.

The onlookers' negative judgment had been confused (confounded) by something related that was unknown: the death of his wife (the kids' mom). That confusing factor is called a confounder. It caused the kids' behavior and the father's lack of control. Taking the confounder into account changed the bystanders' judgment.

How does relate to arithmetic? In arithmetic, numbers are immutable. But statistics are numbers in context where the context can influence the statistics. Yes, in arithmetic one plus one always equals two. But in "bunny math", one bunny plus one bunny can result in more than two bunnies – under certain conditions. In "ice-cube math", one ice-cube plus one ice cube can result in less than two ice cubes – if the weather is hot. With statistics, the context matters.

To understand the influence of context, students should be introduced to the phrases "taking into account" or "controlling for." In order to focus on the ideas involved, this should be done using examples where the influences are well known and without any use of any numbers. Here is an example:

- Suppose that the hospital with best reputation in a big city is also the hospital with the highest patients' death rate. Does this mean this "best" hospital is really the worst hospital? Or is there a story behind this ranking? Ask students what else might influence whether a patient dies in a hospital. Students quickly recognize that some patients are sicker than others, that some injuries are more serious than others. Although other factors can and do affect patient deaths, this does not mean the original comparison is false or fake news. The higher death rate comparison can be totally true, but it can still be a crude comparison: a comparison that doesn't take anything relevant into account. A simple way to take into account patient condition is selection. Divide the patients into two groups: those in good condition (they walk into the hospital) and those in poor condition (they are carried into the hospital). It may be that the "best" hospital has a lower death rate than any other hospital for each group of patients. If the patients in the worst condition are more likely to go to (or are sent to) the best hospital, then this difference in mix may explain why the "best" hospital has the highest death rate.

As you can see, teaching what it means to "take into account" a related factor requires hypothetical thinking on the part of the students. They have never experienced this in any math class. So it will take them time to integrate this new idea. The goal is for students to recognize that statistics are more like words than numbers. Again, English teachers are arguably much more sensitive to the role of context than are those teaching mathematics. Thus including these topics in an English class may be more helpful in educating students than having it taught in a math class. Teaching students what it means to "take something into account" quantitatively in both English classes and mathematics classes is even better!

Those who are unaware of the difference between a crude comparison and an adjusted comparison and who are unaware of what it means to take something into account or to control for something quantitatively are arguably statistically illiterate.

Tenth grade or higher: Teaching a High School Statistical Literacy Course.

At this point most students have completed Algebra 1. Do all these students need to take Algebra 2? Arguably no. Schield (2008) has argued that these students would be better served with a Statistical Literacy course. However, it should be much simpler than a college statistical literacy course. Here are three reasonable goals for high school students.

1. They can create a percentage from a table of counts.
2. They can describe a percentage presented in a table or graph using ordinary English.
3. They can analyze the structure and strength of an argument presented in the everyday media.

Goal #1: Students should be able to answer any "what percentage" question given a count table without doing any calculation. Consider the count table in Figure 1.

Figure 1: World Population by Country and Religion

(Millions)	Total	Asia	Europe	North Am	Other
Total	5,804	3,513	728	296	1,563
Christian	1,955	303	556	256	1,096
Muslim	1,126	778	32	5	316
Non-religious	887	753	90	21	44
Hindus	793	787	2	1	4
Buddhists	325	322	2	1	1
Atheists	222	175	41	2	6
All Other	496	395	5	10	96
Table 1333. 1997 U.S. Statistical Abstract.					

Q. "What percentage of Muslims live in Asia?" versus "What percentage of Asians are Muslim?" It takes time for some students to recognize that these two similar sounding questions have very different answers. This subtle difference highlights what statisticians call "the confusion of the inverse." Students don't have to calculate anything so long as they say "something out of something." For example when asked what percentage of Asians are Muslims?" they should say "778 out of 3513." The millions cancel.

Goal #2: Describing a percentage using ordinary English seems to be a reasonable goal for high school graduates. They are not being asked to calculate anything. They are not being asked to infer anything about a population statistic if these data happen to be taken from a random sample. They are not being asked to speculate or argue about what factors might influence this percentage or rate. Basically, they are being asked to translate a percentage or rate from one form (a table or a graph) to another

form (ordinary English). This can be much harder than it might seem. College teachers, statistical educators and even fellows of learned statistical societies can make mistakes. Consider the table of 100% row percentages shown in Figure 2.

Figure 2: Distribution of First Marriages

	Distribution of U.S. First Marriages By Woman's Age (%)							
	Total	< 20	20-24	25-29	30-34	35-44	45-64	65+
1980	100	30.4	47.3	16.0	4.0	1.6	0.6	0.1
1990	100	16.6	40.8	27.2	10.1	4.5	0.7	0.1
2012	100	4.9	26.8	34.5	17.7	11.0	4.9	0.2
1980 and 1990:	1997 US Statistical Abstract Table 150							
2012	https://flowingdata.com/2016/03/03/marrying-age/							

Q. Which of the following describes the 26.8% in the bottom row, 20-24 column?

A1.In the US in 2012, 26.8% of 20-24 year old women first married.

A2. In the US in 2012, 26.8% of first marriages involved women who were ages 20-24.

Students have more difficulty with reading a table of percentages than with a table of counts. They don't appreciate the importance of the 100% total in the left margin. And they have even more difficulty if they are asked to write out a description rather than select from multiple choice answers. But if communicating is the goal, then they must be able to write using ordinary English. When asked to identify the most difficult parts of a statistical literacy course, college students selected the part-whole ratios (the confusion of the inverse) as one of the three most difficult topics. Utts (2003) identified this as one of the most important topics to be covered in introductory statistics. In order to write accurately, they must be introduced to the different ways of describing part-whole percentages using ordinary English. They need guidance: provisional rules. (Schield, 2023).

Goal #3: Students should be able to analyze arguments encountered in the everyday media. They should be able to answer these critical thinking questions. (1) What is the point? Is it stated or just implied? (2) How disputable is the point? (3) Are numbers or statistics used as evidence?

They should be able to answer these seven statistical literacy questions. (1) How big? How much? How many? This is a simple question but a third of news stories don't give any number. They may say "many" or "often." (2) Compared to what? Choosing the basis of a comparison is the easiest way to influence the size – to make it big or make it small. (3) Why not a rate? It is easy to show that California has ore unemployment than Iowa. That doesn't mean it has a higher unemployment rate. (4) If it is a rate, per what? Compared to Rhode Island, Michigan could have a higher COVID death rate per million population but a lower COVID death rate per thousand confirmed cases. (5) How were things defined, counted or measured? Do you know that almost a third of the world's population is malnourished? Does that seem too high? Perhaps you mistook malnourished for under-nourished. Malnourished may include those that

are obese and those getting a poor diet. (6) What was taken into account? Is this comparison a crude comparison? Many – if not most – disparities involve crude comparisons. (7) What should have been taken into account? This may be too advanced for secondary students. But it gives students a real challenge. Note: students are not being asked to evaluate the overall argument. That may require more background and expertise than they have. See Schield (2022a) for more details on these seven questions.

Student Reviews

After completing the college course, students were anonymously surveyed as to this claim:

All college students should be required to take a Statistical Literacy course.

Among Augsburg seniors, about two-thirds agreed or strongly agreed with this claim on a five point scale. Among UNM first year students about a third agreed or strongly agreed. Schield (2022b). Here are some of their comments.

This class is very challenging yet, fun for me and I am doing my very best... I feel confident in this course and just appreciate all of what you instructors have done. I didn't do well in my statistics course last semester. So, to be able to feel like I am understanding and am engaged in this course as an option, is very rewarding."

"I like the content and critical thinking aspect of the class. As someone who had to drop the regular stats class I was very happy to have this class as an option. I feel like the content has the overall goal of helping me with critical thinking. There are many times now where I am looking out for parts and whole in people's statements and critically thinking about what people are saying more often. So I would say that the content is also more applicable for life goals. I would have to say that the regular stats class is not very useful to me because the content will not matter later in my life. Taking that class back in the spring I just was so confounded on why I was needing that class for general education. But like I said I really appreciate having this class as an option."

"The set up and idea behind the class as a whole are my favorite part, tackling statistics from a different angle that is much more engaging for those who find math subjects to be typically challenging is a brand new approach and one that I think would be beneficial for a broader group of students. Attempting to explain the workings behind statistics has personally allowed me to understand the material much better than I had previously."

"This course is an answer to my prayers, I am a music major and horrible at math so fulfilling my math requirement has been hard. This is the first math class I actually liked. I loved the format and the material is about things I can apply to everyday life. The textbook is fantastic and helped me a lot accompanied by the instruction. I would recommend this class for anyone."

"Definitely not a repeat of AP statistics. The math problems make way more sense than a regular statistics class. It really helped me begin to think critically about ALL of the statistics I hear on the news."

Benefits and Recommendations

The primary benefit is in helping students communicate quantitative ideas and amounts accurately using ordinary English. Students learn that small differences in syntax can create big differences in semantics: an important lesson in areas such as law. They learn the importance of close reading – something they will need in other courses. They learn that that statistics require the same sorts of critical thinking needed to analyze non-quantitative texts. They learn that statistics are often selected or manipulated to support an agenda or argument yet still be factually true. Even if "numbers don't lie," students learn that statistics can easily mislead. And they better appreciate that the best advice in dealing with statistics is to "Take care!" Teaching statistical literacy may even help bridge Snow's (1959) two-culture divide.

School teachers are encouraged to do some or all of the following:
- Survey student on their order awareness in various grammatical situations
- Evaluate the feasibility, difficulty and benefits of the grade-level tasks.
- Teach some of the grade-level tasks and report your experience.
- Search the literature for papers on these topics.
- Analyze and evaluate the part-whole rules in describing percentages. (Schield, 2020)

Conclusion

This mixture of quantitative ideas and ordinary English seems to fall within the overlap between mathematics and English. English teachers are arguably better prepared to teach these ideas than mathematicians since English teachers have a much stronger focus on context, words and grammar. English teachers are invited to teach these ideas in their courses and in a statistical literacy alternative to Algebra 2 or AP statistics.

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Review: *Says Who? A Kinder, Funner Usage guide for Every-one Who Cares About Words By* Anne Carzan

Sherry Saylors

Anne Curzan's book, *Says Who? A Kinder, Funner Usage guide for Everyone Who Cares About Words,* should win the Ad Council's award for truth in advertising. Every phrase in the title is true! *Says Who?* is authoritative and well-researched, but it is also inclusive and laugh-out-loud funny. Reading this book produces the same good vibes as sitting in a Barnes and Noble café for hours, sipping tea and chatting with a friend and colleague about language.

My educational and professional life has been framed by two handbooks. I was a student at the University of Tennessee and introduced to John C. Hodges' Harbrace Handbook with the reverence accorded to a professor in the English department. And while at Prince George's Community College, in Maryland, I taught hundreds of students from Diana Hacker's Rules for Writers, having been taught by her to tutor in the College's Writing Center. I would not have taken either book from the shelf and read it purely for pleasure. But Curzan's handbook is different, and I think the final phrase in the title explains why. This book is written by and for people who care about words. The two other handbooks were written by and for people who cared about correctness.

Hodges and Hacker also cared about words, but they did not produce their handbooks to communicate a delight in the language; instead, their goal was to delineate clearly the rules of standard edited English. Curzan captures this tension between correctness and delight in the evolving language in her description of two forces within all of us: the inner grammando and the inner wordie! In her book, Curzan traces the history of the origins of the rules and also uses modern tools to chart language change. What is the purpose of this romp through history and modern technology? I sense that Curzan is on a mission to help all of us continue to delight in language and to treat variants with respect, since words are an intrinsic part of people's culture. By the book's end, we will be able to answer the question, "Says who?" with our own, "Says me!" We will be able to make our own language decisions and to enjoy each step of the process.

Curzan equips us for our work to make our own language decisions through the structure of the book. Each chapter takes a point of grammar usage and puts it in various contexts: the grammando point of view, the historical perspective, current usage as seen by Corpora or Google Books Ngram viewer, and Curzon's delightful first-person account of her own journey through all these differing points of view. She includes a most useful section at the end of each chapter: the bottom line. In Curzan's own words, this "provides pragmatic, tested advice for how to handle the usage issue in your own speaking and writing" (xiv). There are six parts to the book, each introduced by a question: part 1, Who's in charge here?; part 2, What does that word mean?; part 3, What's the difference; part 4, Which pronoun to pick?; part 5, Where does that punctuation go?; and part 6, How stylish is that sentence?

A review of this book is difficult to write because the reviewer wishes to share everything that delighted her or made her think, but the purpose of a review is to encourage the potential reader to become an actual reader! One way to whet the reader's interest, perhaps, is to take one chapter and show how these multiple perspectives are resolved into a logical "bottom line." In chapter 18, "the singularity of *they*," Curzon begins by calling it "a siren song for inner grammandos" (141). She explains that people have been solving the problem of a lack of gender-neutral singular pronouns for hundreds of years. In fact, researchers have found that "*they* is the most common singular generic pronoun in spoken American English" (142). The singular *they* has been written for hundreds of years, as well. Curzan quotes passages from both Jane Austen and William Shakespeare's writings! She then traces the development of the generic *he* from an eighteenth-century female grammarian's first introduction to its subsequent adoption in usage guides, including Strunk and White's injunction that "It has no pejorative connotations; it is never incorrect" (145). After feminists in the 1970s protested the use of the generic *he*, the singular they began to grow in popularity.

As a long-term user of the singular *they*, Curzan created a footnote to appear in her articles the first time she used the singular *they,* succinctly describing the rationale of the usage: "I am choosing to use the singular gender-neutral they in this text. It is the most widely used singular generic pronoun in the spoken language and provides a useful, inclusive, concise solution to the issue in the written language as well" (148). Her footnote is not as necessary now since more newspaper usage guides are accepting singular *they*. Curzan herself, as dean of the liberal arts college at the University of Michigan, has revised the style guide to include the singular *they*. The bottom line here is that writers and editors can choose to signify respect for all people by making the written word more equitable.

Anne Curzan provides the best description of her purpose for writing the book: "… I've tried to provide clear, nuanced guidance that goes beyond 'right' and 'wrong' to empower you to make informed language choices" (188). As a teacher, Curzan is superb – she truly gives us the tools to make language choices. I know I will return to *Says Who*? again and again, whenever I have a question but especially when I want to interact with a true lover of words. If Anne and I ever went to Barnes and Noble to talk about language, we would be there until closing!

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Sherry Saylors is a long-term professor of English at Prince George's Community College, Largo Maryland. She teaches an upper-level course, Applied Grammar, for English and journalism majors. She has run a free workshop for 12 years, Grammar Clinic through the Writing Center. She is a Co-President of ATEG.

Review: Strange and Full of Wonder: *Adventures in English Syntax* by Robert Freidin

Kevin Moberg

Consider the phrase "fresh fruits and vegetables." Does *fresh* apply to *fruits* alone or to both *fruits* and *vegetables*? If you were to read that phrase in context within a passage, how would you decide what the author intends? Answering these questions requires you to think deliberately about something you do subconsciously each time you read: determine the often invisible syntactic structure underlying the visible order of words on the page. This purposeful consideration of how you make meaning of the words that you read may bring you both insight and delight. If so, then you likely agree with Robert Freidin's proposal about language: that, "because it is so familiar, a constant companion (even in dreams), we mostly take it for granted. But when we pay careful attention to it, especially how it is put together, the familiar becomes strange and full of wonder" (2020, p. 50).

That sense of wonder is suggested by the word "adventures" in the title of Robert Freidin's 2020 book *Adventures in English Syntax,* an introduction to English sentence structure. The adventure lies in the approach that Freidin takes in the book: before *presenting* syntax concepts, he leads readers in *exploring* them in language samples. Each exploration starts with a focus on a short phrase or clause and then deconstructs it, revealing the many possible ways of interpreting the words while also addressing how punctuation, context, and reader knowledge help to resolve ambiguities and make meaning. The chapters gradually present additional syntactic structures so that, by book's end, readers will have a deeper understanding of some basics of linguistics and an appreciation for the complexities of English.

To make the familiar become strange, Freidin starts each chapter with a language sample that looks deceptively simple, and he slowly reveals the complex syntax underlying the words. For example, the phrase "one fish two fish red fish blue fish" from Dr. Seuss launches the opening chapter, in which Freidin dissects the ambiguity of those eight words over the course of a dozen pages. Does "two fish" include the "one fish," or are they two additional fish for a total of three? Are the red and blue fish in addition to the one and two fish, or are they appositives for the initial fish? Freidin's examination goes into even greater depth so that, by the conclusion of the chapter, he "demonstrates that the interpretation of language involves the computation of its syntactic structure beyond the mere order of words" (2020, p. 12).

In subsequent chapters, Freidin builds upon this understanding of syntactic units as the basis for meaning by presenting more language samples exhibiting ambiguity that readers must resolve to understand what is being communicated. While leading his readers on these linguistic adventures, he shares terminology to name the concepts they are encountering: *coordinating conjunction*, *lexicon*, *morpheme*, *clause*, *adverb*, *ellipsis*, and so on. Most chapters end with a "coda" in which he summarizes the major linguistics concepts and their implications for readers and writers.

Those codas exemplify one of Freidin's purposes for his book beyond inspiring delight in the wonders of language: he wants readers to "have a basic understanding of

English sentence structure that you can use in your writing and reading" (2020, p. 191). For example, in Chapter 3, he offers advice "on the use and misuse of *and*" (p. 45) to avoid ambiguity in writing for readers who must interpret conjuncts (such as my "fresh fruits and vegetables" example). Chapter 4 includes a section called "mental grammar vs. prescriptive rules" (p. 75) in which he debunks the traditionalist notion that certain constructions are "mistakes": stranding a preposition, splitting an infinitive, and so on. Freidin investigates that topic further in Chapter 5 by examining long-standing criticism of the passive voice and pointing out its actual utility when a writer aims to control which part of a clause gets the reader's attention.

The one chapter without a coda is Chapter 6, in which Freidin invites readers to apply the lessons of the previous chapters to a sentence written by English writer Jane Austen. His approach is "to consider the other ways Austen could have formulated this sentence and to compare these to her original" (2020, p. 139). The teachers among Freidin's readers may appreciate this idea and the detailed way he demonstrates it. It is a teaching strategy that could be modified and used in English classes at all levels to help students understand how writing choices create effects on readers—how different versions of a sentence can be essentially equal in meaning but quite different in impact and artistry.

Another feature of the book that teachers may like is Freidin's "adventure" approach, explaining linguistics concepts in the context of extended examination of phrases and sentences. The book does not seem like a main text for a foundational course on linguistics or English grammar. For one reason, it does not present a breadth of topics, as a grammar or linguistics textbook would. For another, its thorough exploration of so many potential ambiguities in one brief language sample over an entire chapter may challenge the concentration of an amateur linguist. However, the book has several features to aid students, should their teachers choose to use it with them: colored text to help focus on certain words within language samples, graphic elements like tree diagrams to represent "the hierarchical arrangement of syntactic units" (2020, p. 14), in-text definitions of linguistic terminology, and footnotes to cite research and direct readers to additional resources.

Teachers also would appreciate that one of Freidin's main purposes is to help his audience become better writers and readers themselves. He focuses on syntax over other aspects of language because "understanding English syntax ... is a useful tool for controlling and crafting the sentences we write, and for interpreting the sentences that we read (including the ones we write)" (2020, p. 24). With this book Robert Freidin aims to improve people's understanding of English sentence structure so that they can derive meaning from what they read and can write skillfully to communicate meaning to their own readers. He ends the book by stating that this is only the starting point for "further exploration ... a demonstration that the structure of language is endlessly fascinating when you pay attention" (p. 191). Those whose interest is piqued by *Adventures in English Syntax* will be well-prepared to explore further the strange and wonderful way that English works as they continue their reading and writing.

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