Developing Morphological Awareness: What Matters for Literacy

Morphological awareness, broadly defined, is an understanding of the parts of words known as morphemes (which contribute to the meanings of words) and the ways that various morphemes come together to form words. For example, the written word <trendsetter> can be analyzed as having three parts: <trend>, <set>, and the suffix <-er>. These three morphemes join to form a word that means someone who sets trends—who "leads the way in fashion or ideas."[1] We use this understanding of morphemes when encountering a word like <happyish>, calling on our knowledge of common usages of the suffix spelled <ish> and our familiarity with the word *happy*. The study of these meaning-building units in words is called morphology.

In case this notation is new to you, angle brackets < > are used to indicate a spelling. You can read about morphology (and the terminology used to discuss it: word sums, matrices, base elements, affixes, and more) in posts and downloadable pdfs at LearningAboutSpelling.com. You may also be interested in the book *Beneath the Surface of Words: What English Spelling Reveals and Why It Matters*, which was written to explain many of these ideas in detail, using lots of examples.

Studies indicate that morphological awareness contributes significantly to reading comprehension, independent of the contributions made by phonological awareness and decoding skills.[2] And while its impact on reading is reason enough to pay attention to this topic, I first got excited about morphology because of its power to increase students' confidence and success with spelling and writing, along with its potential for developing and enriching vocabulary.

Although the term morphology is used in the field of linguistics—the scientific study of language—*morphological awareness* itself is an educational term. And while most educators agree that we need to teach morphology, there are differing perspectives on how and when to do so. Let's take a look at the spelling system itself, examining several components of morphology that have a particularly strong impact on literacy. This will lead us to six essential concepts that any teacher, tutor, or parent can share with students to begin developing their morphological awareness.

What is morphology and what is a morpheme?

The terms **morphology** and **morpheme** are used by both linguists and educators, but with different purposes. Linguists are scientists who study every facet of human language. They are interested in variations in language among speakers and across the globe; they want to know how spoken language is acquired, how it affects human thought, and how different components of language interact. To understand morphology, they pose and test rules to predict which morphemes are able to combine in a given language and develop theories about why these particular combinations work in spoken words.[3] Because linguists are interested in language as a broad theoretical topic, they tend to concentrate on spoken rather than written language. For most linguists, the systematic nature of English spelling is not a major area of interest.

Educators, however, have a different focus. We want every student to become fully literate, able to write and spell with depth and clarity and to comprehend the written texts they encounter. As a result, educators seek to understand and explain the logical morphological structures of written language—which have enormous power to improve spelling skills, expand vocabulary, and deepen comprehension.

Since linguists and educators have different reasons for thinking about the structures in words, our working definitions of morphology may need to differ slightly as well. For those of us focused on literacy, here's one that is particularly clarifying:

> **Morphology is the study of the structural elements in words (morphemes) that contribute to the meaning of those words.**

The meaning of a word and the orthographic denotation of a base

Words have **meanings**: they have specific definitions and usages that we can find in a dictionary. A morpheme, on the other hand, contributes to the meaning of a word without necessarily having a specific, fixed meaning of its own. For us to understand how morphology affects spelling and vocabulary, this distinction between a word's meaning and a morpheme's contribution to that meaning is essential.

Let's look at an example. In English today, we have a **free base element** spelled <tend>. A *free base* forms a word by itself without other morphemes (such as affixes) added to it, and the term *element* can be used to refer to a written form of a morpheme. A base element is one type of written morpheme; the other major category is an **affix,** which might be a **prefix**, **suffix**, or **connecting vowel letter**.

The base element <tend> forms the standalone word *tend,* as well as *intend*, *attending*, and *distended*. On the right is a matrix that shows the written elements that allow us to spell these words (and a few others). Below are word sums for them.

at dis in sub	**tend** *"stretch"*	ed ing s

tend → tend
in + tend → intend
at + tend + ing → attending
dis + tend + ed → distended

This base <tend> has an **orthographic denotation** of "stretch." An orthographic denotation is a deep sense or nugget of meaning carried in a base, but it's not the same as the specific meaning of a word.

However, the connection to the idea of stretching is easy to see when we think about the word *distend*. A stomach that's distended after eating too much delicious food is somewhat stretched. In the word *intend*, the connection to "stretching" is much fainter. But could we say that when we *intend* to do something, we are metaphorically stretching ourselves to achieve a goal or make

something happen? Similarly, when I say "I *tend* to get up early on Saturdays" that doesn't mean "I *stretch* to get up early on Saturdays." As a word, *tend* has one or more specific meanings: "regularly or frequently behave in a particular way or have a certain characteristic," as well as "care for or look after; give one's attention to."[4] The meaning of the word *tend* is not the same as the orthographic denotation of the base <tend>, but there are still quiet connections.

We discern an orthographic denotation of a base by looking at ancestors of words that share that particular base. In this case, *distend*, *intend*, and *tend* all ultimately derive from a Latin word *tendere* that meant to stretch, aim, or move in a certain direction.[5] While the usages of English words containing the base <tend> have evolved to be distinct and specific, they all still carry an echo of that general idea of stretching or moving in a certain direction.

Because the meanings of words evolve and change over time, the connection between the orthographic denotation of a base and the current meaning of a word containing that base may be distant and metaphorical, as with *intend* and *tend*, or more literal and close, as with *distend*. Yet these three words share the sense of "stretch" because of their shared Latin ancestor *tendere*.

This is how language works: the meanings of words evolve over time as speakers of a language use them in changing ways. As words are adopted from one language into another, further modifications in usage and meaning develop. Despite these changes, the orthographic denotation of a base retains and reflects—at least to some degree—the original deep sense of its (often ancient) ancestor, called an **etymon**. As students learn new vocabulary words, they can anchor the varied usages and surface meanings of those words to the steady, secure orthographic denotations of the base elements within them.

Prefixes and suffixes also contribute to the meaning of a word, but in varying ways. The prefix <com->, for instance, often adds the idea of "together" to a word. We can perceive that sense in *compress* or *compose*. But in *compartment,* analyzed as <com + part + ment>, the prefix <com-> is simply intensifying the sense of the base: adding emphasis rather than conveying the idea of "together."

To fully grasp how morphology works in written English, we need to know that written morphemes contribute to the meaning of words while not necessarily having a unique, specific meaning of their own. Without this understanding, we might expect to be able to "add up" the meanings of elements to determine the meaning of a word. And while that sometimes works, it often doesn't. A colleague shared the story of a student who had absorbed the idea that we should be able to add up the meanings of morphemes. When the student saw *rejected*, he immediately (and mechanically) said, "back and over again, to throw, happened in the past."[6] This student wasn't yet equipped to use morphology to make sense of words. Even with a word like *reject*, where where the idea of "throwing back" is an obvious metaphor for its usage today, he should be encouraged to notice and think about the connection between an orthographic denotation like "throw" and its contribution to the meaning of the present-day word. His recitation of a series of isolated facts also indicated that he needed to develop a deeper appreciation of the varying ways in which affixes can affect a word. (Fortunately, he had a teacher who was prepared to help him with both of these objectives!)

The ideas discussed so far are important clarifications as we talk about the fundamental role of morphology in English spelling. An unfounded expectation that prefixes, bases, or suffixes should have a consistent, transparent meaning—and should add up to a word's definition—can lead to the false impression that morphology isn't a coherent or trustworthy component of English. To see the coherence, we need to know that the contributions that morphemes make to meaning are often at a deeper or more metaphorical level than we may be expecting.

Morphological awareness and morphemic knowledge

One of the ways we build morphological awareness is by learning about specific written elements and how they operate—by developing specific **morphemic knowledge**. For instance, we might become familiar with a suffix <-s> and its jobs in English or the base element <tend> with an orthographic denotation of "stretch" that is part of the word <attending>.

Morphemic knowledge and morphological awareness can develop in tandem, but the distinction between them is important as we think about teaching. The fact that there are so many different English morphemes can easily overwhelm those who are new to this type of study, so it's helpful to know that we can have good morphological awareness and still be unfamiliar with many facts about specific elements. Teachers and students don't need to delve into the morphemic structure of every word they encounter; the focus should be on teaching the overall concepts that will lead to an understanding of how English spelling works. In fact, excessive time spent on detailed analyses of too many isolated words might take time away from other essential information that students also need to be learning.

As we think about developing morphological awareness in students, we may want to start with a small set of useful bases and affixes—perhaps those that show up frequently in the words that students are learning. It's particularly powerful to show students the morphological analyses of words like *says* (<says → say + s>) and *does* (<does → do + es>) as early as possible. As we do this, though, we must keep in mind that the goal is not to teach specific elements or words as isolated facts. Instead, we want to be on the lookout for productive examples—families of words that share a base, where affixes will often repeat. We can use these morphological families to introduce important concepts that illustrate how the English spelling system works.

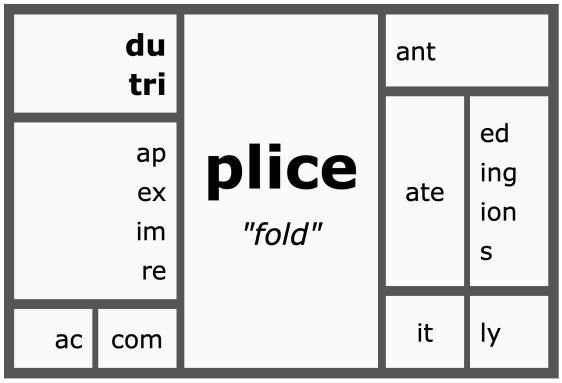
Bound base elements

There's one further component of morphology that is especially important for literacy: **bound base elements**. It's often easier to see the structures of language in writing than in speech, and bound bases are a clear example of this.

Think about the words *application, duplicate, accomplice,* and *explicit*. When we consider these words, they might seem to be totally unrelated, both in meaning and in pronunciation. Yet they all share a bound base <plice> with an orthographic denotation of "fold."

Here are word sums for only some of the words we can form with this bound base.

du + plice/ + ate → duplicate
tri + plice/ + ate → triplicate
ap + plice/ + ate/ + ion → application
ap + plice/ + ant → applicant
re + plice/ + ate → replicate
com + plice/ + it → complicit
com + plice/ + ate/ + ed → complicated
ac + com + plice → accomplice
im + plice/ + ate/ + ion → implication



The forward slash following the <e> in each of the word sums above is a signal of the replacement of that final <e> when spelling the completed word. This is one of three English suffixing conventions. These conventions are described in greater detail in a presentation listed on the *Further Resources* page at LearningAboutSpelling.com called "The Foundation of Literacy for Every Student: Discovering the Sense in English Spelling." They are also explained in Appendix A of *Beneath the Surface of Words*.

The connection between these words and the orthographic denotation "fold" might seem remote. The word <duplicate>, for instance, is a compound of <du> (with an orthographic denotation of "two") and <plice>, followed by the suffix <-ate>, but when we say that we are going to *duplicate* something, we aren't indicating a plan to fold it in two. The meaning of the word has shifted from that original sense. (Interestingly, the word *twofold*—from Old English—means twice as numerous, which indicates the quantity we get when we duplicate something.)

The word <explicit> has a prefix <ex->, which often adds the idea of "out" to a word. Yet once again, we can't add up the elements to get the meaning of the word. The definition of *explicit* is not literally "folded out." The first definition of this word in the New Oxford American Dictionary is "stated clearly and in detail, leaving no room for confusion or doubt." When we teach explicitly, though, isn't that a bit like unfolding the information we want to teach so that students can see it clearly and understand it more easily? And could we think of an *accomplice* as metaphorically folded together with another person as they plan something?

When using spoken words containing the base spelled <plice> (such as *accomplice*, *explicit*, and *application*) with their distinct meanings and varying pronunciations, we don't easily perceive a bound base. This observation can help us understand why linguists, with their focus on spoken language, might not even define a bound base as a morpheme. But for those of us who are teaching children to read and spell, an awareness of the consistent, repeating, structural bound base elements in written words will answer many questions about spelling.

For instance, once students know that a <c> followed by <i> is pronounced /s/, they will understand the pronunciation of the <c> in *explicit*. But why spell this word with <c> rather than <s>? We can't explain that until we see the bound base and related words such as *application* where the <c> is followed by an <a> and is therefore pronounced /k/. A grapheme

<s> never represents /k/; <c> often does. Further, when we analyze the base as distinct from the assimilated prefix <ap>, we can see exactly why *application* is spelled with two <p>'s rather than just one. The word sum makes it absolutely clear: <application → ap + plice/+ ate/+ ion>.

Slash brackets / / around a symbol, like /k/, indicate that we are talking about a phoneme: a distinctive part of a spoken word. For more, see the posts at LearningAboutSpelling.com or chapters 2 and 8 in *Beneath the Surface of Words*, where you will also find assimilated prefixes discussed in chapter 3.

As we think about teaching bound bases and other aspects of morphology that are important for written language, it may be helpful to consider the role of phoneme awareness in both spoken and written language. There is universal agreement that phoneme awareness is an essential aspect of reading instruction. Yet most students don't need phoneme awareness for spoken language. Humans are "wired for speech," and we don't need to separate words into phonemes in order to talk. In fact, the process of isolating and manipulating phonemes is an unnatural, learned process. To teach children to read and spell, however, we must develop their awareness of phonemes and their ability to perceive phonemes as distinct from one another, specifically so they can learn how phonemes are represented in written language.

There is a parallel situation with bound bases. We don't need to be aware of bound base elements in order to use spoken language, and it may be very difficult even to perceive these particular bases in spoken words. Their pronunciation may vary (as in *explicit* and *application*), and the surface level meanings of the words in which they appear can be quite different. But, as with phonemes, it is necessary to understand bound base elements in order to understand how written words work. An understanding of bound bases unlocks many aspects of spelling and allows us to see the coherence and beauty of our complex yet elegant writing system.

Introducing morphology

Marcia Henry has been studying, writing, teaching, and speaking about the fact that morphemes matter for more than 60 years. Her work has made ground-breaking contributions to the science of reading and the practices now known as Structured Literacy. In 2019, in an International Dyslexia Association publication *Perspectives on Language and Literacy*, she wrote, "In the past 35 years, especially in the current decade, research in the area of morphology has continued to evolve." She went on to say that "the work of many researchers and educators illustrates the need to introduce morphology, which was once thought to be useful only in the upper elementary and secondary grades, in the early grades."[7]

Louisa Moats also wrote, in her 2020 revision of *Speech to Print*, "Recent research indicates that morphological awareness is associated with reading and spelling growth from first grade onward, in parallel with phoneme awareness and general print knowledge."[8] Later in the book, she added, "With systematic teaching, morphological awareness develops in tandem with phonological and orthographic awareness beginning in first grade."[9]

As a literacy community, we are developing an appreciation for the importance and power of morphology from the beginning of instruction. And although it was once thought that

morphological elements could be identified only by experts, there is growing awareness that teachers can learn to isolate and verify them using etymological references and morphological analysis. But it's good to know that we don't need an enormous volume or depth of knowledge to begin introducing morphology to students. We can start by teaching six concepts, beginning with these two that are absolutely fundamental.

1. Words are built from structural units called morphemes, and the written representation of a morpheme can be called an element.

2. Every word contains at least one base element (free or bound); many words also include affixes (prefixes, suffixes, and connecting vowel letters).

We can introduce these first two concepts with very basic words such as *cat, dog*, and their plural forms, showing students that we add an <s> to spell <cats> and <dogs>. The word sum is essential for verifying morphological structures of written words, and a matrix allows students to see the structural elements in words, along with their relationships, so it's important to introduce these two tools right away.

From the beginning of instruction, we can steadily build knowledge of specific morphemes (a suffix <-s>, for instance) in conjunction with knowledge of the specific relationships between the phonemes in spoken words and the graphemes that spell them in written words. Using matrices and word sums, we can teach students that we build words from structural units. Once we introduce these foundational concepts and students are conversant with these tools, we can teach students the conventions for combining elements to form words.

3. English has three suffixing conventions for synthesizing written words: the E convention, the doubling convention, and the Y to I convention.

These first three morphological concepts are introduced in most Structured Literacy approaches, but there are others that are just as important. You've seen some illustrations of these next three in the examples I've shared with you so far.

4. The spelling of an element is consistent, even though its pronunciation may vary.

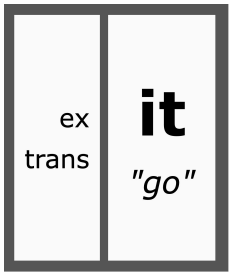
5. A base element has an orthographic denotation; a word has a meaning. We can't expect to derive the meaning of a word by summing its elements. (Note that words that share a base will have some connection in meaning; their meaning will connect to the orthographic denotation of the base.)

6. A base element is defined by its spelling and its orthographic denotation.

From the beginning of instruction, teachers should be thinking about all six of these concepts, which become more powerful and productive over time. We can and should help students become aware of them—even the youngest learners. This doesn't have to be complicated. Thinking again of our example of *cat* and *dog* and the plural forms *cats* and *dogs,* we can ask a

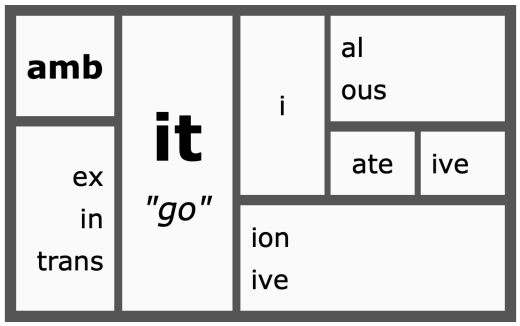
child what they feel at the end of the spoken words *cat* and *dog* and then compare *cats* and *dogs*, noticing that the suffix <-s> is pronounced differently but is spelled the same in both plural words.

We can find simple examples of bound base elements to show students as well. One of my favorites is the <it> in the word <exit>, which will be visible in every public building where students gather. With the matrix on the right, long before teachers would expect students to read or spell these words, they can show students the structures of words that are as straightforward as <exit → ex + it> and discuss the connection to the word <transit → trans + it>, both having to do with going somewhere.



At some point, teachers may wish to expand the matrix and show that even advanced words like *ambitious* share the same base: <ambitious → amb + it + i + ous>. (In this word, we also have a second element, <amb>.) But a word like <ambitious> can certainly wait until much later. It's the concept that matters.

By the way, there's a question as to whether to categorize <amb> as a base or a prefix. Today I would say that it seems to have the lexical weight of a base element, contributing the idea of "around" to words in which it's found. But an argument could be made that it's more prefixal than basal. In my book, I didn't categorize it as a base. But now, I think it makes more sense to think of it that way. I may change my mind again, down the road. Everyone's morphemic knowledge grows and develops over time, and none of us needs to be sure of every morpheme in order to teach morphology. The story of *ambition*, by the way, is told in chapter 6 of *Beneath the Surface of Words*, and this base is also explored in the book *Backpocket Words: Sharing the Essence of English Spelling*.



When students understand—from the very beginning—that words have structures, this awareness can help them deepen and broaden their vocabulary and spelling skills throughout the years, on their own and in collaboration with their teachers. In fact, with an understanding of morphology as the framework for the English writing system, we can all continue deepening our literacy skills and knowledge throughout our lifetimes.

For more information on the topics explored here, you may wish to watch a January 2023 webinar hosted by the Northern California branch of the International Dyslexia Association entitled "Morphological Awareness and Written Language."

You can find the webinar here: https://www.youtube.com/watch?v=k44ym6hrP28

[1] *New Oxford American Dictionary*, s.v. "trendsetter." Mac Dictionary Version 2.3.0 (294)

[2] Deacon, S.H., & Kirby, J.R. (2004). Morphological awareness: Just "more phonological"? The roles of morphological and phonological awareness in reading development. *Applied Psycholinguistics*, 25, 223–238.

Kirby, J.R., Deacon, S.H., Bowers, P.N., Izenberg, L., Wade-Woolley, L., & Parrila, R. (2012). Children's morphological awareness and reading ability. *Reading and Writing*, 25(2), 389–410.

[3] Here's a more extensive definition from the University of Chicago: "Linguists investigate how people acquire knowledge about language, how this knowledge interacts with other thought processes, how it varies between speakers and geographic regions, and how to model this knowledge computationally. They study how to represent the structure of various aspects of language (such as sounds or meaning), how to theoretically explain different linguistic patterns, and how different components of language interact with each other. Many linguists employ statistical analysis, mathematics, and logical formalism to account for the patterns they observe." (https://linguistics.uchicago.edu/undergraduate/why-study-linguistics).

[4] *New Oxford American Dictionary*, s.v. "tend." Mac Dictionary Version 2.3.0 (294)

[5] *Online Etymology Dictionary*, s.v. "tend (v.1)," accessed March 29, 2023.

[6] Thanks to Sara Leland for this vignette.

[7] Henry, Marcia K. (2019). Morphemes Matter: A Framework for Instruction. *Perspectives on Language and Literacy*, 45(2), 23-26.

[8] Moats, Louisa Cook. *Speech to Print: Language Essentials for Teachers.* Third Edition. Baltimore: Brookes Publishing, 2020, 134. Kindle.

[9] Moats. *Speech to Print: Language Essentials for Teachers.* Third Edition. 2020, 168. Kindle.

