2
Linguistic Features of Academic Writing*

Introduction

What is it about academic writing that makes it sound academic and at the same time presents challenges for novice writers? To answer this question, let's compare the two informational texts in Table 2.1.

Text 2-1 is an excerpt from an American middle school textbook (Horton et al., 2000, p. 579) and presumably written by a science expert. Text 2-2 is written by an American high school student whose first language is English in response to an explicit request to assume the role of a scientist author and write authoritatively about a familiar animal of personal interest. Both texts belong to the genre commonly recognized as report, presenting factual information about fish or alligators.

One major difference between the two pieces of writing has to do with the way information is structured. Text 2-1, where sentences are numbered for ease of reference, starts with a general statement that classifies fish as ectotherms (first sentence). This is then followed by a series of statements that clearly describe different body parts of fish (e.g., *gills*, *fins*, *scales*) and how they work. Each sentence in the text is linked to the other in some logical way. For example, sentence #2 begins with and says something about *gills*, a concept that is introduced in sentence #1. Sentences #3–5 continue the discussion of blood flow, a concept that is first mentioned in sentence #2. Similarly, sentence #7 (second paragraph) begins with and says something about *fins*, a concept introduced in sentence #6. Sentences #8–10 provide more information about how fins work. The third paragraph (sentences #11–13) says something about *scales*, with sentence #11 introducing the concept, sentence #12 defining the concept, and sentence #13 distilling what is presented in sentence #12 into *these protective plates* and then saying some more about it. This way of structuring information,

* Note: Portions of this chapter were reproduced in Fang (2020).

Table 2.1 Two Sample Informational Texts

Text 2-1	[1] Fish are ectotherms that live in water and use gills to get oxygen. [2] Gills are fleshy filaments that are filled with tiny blood vessels. [3] The heart of the fish pumps blood to the gills. [4] As blood passes through the gills, it picks up oxygen from water that is passing over the gills. [5] Carbon dioxide is released from blood into the water. [6] Most fish have fins. [7] Fins are fanlike structures used for steering, balancing, and moving. [8] Usually, they are paired. [9] Those on the top and bottom stabilize the fish. [10] Those on the side steer and move the fish. [11] Scales are another common characteristic of fish, although not all fish have scales. [12] Scales are hard, thin, overlapping plates that cover the skin. [13] These protective plates are made of a bony material.
Text 2-2	Alligators are almost like a really big lizard. I have been observing these incredible species for a couple months now. You have no idea how fascinating alligators and crocodiles are. I have some incredible pictures showing some information about alligators. Alligators are amphibious, they live on both land and water. They like to swim a lot, and usually stick just their head out. You could mistake their head for a log or tree if you didn't look hard. Alligators have lots and lots of teeth. A lot of their teeth hang out of their mouths like fangs. Their body is covered in scales, like a pattern almost. Alligators have webbed feet, from my research, I think that they have webbed feet to help them swim better. Alligators eat things like fish and other critters in the water and outside of the water. They are fierce creatures and can attack humans. I have heard stories of alligators drowning humans and biting them. If you ever turn from an alligator they are very fast so you need to run in zig-zags and confuse them. After all my months of research, I have learned so much about this awesome animal. What I have written is just a little of what I have learned. Alligators are so cool to research, I would recommend you researching them. There is still so much more I need to learn about alligators, they are such a mystery.

illustrated more visually in Figure 2.1, facilitates presentation and elaboration of content, contributing to a tightly knit structure.

By some contrast, the information in Text 2-2 is presented in a much less tightly knit structure. Although the text consists of five paragraphs, with the first paragraph serving as an introduction to the topic and the last paragraph

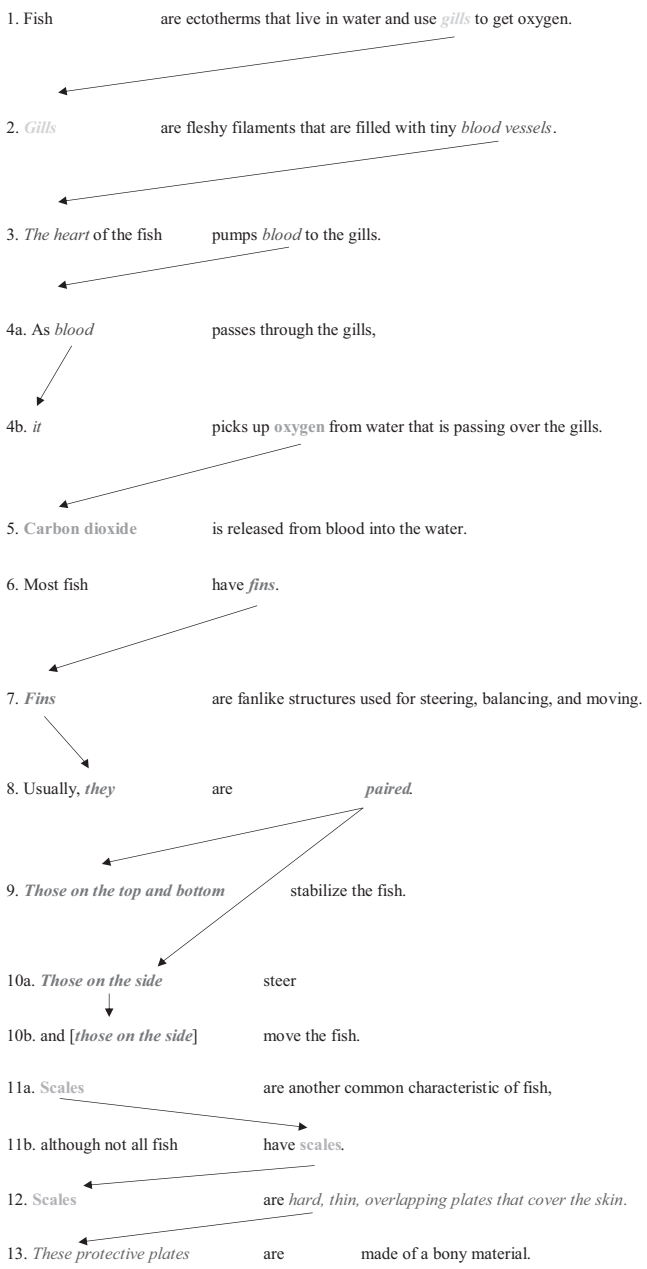

Figure 2.1 Information Structuring in Text 2-1

intended as a conclusion, the ideas in the middle three paragraphs (i.e., alligators are amphibious, alligators have lots of teeth, alligators eat fish and other things) are presented somewhat haphazardly. They lack elaboration and do not seem to follow any particular order of a conceptual kind.

Another salient difference between the two texts lies in the way they use language to convey information. Text 2-1 draws almost exclusively on the lexical (vocabulary) and grammatical resources that sound academic. These academic language features include:

- technical vocabulary that denotes discipline-specific concepts, such as *ectotherms*, *gills*, *oxygen*, *filaments*, *carbon dioxide*, *fins*, *vessels*, and *scales*.
- general academic vocabulary that can be used across multiple disciplines, such as *release*, *steer*, *stabilize*, *characteristic*, and *protective*.
- long noun phrases with multiple layers of embedding and modification to pack dense information, such as *ectotherms that live in water and use gills to get oxygen*; *fanlike structures used for steering, balancing, and moving*; *water that is passing over the gills*; and *hard, thin, overlapping plates that cover the skin*.
- cautious language to temper knowledge claims and ensure precision of information, such as *usually* and *not all*.
- passive voice (e.g., *is released*) that foregrounds the concept and buries the actor performing the action.

Text 2-2, on the other hand, draws heavily on the lexical and grammatical resources of everyday spontaneous conversation. These everyday language features include:

- colloquial expressions (e.g., *almost like, really big, a lot, a lot of, lots and lots of, like a pattern almost, so much, still so much more, awesome, just a little of, so cool, such a mystery*),
- first or second personal pronouns (e.g., *you, I*),
- reference to writer's mental process (e.g., *I think*),
- ambiguous or inconsistent references (e.g., *If you ever turn from an alligator they are very fast.*), and
- run-on sentence (e.g., *If you ever turn from an alligator they are very fast so you need to run zig-zag and confuse them.*)

Although the text also uses some academic language features such as specialized terminology (e.g., *species*, *amphibious*, *scales*), general academic vocabulary (e.g., *observing*, *recommend*), long noun phrases (e.g., *incredible pictures showing some information about alligators*, *stories of alligators drowning humans and biting them*), and cautious language (e.g., *usually*, *can*), its heavy reliance on the

interpersonal and interactive resources of everyday language makes it sounds less academic and more colloquial as a whole.

The two texts above illustrate some of the key differences between a more academic way of writing and a more everyday way of writing. The difference between academic writing and everyday writing is not dichotomous, however. Rather, it is best conceived of as a continuum where the degree of density, abstraction, formality, conventionality, technicality, generalization, connectivity, caution, precision, organization, explicitness, authoritativeness, and responsibility increases as writers move from writing for more mundane purposes to writing for more academic purposes, as Figure 2.2 demonstrates.

1<----------->1

More Everyday	**More Academic**
concrete	abstract
lexically sparse/light	lexically dense/heavy
informal	formal
commonsensical	specialized
loosely strung together	tightly knit
liquid like that of a running river	solid like that of a diamond formed under pressure
dynamic/flowing	crystalline/stasis
fuzzy/imprecise	clear/precise
interactive/dialogic	monologic
personally involved	personally detached
rarely sourced or referenced	well sourced or referenced
grammatically intricate	grammatically simple
casual/unplanned/spontaneous	cautious/planned/deliberate
unreliable	authoritative
unconventional	conventional
dependent on physical context of interaction	independent of physical context of interaction
crude/unpolished	refined/polished
random/haphazard	rigorous/logical

Figure 2.2 Stylistic Continuum in Academic Writing

Compared to everyday writing, that is, writing done for ordinary, out-of-school purposes, academic writing is generally considered more formal, dense, abstract, objective, rigorous, and tightly knit. These features—formality, density, abstraction, objectivity, rigor, and structure—are interconnected in that a text that has a high degree of, for example, formality also tends to have a high degree of abstraction and density. They manifest in different ways across different genres, disciplines, and social contexts, as can be seen in Text 1-1 through Text 1-7 in Chapter 1. In the rest of this chapter, we spotlight these six key features of academic writing, drawing on Text 2-3 below to illustrate each feature. Text 2-3 is the introduction section in an article that reports on an empirical study of noun phrase complexity in school children's informational writing (Fang, Gresser, Cao, & Zheng, 2021). For ease of reference, all sentences in the text are numbered.

Text 2-3

[1] Informational writing is a type of nonfiction whose primary purpose is to present factual information on a topic (Duke, 2014). [2] It is a macrogenre that is emphasized in the U.S. Common Core State Standards (NGA & CCSSO, 2010) and has received a considerable amount of attention in literacy education (e.g., Donovan & Smolkin, 2011; Maloch & Bomer, 2013). [3] This interest was stimulated in part by the growing recognition that experience with and competence in informational writing are vital to both academic success and career readiness. [4] Despite this interest, we still know very little about how children's competence in informational writing develops in the K-12 context, for much of this research was descriptive in nature and focused on a single grade level at a time (e.g., Avalos, Zisselsberger, Gort, & Secada, 2017; Seah, Clarke, & Hart, 2015; Wollman-Bonilla, 2000). [5] Moreover, while this body of work has examined the lexical and grammatical resources that children used to instantiate the genre, few focused specifically on nominal expressions—i.e., nouns and noun phrases, arguably the most powerful grammatical resource for making meaning in academic and disciplinary contexts (Biber & Gray, 2016; Fang, Schleppegrell, & Cox, 2006; Halliday & Martin, 1993). [6] Our cross-sectional study was designed to fill these gaps by investigating the use of nominal expressions in school children's informational writing across four grade levels. [7] Specifically, we examined the nominal resources used by third, fifth, seventh, and ninth grade students in their informational writing. [8] An understanding of how nominal complexity develops in school children's informational writing can inform future efforts to promote language learning and support academic writing development among students in disciplinary contexts.

Structure

Everyday writing features a linear, or horizontal, structure. Its sentences are often strung together casually, in much the same the way sentences in spontaneous speech are structured. In this type of writing, you are essentially writing

the way you speak, with minimal preplanning or fine-tuning. As a result, the writing shows little evidence of rhetorical crafting or rigorous conceptual organization, and tends to read like natural speech written down. By contrast, academic writing presents information and develops arguments in a logical, hierarchically structured way. An idea or argument is presented and then restated, clarified, explained, or exemplified. Each paragraph in the text starts with a topic sentence, which is subsequently elaborated or supported with evidence or examples. The examples or evidence provided are expected to be both relevant and credible. The logical connection between the thesis/claim and supporting evidence is expected to be clear and coherent. As a whole, the linkage between paragraphs and among the sentences within each paragraph is expected to be so tight that a discursive flow is created.

In Text 2-3, for example, sentences are closely stitched together; each sentence is informed in some way by the sentence before it and at the same time foreshadows what is to come in the next sentence. For example, the first sentence of the excerpt defines the key concept "*informational writing*". This concept is then referred to as *it* in the subject position of the second sentence. Sentence #3 begins with *this interest*, a concept that distills the information presented in sentence #2. A prepositional phrase (*despite this interest*) in sentence #4 enables the author to link back to sentence #3 and then move on to identify a knowledge gap in research. The conjunction *moreover* in sentence #5 signals that an additional knowledge gap is presented. The next sentence (#6) addresses these knowledge gaps by stating the purpose of the study. This purpose is then elaborated in sentence #7, as indicated by an adverb (*specifically*). The last sentence (#8) describes the potential contributions of the study.

Taken together, the eight sentences in Text 2-3 contribute in an organic way to the overall goal of an introduction to an empirical research article (see also Chapter 9), which is to describe the significance and purpose of the proposed research. This goal is accomplished by providing relevant background information, identifying existing knowledge gaps, stating how these gaps will be filled, and explaining why the gaps are worth filling.

Formality

An obvious feature of academic writing is that it sounds more formal than everyday writing. According to Hyland and Jiang (2017, p. 48), formality is likely "an underlying constant" of academic writing because it is necessary for construing precision and informativity and for avoiding ambiguity and misinterpretation. Formality is achieved in part through strict adherence to conventions in grammar, spelling, and punctuation. More importantly, it is achieved through the deployment of a constellation of lexical and grammatical choices that scholars

(e.g., Biber & Gray, 2016; Hyland, 2004; Schleppegrell, 2004) have identified as "academic". Samples of these academic language features, or formality markers, are provided in Table 2.2. These markers may be found sporadically in everyday writing, but they tend to appear with higher frequency and heavier concentration in the writing done for academic purposes, as can be seen in Text 2-3, which uses specialized terminology, expanded noun phrase, nominalization, passive voice, appositive phrase, participial phrase, and epistemic hedge.

Table 2.2 Sample Academic Language Features

Academic Language Feature	Explanation	Example
Specialized Terminology	Words, phrases, or acronyms that denote discipline-specific meanings and encapsulate key disciplinary concepts	*CCSS*, *systemic functional linguistics*, *photon, Boston Massacre, monotonicity*
General Academic Vocabulary	Words that frequently appear across academic disciplines, including the widely cited Academic Word List compiled by Averil Coxhead (2000)	*estimate*, *territory*, *classify*, *suggest*, *evidence, contribute*
Nominalization	Abstract nouns derived from adjectives, verbs, adverbs, or clauses	*similarities* (similar), *movement* (move), *tendency* (likely), *the phenomenon* (A plant's stem may bend toward the light to allow as much as possible light to reach the maximum number of food-making cells.)
Non-restrictive Relative Clause	Clause introduced, after a comma, by a relative pronoun such as *which*, *when*, *who*, or *where*	*She will carry them in her mouth to the water, where they will be safer under her watch.* *The monsoon, on which all agriculture depends, is erratic.*
Nonfinite Clause (also called Participial Phrase or Participle Clause)	Clause introduced by a verb (usually in *-ing* or *-ed* form) that does not show tense	*The young frogs leave the water, switching from a plant diet to one of insects.* *Once settled in the West, farmers realized that the Appalachians barred trade with the East.*

(*Continued*)

Academic Language Feature	Explanation	Example
Logical Metaphor	Use of nouns, verbs, prepositions, or clauses—instead of conjunctions—to realize logical-semantic links	*Overuse of antibiotics by doctors contributed to a serious rise in the incidence of some infectious diseases, with a 2000 study by Wenzel and Edward suggesting that half of all antibiotics are prescribed unnecessarily.* [*contribute to* indicates causation, *with*=for example] *Alarmed by the fire, people in Ohio began a massive campaign to clean up the Cuyahoga.* [first clause denotes cause]
Expanded Noun Phrase	Noun phrase with multiple layers of embedding and modification through the use of premodifiers (e.g., adjective, noun) and/or postmodifiers (e.g., embedded clause, prepositional phrase, participial phrase, adverb, and the infinitive)	*many children who have been making steady reading progress during the primary years of schooling* *the only plains animal left in sizable herds to roam outside Africa*
Appositive Phrase	Noun or noun phrase that renames or explains another noun or noun phrase right next to (before or after) it	*A 17.6-mile crossing of lower Chesapeake Bay, the Chesapeake Bay Bridge-Tunnel is the only direct link between Virginia's Eastern Shore and Virginia Beach.* *The solution, a tunnel through the mountains, was first proposed in 1819.*
Impersonal Use of Passive Voice	Passive voice used without mention of the actor doing the action	*Remains have been found of carved masks of alligators.* *Laws were passed protecting the saigas.*

Academic Language Feature	Explanation	Example
Thematic Prominence	The positioning of a grammatical structure that is not usually the subject (or beginning) of a sentence at the beginning of the sentence in order to give it prominence	*For the discovery of nuclear fission, Meitner was awarded the 1944 Nobel Prize in chemistry.* *Scattered across a hillside and its surrounding flats were hundreds of large, round fossilized dinosaur eggs.*
Interruption Construction	A group of words that are strategically inserted between the subject and the main verb of a sentence or clause to qualify the information presented	*This, some paleontologists believe, gives them about 200,000,000 years of hunting genetics to rely on.* *Curled inside one of the eggs lay a tiny embryo—a baby dinosaur that, if it had lived, would have grown up to be one of the giants of the planets.*
Epistemic Hedge	Words or phrases indicating the degree of commitment to (or certainty about) a particular claim or showing deference to experts/authority	*The analysis indicated that barium appeared to be a result of neutron bombardment of uranium.* *These investors may be more comfortable holding only senior debt instruments in relatively safe emerging market investments.*

At the same time, formality can also be achieved by minimizing or avoiding the use of a range of everyday language features, such as those identified in Table 2.3. It is worth noting that there has been an increase in the use of some of these informality markers—such as first/second personal pronouns (e.g., *we*, *I*, *you*), interrogative sentences (e.g., *What are the ramifications of such indifference to his markings*?), sentence initial conjunctions and conjunctive adverbs (e.g., *because*, *and*, *but*, *also*, *still*), contractions (e.g., *isn't*, *we'll*), and colloquial expressions (e.g., *of course*, *too*, *in fact*, *look at*)—in academic writing over the past 50 years, due perhaps to a growing willingness on the part of the author to establish "a more direct and egalitarian relationship" with readers in order to engage and persuade them (Hyland & Jiang, 2017, p. 49). Two cases in point are Text 2-4 and Text 2-5, where informality markers (underlined) are used.

Table 2.3 Sample Everyday Language Features

Everyday Language Feature	Explanation	Example
Interrogative Sentence	Sentence that asks reader a question	*Have you ever watched a tree swaying in the breeze and wondered where wind comes from?* *Why do musicians today ignore these markings from Mozart's own hand?*
Imperative Sentence	Sentence that gives a direct command to reader	*Be aware of the activities you do that release greenhouse gases, such as driving and using electricity.*
First or Second Personal Pronoun	Personal pronouns (e.g., *I, we, you*) and their possessive forms (*my*, *our*, *your*)	*As you may have learned, plants remove carbon dioxide from the atmosphere.* *We address the following two research questions in our study.*
Discourse Filler	Continuity adjuncts (e.g., *like*, *so*, *you know*, *well, because*) that have no substantive meaning in the text and only serve as a linguistic mechanism to keep the discourse going without disrupting its flow and rhythm	*Alligators are also incredibly old, like, you know, back to the cretaceous period old.*
Reference to Writer's Mental Process	Use of thinking or feeling verbs (e.g., *think*, *feel*, *want*) to indicate writer's beliefs, preferences, or opinions	*I think that they have webbed feet to help them swim better.* *The achievement disparity between the two groups is, we surmise, a reflection of their motivational differences.*
Run-on Sentence	Three or more clauses chained together using coordinating conjunctions such as *and* or *but*	*Also they are amphibian but they like the water better compared to the pictures I took and if they aren't in water they are in swampy areas.*
Ambiguous Pronoun	Pronoun whose referent is unclear or inconsistent	*If one was to start chasing you, run in a zig zag because they are very fast running straight.*

Everyday Language Feature	Explanation	Example
Colloquial Expression	Casual or imprecise word/phrase (e.g., *kid*, *stuff*), slang (e.g., *lyte* for *light*, *grass* for *marijuana*), multiword verb (e.g., *run into* for *encounter, put off* for *postpone, look at* for *examine*), or listing expression (e.g., use of *and so on*, *etc*, or *and so forth* when ending a list)	*This amphibian is highly dangerous but very cool to study.* *The event was put off for various reasons, including budget cut, lack of interest, traffic congestion, and so on.*
Contraction	Shortened version of a word or word group, created by omission of internal letters	*The plant can't survive without water or light.*
Sentence Initial Conjunction or Conjunctive Adverb	Sentence that begins with a conjunction (e.g., *and*, *because*, *but*, *plus)* or conjunctive adverb (e.g., *also*, *still, actually*)	*Because the nature of a Ponzi scheme is to operate in a state of prolonged insolvency, the collapse of a Ponzi scheme frequently results in bankruptcy proceedings.* *Still, should we accept the account of political trust in responsive terms?*
Sentence Final Preposition	Ending a sentence with a preposition	*The mudslide destroyed the house they used to live in.*
Amplificatory Noun Phrase Tag	Noun phrase at the end of a clause used to refer to the pronoun in the subject position of the clause	*They are really precious, those alligators.*
Recapitulatory Pronoun	Pronoun used to refer to the noun or noun phrase immediately preceding it	*Alligators they are very popular in Florida.*

Text 2-4 is a short excerpt from an essay published in a top scholarly journal in the field of literacy education (Fisher, 2018, p. 240), and Text 2-5 is an excerpt from an undergraduate sociology textbook (Henslin, 2007, p. 117).

Text 2-4

> Of course, the five concerns that I raised can be disputed, and readers of this article can almost certainly point to a favorite disciplinary literacy text that explicitly pushes against one or more of these general tendencies. Also, of course, readers can likely raise many partial explanations for these tendencies; […].

Text 2-5

For most of us, it's difficult to accept the reality of another's behavioral system. And, of course, none of us will ever become fully knowledgeable of the importance of every nonverbal signal. But as long as each of us realizes the power of these signals, the society's diversity can be a source of great strength rather than a further—and subtly powerful—source of division.

The increase in informality markers is, however, unremarkable and slow. In fact, academic writing has remained largely formal over the past few decades, with small increases in markers of formality such as nominalizations and expanded noun phrases with multiple pre- and post-modifications. According to corpus linguists Biber and Gray (2010), "[t]his preference for nominal/phrasal structures influences academic written texts at the most basic level, while occasional direct acknowledgements of the author/reader are much less common and do not counteract the preference for nominal/phrasal structures when they do occur" (p. 18). In other words, academic writing has stayed largely formal because of its extensive use of phrasal resources such as noun phrases, adverbial phrases, and prepositional phrases, despite the occasional use of informality markers.

Density

Unlike everyday writing that typically focuses on people and their actions and feelings, academic writing typically focuses on concepts/ideas and their relationships. As such, it is generally loaded with information, meaning that it has higher informational density than does everyday writing. In academic writing, sentences are heavily nominalized, meaning that they contain expanded noun phrases linked by verbs. These long noun phrases enable more information to be packed into the sentence. Compare, for example, the following two brief texts (Text 2-6a & Text 2-6b) provided by Derewianka (1999, p. 24) to illustrate how academic texts differ from spoken texts:

Text 2-6a

We **need** our **forest** // because **plants** can **turn carbon dioxide** into **oxygen** // and if we didn't have **oxygen** // we would **die**. // **People** are **worried** // that if the **rainforest** in **Brazil** is **cut** down // the **earth** will not have enough **oxygen** to **keep humans** and **animals alive**.

Text 2-6b

Our **reliance** on **forest vegetation** for its **life-sustaining capacity** to **generate oxygen** through **photosynthesis** had **led** to **concern** that the **destruction** of **Brazilian rainforest** will **result in depleted supplies** of **oxygen**.

In Text 2-6a, there are seven clauses, demarcated by //. (A clause is a grammatical unit consisting of one subject and one main verb.) Each clause contains simple nouns (underlined), such as *we*, *our forest*, *plants*, *people*, and *the rainforest*. A total of 20 content words (bolded) —i.e., words such as nouns, adjectives, and verbs that carry substantial ideational information—are sprinkled across the seven clauses, meaning there are less than three content words per clause. The remaining 26 words in the sentence are called grammatical words. These are articles (*the*), pronouns (e.g., *we, our*), modal verbs (*can, would*), linking verbs (*have*, *is*), prepositions (e.g., *to, in, into*), and conjunctions (e.g., *if, and*). They carry little ideational information, and their primary function is to indicate grammatical relationships in the sentence.

By contrast, Text 2-6b consists of only one clause and has 18 content words (bolded). These content words are packed into two long noun phrases (underlined) linked by the verb phrase *has led to*. The informational density of Text 2-6b is significantly higher than that of Text 2-6a.

As can be seen through the above comparison, the density of a text is achieved primarily through the use of long/expanded noun phrases. A long noun phrase, such as *those fifty delicious chicken hamburgers from the McDonald's that were purchased on Peach Street yesterday to feed the homeless people during the COVID-19 pandemic*, results when a head noun, such as *hamburgers*, is expanded through the addition of a series of pre- and postmodifiers. Premodifiers can be the article (e.g., *a*, *the*), the demonstrative (e.g., *this*, *those*), the numeral or ordinal (e.g., *five*, *fifth*), the adjective (e.g., *delicious*, *urgent*), and the noun (e.g., *chicken*). Postmodifiers can include the prepositional phrase (e.g., *from the McDonald's, on Peach Street, during the COVID-19 pandemic*), the embedded (also called restrictive relative) clause (e.g., *that were purchased*), the adverb (*yesterday*), and the infinitive (e.g., *to feed the homeless people*). An anatomy of the long noun phrase follows:

those	*fifty*	*delicious*	*chicken*	***hamburgers***
[demonstrative]	[numeral]	[adjective]	[noun]	[head]

from the McDonald's	*that were purchased on Peach Street*	*yesterday*
[prepositional phrase]	[embedded clause] [prepositional phrase]	[adverb]

to feed the homeless people	*during the COVID-19 pandemic*
[infinitive]	[prepositional phrase]

Text 2-3 is replete with long noun phrases. It is the use of these grammatical resources, sampled below, that contributes principally to the informational density of the text and, hence, its compact style of writing. Note that an appositive phrase, such as *arguably the most powerful grammatical resource for making*

meaning in academic and disciplinary contexts in the fifth example below, can also be considered a nominal modifier.

- a type of nonfiction whose primary purpose is to present factual information on a topic
- a macrogenre that is emphasized in the U.S. Common Core State Standards
- the growing recognition that experience with and competence in informational writing are vital to both academic success and career readiness
- the lexical and grammatical resources that children used to instantiate the genre
- nominal expressions—i.e., nouns and noun phrases, arguably the most powerful grammatical resource for making meaning in academic and disciplinary contexts
- the use of nominal expressions in school children's informational writing across four grade levels
- the nominal resources used by third, fifth, seventh, and ninth grade students in their informational writing
- an understanding of how nominal complexity develops in school children's informational writing
- future efforts to promote language learning and support academic writing development among students in disciplinary contexts

As the above examples show, information can be compacted into a clause or sentence through multiple layers of phrasal (e.g., nominal, prepositional, adverbial) embedding and modification. According to Biber and Gray (2010), academic writing has historically developed "a unique style, characterized especially by the reliance on nominal/phrasal rather than clausal structures" (p. 18). Another case in point is the following sentence from a book on how a group of paleontologists made the discovery of dinosaur embryos in Argentina (Dingus & Chiappe, 1999): *We traced the layers that contained the eggs across the rugged ridges and ravines of the badlands back to the area around the flats where we had measured the stratigraphic section*. The sentence contains a noun phrase with an embedded clause (*the layers <u>that contained the eggs</u>*), followed by one preposition phrase (*across the rugged ridges and ravines of the badlands*), which is then followed by an adverbial phrase (*back to the area around the flats*), which is further modified by an adverbial clause (*where we had measured the stratigraphic section*). This way of compacting information, characteristic of academic and disciplinary writing, results in a highly dense sentence.

Abstraction

Another feature of academic writing is that it tends to be more abstract than everyday writing. One main reason for abstraction is that academic writing often deals with concepts, ideas, and generalizations. Three kinds of abstraction are relevant here. One is generic abstraction, which results from the use of nouns that refer to groups of people (e.g., *educators*, *workers*, *Southerners*), classes of things (e.g., *reptiles*, *factories*, *white-collar crimes*), or other entities without specific perceptual correlates (e.g., *interest rate*, *engineering research*). These nouns are abstract in the sense that they do not refer to concrete individuals or things in the physical world, and it is difficult for us to wrap our minds around them.

The second is technical abstraction, which results from the use of specialist terminology with discipline-specific meanings and often has to be linguistically defined. These terms construe uncommensense knowledge, representing more theorized—hence more abstract—interpretation of the human experience with the environment. For example, an academic text on weather likely uses technical terms such as *precipitation* and *asperatus*, whereas an everyday text on the same topic may use vernacular terms such as *rain* and *cloud*. *Precipitation* and *asperatus* are both conceptually more abstract than *rain* and *cloud*.

The third, and more significant, kind of abstraction is metaphoric abstraction, which results from the use of nominalizations. As indicated in Table 2.2, nominalizations are nouns that derive from verbs, adjectives, adverbs, conjunctions, or clauses. Words like *flexibility*, *frequency*, *adoption*, *reason*, and *the situation* are considered nominalizations because they derive from, respectively, *flexible* (adjective), *frequently* (adverb), *adopt* (verb), *because* (conjunction), and *The traffic in the city's Central Artery came to a standstill* (clause). They are a kind of what linguists (e.g., Halliday & Matthiessen, 2014) called "grammatical metaphor". Grammatical metaphor realizes meaning in ways that are incongruent with how we humans typically interpret our everyday experience. In congruent realizations, things are presented in nouns (*stars*, *car*), processes in verbs (*run*, *manufacture*), qualities in adjective (*agile*, *nocturnal*), circumstances (when, where, how, to what extent) in adverbs (*yesterday*, *quickly*, *reluctantly*, *completely*) or prepositional phrases (*in 1985*, *over the counter*), and logical-semantic relations in conjunctions (*because*, *if*). In incongruent realizations, processes, qualities, circumstances, and logical-semantic relations can all be presented in nouns. This results in greater abstraction of text. Compare the following two sentences:

(a) Mr. Hansen did not attend the board meeting yesterday because his child was ill.
(b) The reason for Mr. Hansen's absence from the board meeting yesterday was the illness of his child.

Sentence #a presents information in a way that is typical of how we would normally use language in our daily life. It consists of two clauses—a main clause

(*Mr. Hansen did not attend the board meeting yesterday*) and a subordinate clause (*because his child was ill*). The main clause states the action/inaction (*did not attend*) of a grammatical participant (*Mr. Hansen*), which serves as the subject of the sentence. The subordinate clause states the reason for his absence from the board meeting using a causal conjunction *because*.

In sentence #b, on the other hand, information is presented in a way that is atypical of how we would normally use language in our everyday living. Cause-effect is presented here within one clause, instead of between two clauses (main clause + subordinate clause), as is the case with sentence #a. In other words, logical reasoning is now made within one clause, rather than between two clauses. This transformation is enabled with the use of nominalizations. The conjunction *because* now becomes *the reason*, the main clause *Mr. Hansen did not attend the board meeting yesterday* now becomes an abstract noun phrase *Mr. Hansen's absence from the board meeting yesterday*, and the subordinate clause *his child was ill* now becomes another abstract noun phrase *the illness of his child*. These kinds of grammatical shifts are what makes academic writing more abstract than everyday writing because they take away the immediacy and vitality of action and transform it into a stasis that is detached from the concrete happenings.

In academic writing, nominalizations are often embedded within long noun phrases to create a densely abstract textual world that students find alienating to read and challenging to process. Text 2-3, for example, contains numerous nominalizations (e.g., *attention*, *interest*, *recognition*, *success*, *competence*, *understanding*, *complexity*, *development*), many nested in long noun phrases.

Nominalization not only makes a text more abstract, it also has consequences for text organization. By synthesizing or condensing prior discourse into a noun or noun phrase that then functions as a grammatical participant in a new sentence, nominalization increases the informational load, or density, of the sentence. At the same time, it also helps create a cohesive text that flows. For example, as noted earlier in Text 2-3, *this interest* in sentence #3 distills the idea presented in a previous sentence (sentence #2) and becomes the point of departure for continuing discussion on the idea. This, in effect, creates discursive flow that makes a text tightly woven together.

Highly nominalized discourse, such as academic writing, is often difficult to comprehend and critique. With every nominalization, the agency is buried, concrete referential information is eliminated, and readers are taken further away from the actual happenings of everyday life. This has the effect of naturalizing something that is fuzzy and opaque, making it sound technical, precise, stable, and authoritative. It also masks power relationships by downplaying individual responsibility for an action or completely removing people or other agents from the happenings. Because nominalization tends to obscure many of the semantic relations that are otherwise transparent in the clause structure, it reduces readers' sense of what is truly involved in a social interaction. As such, nominalization is an instrument of manipulation often exploited by experts in many disciplines. Understanding how nominalization works is, therefore, key to encoding and decoding hidden meanings in academic writing and to developing as critical writers and readers.

Objectivity

Academic writing prefers to foreground ideas and arguments and background the author who presents the ideas and makes the arguments. What readers are interested in is not so much what you (the author) think or believe, but what information, idea, or evidence you have presented to help build up your argument or reach your conclusion (Gillett, Hammond, & Martala, 2009). This means that any reference to the writer's mental process (*I think*, *We believe*, *In my opinion*) should be minimized in academic writing. Thus, instead of saying *I think that arson is the cause of last week's forest fire*., a more academic way of writing would be *Arson is likely the cause of last week's forest fire*, or *Arson is believed to be the likely cause of last week's forest fire*.

Similarly, rather than saying *In my humble opinion, how tumors become resistant to treatment is poorly understood*, it suffices to simply say *How tumors become resistant to treatment is poorly understood* because the statement is presumed to come from you (the author), unless, of course, a reference is provided at the end of the statement, as in *How tumors become resistant to treatment is poorly understood (Rubin & Sage, 2019)*. By the same token, when you write *Derivatives are a blessing, not a curse*, it is presumed to be what you (the author) believe, think, or take to be true. There is no need to put *I think* or *we believe* at the beginning of the sentence.

It is worth noting, however, that when the first-person plural pronoun "we" refers not to the writers themselves but to the broader discourse community that is being addressed, it is appropriate and, in fact, quite common for authors to use the phrase "we know" to indicate the current state of knowledge in the field, as can be seen in Text 2-3 (i.e., … *we still know very little about how children's competence in informational writing develops…*). So, it is important to differentiate the inclusive "we" (referring to the author[s] and the audience) from the exclusive "we" (referring only to the authors themselves) in reading/writing because writers often use "we" in different senses within the same article (e.g., *we know* vs. *we surmise or our study*).

Another way to background your thinking and feeling is through the use of passive voice. Passive voice enables you to elide agency when the actor doing the action is unknown or need not be foregrounded. For example, when you do not want or need to mention yourself as the one who believes or thinks, you can simply say *It is believed that […]* or *Something is thought to be […]*. Thus, instead of saying *I believe that trade imbalance is detrimental to a nation's economic health*, you can say *It is believed that trade imbalance is detrimental to a nation's economic health*, *Trade imbalance is believed to be detrimental to a nation's economic health*, or simply, *Trade imbalance is detrimental to a nation's economic health*. In so doing, you position your readers to focus on the concept (*trade imbalance*) you are discussing rather than on the agent (you or someone else) who holds the belief.

As noted earlier, the first person pronouns (*I*/*we*), and even the second person pronoun (*you*), have become more common nowadays in academic writing. This is especially true with persuasive essays and research articles that embrace a qualitative paradigm. A case in point is Text 2-7, an excerpt from an article (Festenstein, 2020, pp. 451–452) published in a leading international journal titled *Political Studies*. The excerpt contains not only the first and second person pronouns (*I*/*my*, *we*/*us*, *you*/*your*), but also other informality markers such as the interrogative sentence (*Still, should we accept the account of […]?*) and sentence initial conjunctive adverbs (e.g., *Still*, *So*).

Text 2-7

> Still, should we accept the account of political trust in responsive terms, embodied 'by an attitude of optimism with respect to the competence and will of other citizens and officials'? (Lenard, 2012: 18–19; Murphy, 2010: 77). One important line of scepticism about this was developed by Hardin, for whom the specific barriers to political trust are epistemological and motivational. You cannot know the motives of politicians and officials so it would not be sensible to assume that these encapsulate your interests. The cognitive opacity of politicians and officials means that the epistemic demands of trust are impossible to satisfy when it comes to ascertaining whether or not to trust them. To say I trust you is to say that I expect you to act for your reasons in a way that tracks my reasons in some matter. Your interest encapsulates my interest. It is not possible to have cognitive trust in officials and citizens on the whole, because of the size and complexity of modern societies: we do not have the ongoing cooperative relationships or thick personal knowledge of one another that helps to overcome, or at least address the problems of opacity and conflict of interests (Hardin, 1999: 28). Furthermore, we cannot view government as cooperating with us, since we are generally subject to its immense power. This means I cannot trust it 'because my power dependence undermines any hope I might have to get you to reciprocally cooperate with me' (Hardin, 2006: 152; cf. Farrell, 2004). So there is generally nothing we can do to make governmental agents entirely trustworthy.

Even though both the first person and the third person are widely accepted in academic writing, it is important to remember that the decision regarding which grammatical person to use has consequences for not only voice (e.g., subjective/personal vs. objective/impersonal) but also text organization and discursive flow, as the two examples below illustrate. Text 2-8a is a conference presentation published in a top archeology journal (Schmidt, 2017, p. 397), and Text 2-8b is a rewrite of Text 2-8a using the third person.

Text 2-8a

> I now examine the third theme set out earlier—Archaeologies of Listening—that privilege[s] local voices, not to the exclusion of professional views, but accepting the idea that we have much to learn from those who are closest to the cultures we are studying. Alice Kehoe, Innocent Pikirayi, and I chaired a session at WAC 8 Kyoto devoted to discussions of how we may discard our tin-ears and open our minds to the wisdom of elders schooled in millennia of cultural knowledge. I want to share several examples from my research in Africa as the most approachable way to communicate this message.

Text 2-8b

> The third theme that was set out earlier is now examined. The theme—Archaeologists of Listening—privileges local voices, but not to the exclusion of professional voices. It accepts the idea that there is much to be learned from those who are closest to the cultures being studied. A session at WAC 8 Kyoto, chaired by Alice Kehoe, Innocent Pikirayi, and Peter Schmidt, discussed how researchers may discard their own tin-ears and open their minds to the wisdom of elders schooled in millennia of cultural knowledge. This message is best illustrated below with several examples from Schmidt's own research conducted in Africa.

An additional aspect of objectivity is that you do not want to sound biased. Instead, you need to reason through evidence in order to put forth a claim or arrive at a conclusion. Like any other type of writing, academic writing is done by people. As human beings, we all have emotions, pet perspectives, and biases. As scholars, we may be invested in a particular idea, technique, approach, perspective, theory, or ideology. Thus, every piece of academic writing has, admittedly, some affective elements in it. However, in academic writing, such emotions are often minimized and conveyed subtly. In other words, you need to avoid sounding impassioned, for arguments in academic writing are built through logical reasoning and supporting evidence, not emotional appeals. This means that you should, as Alvermann and Reinking (2006) cautioned, manage your emotions, biases, and interpretive preferences carefully in your writing.

One way to do this is to acknowledge that there are other perspectives on the issue that you care deeply about and that these perspectives could just be as valid as yours. Another way is to be careful when making knowledge claims or when critiquing others' work. Compare, for example, the following two excerpts, where the authorial emotion is managed differently. In Text 2-9a, the author sounds assertive and hortatory in his argument against the prevalent instructional practices and in favor of a more language-focused, discipline-specific approach to literacy instruction (e.g., *should, ought to, absolutely no need, must*). In Text 2-9b, excerpted from Fang, Schleppegrell, and Moore (2014, p. 316), the emotion is much more carefully managed, such that the argument comes across as more reasoned and less emotive. Instead of tearing down the currently popular approaches, as Text 2-9a seems to be doing, Text 2-9b suggests a different approach (i.e., a linguistic approach) that builds on and enhances the existing approaches. Its tone is also more humble and tentative, as the proposal is presented as a recommendation, rather than a command, through the use of the modal verb *can*. This makes the argument sound more objective and hence less susceptible to rejection by readers.

Text 2-9a

> In order to effectively read, write, and talk about disciplinary texts, students should develop language skills and literacy strategies that are more embedded in each discipline. To meet this need, literacy instruction within the disciplines ought to move beyond the prevalent practices of teaching cognitive and metacognitive strategies such as predicting, inferring, thinking-aloud, and visualizing. Students typically have acquired these generic strategies by the time they enter school and use them effectively in their daily speaking-listening practices (Hirsch, 2006). While some initial teaching of these strategies can be helpful in making students aware that reading/writing, like speaking/listening, is an active meaning-making process, there is absolutely no need to teach them year after year from kindergarten all the way through high school. Students must have knowledge of both disciplinary language and disciplinary content in order to effectively apply the cognitive and metacognitive strategies they already possess to help them make sense of the texts they read.

Text 2-9b

> A functional focus on language can be incorporated into other approaches that have been found effective in helping students develop advanced literacy. For example, research with adolescent learners has emphasized the need to teach cognitive and metacognitive strategies for reading comprehension and written composition, and to apprentice students into the epistemological processes of disciplinary experts (e.g., Conley, 2008; Nokes & Dole, 2004; Schumaker & Deshler, 2006). The scaffolds offered through cognitive approaches can be elaborated and enhanced through attention to the language choices that are functional for working with the scaffolds. […] Other work on adolescent literacy has foregrounded the need to value students' out-of-school literacies and use their everyday knowledge and discursive practices as both a bridge to and a resource for promoting the development of academic literacy and critical literacy (e.g., Gutierrez & Rogoff, 2003; Lee, 2001; Moje et al., 2004). Comparison of the language used to accomplish the out-of-school and in-school work can illuminate for students the different kinds of language choices available to them. Incorporating a functional focus on language into discussions about reading and writing offers greater potential to accomplish what Moje (2008) has suggested should be the goal of discipline learning: to build both knowledge about the disciplines and an understanding of how knowledge is produced in the disciplines. Attention to the cognitive, social, cultural, and linguistic aspects of literacy are all necessary for engaging students in ways that build on what they bring to school and apprentice them into new ways of speaking, reading, and writing across subject areas.

In Text 2-10 below, the author expresses her disappointment with and frustration at the state of language-content integration in science teaching through the use of highly charged words such as *sadly*, *painful*, *disappointingly poor*, *fruitless*, and *abject failure*. This sort of language choices can be counter-productive, as it is likely to offend the people whose work is being cited or critiqued, making it more difficult for the reader to buy into her argument. The author's emotion could be better managed through eliminating or toning down the emotive words and using hedges (e.g., *can*, *may*, *perhaps*) to temper claims.

Text 2-10

> Sadly, Bruna, Vann, and Escudero's (2007) case study highlights a painful reality that many science teachers have a disappointingly poor understanding of the language of science. And yet, as Patrick (2009) reported, efforts to develop science teachers' expertise in teaching the language of science are often rendered fruitless by factors such as teachers' beliefs (e.g., language is an "English thing" and it's the language arts teacher's job to teach it), prior experience (e.g., a lack of basic knowledge of English grammar), time (e.g., I am too busy covering curriculum content and have no time for the language stuff), resources (e.g., lack of appropriate reading materials outside textbooks), and school culture (e.g., little incentive for cross-discipline collaboration). This explains why the recent push toward the integration of language and content in science classrooms has been an abject failure.

It is worth noting that while the use of explicitly biased or emotive terms is generally discouraged in academic writing, they are not unheard of, especially in genres such as reading responses (see Chapter 5) and argumentative essays (see Chapter 8). A case in point is this sentence from an article (Robbins,

2016, p. 78) in the *International Journal of Musicology*, where an adverb (underlined) expressing subjective bias is employed: Unfortunately, *the performances of Mozart's music in the competition are but typical examples of how it is commonly represented, or rather misrepresented, by most musicians today*. Other language choices that explicitly convey authorial attitudes include *surprisingly*, *amazingly*, *clearly*, *sadly*, *interestingly*, *certainly*, *importantly*, *luckily*, *unexpectedly*, *as expected*, *occasionally*, and *coincidentally*. The point here is that occasional, judicious use of explicitly biased terms is not unacceptable in academic writing, as it can sometimes help writers achieve the kind of effect they desire, thereby enhancing the power of their argument.

Rigor

Academic writing is highly scrutinized and thus generally more rigorous than everyday writing. As Alvermann and Reinking (2006) pointed out, writing for academic purposes "needs to be distinctly intense and meticulously slow in attending to every word, phrase, and sentence" (p. 77). The rigor manifests not only in word choices but also in logic of argument. When you write for academic purposes, you need to make word choices that are clear, accurate, and precise. Depending on who your audience is, you will use words with varying degrees of technicality. For example, when you write about birds of prey for specialists, you may use specialized terms from technical taxonomies such as *acciptridae*, *pandionidae*, and *sagittarlidae*; whereas for a more general education audience, you may use more vernacular taxonomic terms such as *hawks*, *ospreys*, and *secretarybirds*.

You will also use terms that are more accurate and precise in their meaning. For example, in discussing topics on economics and finance, terms such as *fund*, *cash*, *capital*, and *currency* are often used instead of the more commonplace generic term *money*. In linguistics, you will use terms such as *phoneme*, *allophone*, *vowel*, *consonant*, *diphthong*, *schwa*, *onset*, *rime*, and *syllable* in the discussion of the all-encompassing concept *sound*, which is a term commonly used in everyday writing.

Likewise, you can increase accuracy and precision by minimizing the use of fuzzy terms with vague meanings, such as *thing*, *stuff*, *a lot*, *some*, *many*, and *most*. You will need to specify what that *thing* or *stuff* is or approximately how many is meant by *a lot*, *some*, *many*, or *most*. When, for example, you are writing a qualitative research article, instead of saying *few*, *some*, *many*, or *most* of your 20 participants believe in creationism, it is better to specify, to the degree possible, the exact number of participants who hold this belief (e.g., 3 out of 20, 8 out of 20, 13 out of 20, 18 out of 20).

Another way to be accurate and precise is to use, as Text 2-3 does, grammatical resources such as hedges (e.g., *in part*, *can*, *arguably*, *generally*, *tend to*, *may*, *relatively*) and modifying devices (e.g., determiner, embedded clause, nonfinite clause, comparative clause, prepositional phrase, appositive phrase, interruption construction) to restrict, modify, or elaborate on the meaning of the term or idea being discussed. This results in compact structures that make the meaning of the concept or idea well defined. For example, in the sentence, *Places that are particularly sacred or whose use is restricted to certain types of ceremonies are closed to visitors and photography is prohibited*, two embedded clauses (i.e., *that are particularly sacred*, *whose use is restricted to certain types of ceremonies*) are used to convey the meaning that only specific areas, but not all places, are closed to visitors and prohibit photography.

Similarly, the sentence—*Companies with stable and predictable cash flow, as well as substantial assets, generally represent attractive LBO candidates due to their ability to support larger quantities of debt*—contains a prepositional phrase (*with stable and predictable cash flow*) and a conjunctive phrase (*as well as substantial assets*) to identify precisely the sort of companies that are attractive LBO candidates. It also uses a hedging device (*generally*) to suggest that there may be exceptions to the idea presented in the sentence; that is, on rare occasions, these same companies may not be attractive LBO candidates.

In the sentence—*The correlation of the OPIs across modalities was strong, albeit not perfect, with some neurons appearing to predict outcome differently for olfactory and auditory decisions*—the interruption construction, *albeit not perfect*, qualifies the preceding statement by suggesting that the correlation of the OPI across modalities was not perfect (even though it is strong). The prepositional phrase that follows (i.e., *with some neurons…*) exemplifies this kind of strong but imperfect correlation, with the use of two devices (a determiner *some* and a hedging device *appearing to*) further adding accuracy and precision to the discussion.

In yet another example—*Our Patagonian eggs are round and relatively large, about the size of a softball. The eggshell, however, is rather thin, roughly a tenth of an inch thick. This may seem thick in relation to a chicken's egg, but it's much thinner than other dinosaur eggshells*—the appositive phrase (e.g., *about the size of a softball, roughly a tenth of an inch thick*), the comparative clause (*in relation to a chicken's egg, much thinner than other dinosaur eggshells*), and hedging devices (*relatively, rather, roughly, may seem*) elaborate on, and add accuracy and precision to, meaning, thereby contributing to the rigor of writing.

To be rigorous in your writing, you also need to exercise caution when making claims and arguments. You are, in many cases, writing for experts within your

field, and so you need to be deferential to their expertise by avoiding making categorical assertions without qualification in the absence of overwhelming evidence or making blunt critique that may be construed as naïve, disrespectful, or arrogant. This is why exercising caution is vitally important when presenting claims or arguments. For example, instead of saying *This is a topic that has never been explored* or *No one has ever studied the topic before*, you can say *This is a topic that has rarely/seldom been explored* or *Few researchers have explored this topic*. The point here is that you need to mince your words, instead of making categorical assertions without evidence.

A further, albeit often overlooked, aspect of rigor is to be sure that sources for your ideas are properly credited. As noted in Chapter 1, in academic writing, you present your ideas as a response to what others have said about the topic/issue at hand. Your ideas are often built on what others have presented. Therefore, it is important that you acknowledge, as Text 2-3 does, those whose work has informed your thinking. The acknowledgment is typically done through a system of giving credits called referencing and quoting, which are described in more detail in Chapter 3.

Conclusion

Academic writing differs from everyday writing in many ways. In general, academic writing is more formal, dense, abstract, objective, tightly knit, and rigorous. These features are what makes a text more or less academic. They enable experts to engage in the advanced literacy practices of generalization, abstraction, definition, distillation, interpretation, and argumentation. As such, they are highly valued by the academic communities, and students and scholars are expected to demonstrate proficiency in understanding and using them in their writing.

Reflection/Application Activities

1 Identify three to five writing samples from different disciplines/genres or two to three writing samples on the same topic but written for different audiences (e.g., specialist vs layperson, adults vs children). Compare and contrast their language choices along the dimensions of structure, formality, density, abstraction, objectivity, and rigor. Discuss the reasons for the similarities and differences.
2 Select an article written by an expert in your field and a paper you wrote on the same topic. Discuss the similarities and differences in the ways language is used in these two texts. In what ways do these similarities and differences impact the effectiveness of the texts?

3 Select an article from a journal and a podcast of the article by the same author. Compare the ways language is used in the published article versus the podcast along the dimensions of structure, formality, abstraction, objectivity, density, and rigor.
4 Find a paper you wrote before and try to rewrite it in a different grammatical person (e.g., first or third person). Discuss the impact of this change in grammatical person on language choice, discursive flow, and rhetorical style.

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