

What a Difference a Morpheme Can Make
Nancy Cushen White, Ed.D.

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Orthography = Etymology + Morphology + Phonology

- Etymology → interrelationships of words with their own origins and with other words that share that origin
- Morphology → sequence and structure of meaningful units
- Phonology → units of speech that create meaning when combined

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Etymology

INTERRELATIONSHIPS

- Words with their origins
- Other words with the same origin

- French → coquette, antique, contour
- Italian → piano, Monticello
- Yiddish → chutzpah, schlock
- Spanish → mesa, taco
- Greek → polychrome, philosophy

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Logic and Structure

- ❖ Words with meaning connections also have spelling connections.
- ❖ Students who understand language structure notice and use the links in meaning.

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Morphology

Morpheme—smallest unit of meaning

- Linguistic entity that may be a whole word, part of a word, or a single phoneme

accept

elicit

affect

fiscal

specific

conscious

perfidious

except

illicit

effect

physical

pacific

conscience

perspicacious

spectroheliograph

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Morpheme → smallest meaningful unit of language

Count the morphemes in these words:

- elephant elephants = elephant + s
- election = e + lect + ion
- accommodation = ac + com + mode + ate + ion
- interrelationship = inter + re + late + ion + ship
- photograph telegraph graphic
photosynthesis = photo + syn + thesis
- conscious conscience conscientious science

Roots-Base Elements-Stems

- Roots → Etymological or Morphological?
 - Strictly historical term
 - Currently used as exclusively etymological
 - Etymological source of the base element

Roots-Base Elements-Stems

EXAMPLES OF ROOTS

- The root of <ugly> is the Old Norse <uggligr> which means "to be feared."
- The root of <gregarious> is the Latin <gregem> which means "flock."

Roots-Base Elements-Stems

EXAMPLES OF ROOTS

- The root of <fez> is <fez>. This word, meaning cylindrical red headgear, with a tassel, is named after the Moroccan city of Fez. This word is a **toponym**.
 - **Toponym** → a word whose base element is derived from the **name** of a place
- Examples:**
- hamburger
 - cologne
 - fez

Roots-Base Elements-Stems

EXAMPLES OF ROOTS

➤ **Eponym** → a word whose base element is derived from the name of a person

Examples:

- **sandwich**—Earl of Sandwich
- **bloomers**—Amelia Bloomer [editor of 19th-century ladies' magazine, fought for women's rights. Long hoopskirts were difficult to wear and picked up dirt. AB put on a two-piece sports outfit—baggy trousers gathered at ankles worn under a short skirt—bloomers]
- **diesel**—Rudolf Diesel [a German mechanical engineer invented heavy-duty internal-combustion engine to replace slow steam engine]
- **atlas**—[condemned to support the sky on his shoulders → from illustrations of Atlas supporting the globe in early books of this kind]

Roots-Base Elements-Stems

Base Element

- ❑ **Essential kernel of a word's meaning**
- ❑ **Morphological base of a word**
- ❑ **No inherent historical reference**
- ❑ **Strictly structural connotations**
- ❑ **No affixes**

Roots-Base Elements-Stems

- ❑ "Root" is a strictly historical etymological term.
- ❑ "Base Element" is a strictly structural term referring to English as it is NOW-currently.

Roots-Base Elements-Stems

- ❑ Base Elements
 - ❑ Free Bases can function as single words independently.
will the text she with run warm
 - ❑ Bound Bases are only found in combination with at least one other element.
ject rupt chrone phys fer tain
 - ❑ Twin Bases have alternative forms.
scribe-script tend-tense duce-duct flex-flect
 - ❑ There are a few triple and multiple bases.
face-fact-fect tain-tent-tine-tene
 - ❑ Any or all may appear in the same word family.

Free Morphemes-Bases

- Can stand alone as words
- Do not have to be combined with other morphemes
- May be made up of one or more syllables

FUNCTION WORDS

- conjunctions
- prepositions
- pronouns
- helping verbs
- articles

CONTENT WORDS

- nouns
- verbs
- adjectives
- adverbs

Function Words

- Have little meaning of their own
- Give information about the function of lexical [content] words
- Are the main concern of grammar books
- Are usually unstressed [unaccented]

FUNCTION WORDS

- Conjunctions
- Prepositions
- Pronouns
- Helping verbs
- Articles

Content [Lexical] Words

- Have denotation, or specific meanings
- Can be defined in isolation
- Are the principal concern of dictionaries
- Are usually stressed [accented]

CONTENT-LEXICAL WORDS

- Nouns
- Verbs
- Adjectives
- Adverbs

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Lexical [Content] Words Must Have At Least Three Letters

odd egg err ebb

When a lexical [content] word and a function word are homophones, one more letter is used to spell the lexical word.

in for by to or but be we
inn fore bye too ore butt bee wee
four buy two oar

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Affixes → Prefixes and Suffixes

- **Affixes** → bound morphemes that generate derivations and inflections of a base element
 - **Prefixes**
 - Prefixes precede base elements within words.
 - A single base element may have multiple prefixes.
 - **Suffixes**
 - Suffixes follow base elements within words.
 - A single base element may have multiple suffixes.
 - **Connective Vowels**
 - Connective vowels follow base elements within words.
 - Only one connective vowel may follow a base element.

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ORTHOGRAPHIC CHANGES WHEN ADDING SUFFIXES SPELLING RULES

▪ 1-1-1 OR DOUBLING RULE

win → winning refer → referral grab → grabbing

▪ SILENT e OR DROP RULE

give → giving escape → escapee response → responsive
confide → confident promote → promotion gene → genius

BOUND BASES: stere → sterile fine → finite pune → punish

▪ Y OR CHANGE RULE

penny → pennies fury → furious stingy → stingiest

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Layers of the English Language

borrowed from Marcia K. Henry

GREEK
 specialized words
 mostly scientific
 dependable
 some common non-phonetic
 phone+o+graph ←combined base elements→ neur+o+psych+o+log+y

LATIN
 technical
 "high class" words
 formal settings
 mostly phonetic

ANGLO-SAXON
 compound words
 common, everyday
 down-to-earth
 ordinary situation
 many non-phonetic

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Accent Hints

1. ___ / ___	spider, scramble, olive, crisis
2. ___ base'	provide, invert
___ base' ___	repellent, committee, referral
3. ___ / ___	cucumber, government, reference
___ / ___	ridiculous, provisional, reciprocal
4. ___ /sh/ ___	education, delicious, proficient, special
5. ___ / ity	responsibility, tenacity, personality
___ / ic	electric, cosmic, authentic, algebraic
___ / ial	familial, radial
___ / ian	Italian, reptilian, physician, crocodilian
___ / ion	champion, religion, onion
___ / ious	curious, melodious, fastidious, spacious

NCW 2000

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The Elusive SCHWA (ə)

- 1895 from German schwa
- Ultimately from Hebrew shewa
- "A neutral vowel quality"
- Literally means "emptiness"

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Morphophonemics

inventi

inventioni

please

pleasuree

electrici

electriciani

mathemataician

mathemataics

rhetoric

rhetorical

definite

finite, define

specific

species/specal

solid

solidify

grammar

grammarian

politics

political

inspiration

inspire

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Good readers attend to word parts.

- Good readers attend to the parts of words, both spoken and written.
- They use strategies to distinguish and remember the meanings of words that sound alike, including recognition of meaningful parts.

The meaning of the word is the sum of its parts.

80% of derived words mean what their parts suggest, as long as multiple meanings of the base elements are taken into account.

(Nagy & Anderson, 1984; White, Power, & White, 1989)

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The meaning of the word is the sum of its parts.
How many words can you think of that share these Latin base elements?

mobe-mote-move
pense-pend
grade
text
crede
duce-duct
fer
mit-miss

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English orthography → meaningful parts

Inflections and derivational morphemes
are two kinds of morpheme units that
operate differently in word formation.

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Inflections

NOUNS:

- Possession hers
- Gender alumna
- Number toys, wishes, crises

VERBS:

- Tense talked
- Voice He was driven.
- Mood She could have been driving.

ADJECTIVES:

- Comparison wilder, wildest

Phenomenal Learning of Language

INFLECTIONAL SUFFIXES do not change the part of speech of the word to which they are added. The word continues to be a noun, verb or adjective even with the inflection.

DERIVATIONAL SUFFIXES usually, but not always, change the part of speech of the word to which they are added.

Anglo-Saxon Layer

- **Compounds** are characterized more by their stress pattern than by their spellings. Stress, or accent, almost always occurs on the first word of the compound. Spelling may include a hyphen or a space.

earthquake oatmeal baseball snowman

Anglo-Saxon Layer

COMPOUNDS

oatmeal
applesauce
brainwash
baseball
cornbread
earthquake

honky-tonk
day-to-day
two-way
under-the-table
twentieth-century
old-fashioned

apple pie
green beans
under water
honor roll
business suit
credit card

Anglo-Saxon Layer

Words of Anglo-Saxon origin are characterized as the common, everyday, down-to-earth words used frequently in ordinary situations.

hap [chance]

happy mishap happen happily
happiness happenstance

Anglo-Saxon Layer: Nist

...English remains pre-eminently Anglo-Saxon at its core.

Nist, J. (1966). *A Structural History of English*.
NY: St. Martins Press

Anglo-Saxon Layer

Nist, J. (1966). *A Structural History of English*. NY: St. Martins Press

No matter whether a man is American, British, Canadian, Australian, New Zealander or South African, he still

- loves his mother, father, brother, sister, wife, son, and daughter;
- lifts his hand to his head, his cup to his mouth, his eye to heaven and his heart to God;
- hates his foes, likes his friends, kisses his kin and buries his dead;
- draws his breath, eats his bread, drinks his water, stands his watch, wipes his sweat, feels his sorrow, weeps his tears and sheds his blood;

and all these things he thinks about and calls both good and bad.

Saga of the Scribal o

Scribal-o

Before the printing press, monks who were scribes noticed that many of their quill-penned letters were difficult to read. Most troublesome were the letters formed with similar, beginning, up-and-down strokes:

m n w u r v

Saga of the Scribal o

Scribal-o

- Therefore, the wise scribes changed the vowel grapheme **u** to **o** when **u** appeared adjacent to one of the letters listed.
- The scribes could not, however, alter the pronunciation of the words that were affected by the spelling change they made.
- Therefore, the grapheme **o** in words like **month**, **brother**, **love**, **some**, and **wonder**, is pronounced /u/.

Adapted from Carol Murray

Think of a word that ends in v...

- have
- love
- give
- live
- relative
- authoritative

Why don't English words end in v?

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Spelling /r/ with wr...

- Usually one syllable
- Meaning associated with "twisting"
 - wring wreath wrestle wrangle
write
 - wrath wrinkle wrong wrench
wrist

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Why **ey** in they?

they
them
their

Words that begin with tw...

- Meaning associated with "two"

twins twine twinkle
tweezers
twelve twenty
betwixt between

Romance (Latin) Layer: Nist

Romance Layer

Words of Romance origin, like Anglo-Saxon based words, become affixed. In other words, they often have prefixes and suffixes. However, neither the base element nor the affix stands alone:

reject
transmitting

interrupted
prevention

Nist, J. (1966). *A Structural History of English*. NY: St. Martins Press

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Latin Layer

- **Derivational**
 - Word-Building

Words derived from Latin roots are most common in **content area textbooks**.

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Romance Layer: Nist

How many words can you think of that share the Latin base element **nate**?

nature
innate
natural
naturalize

nation
national
native
perinatal

Romance Layer: Nist

How many words can you think of that share these Latin base elements:
pel-pulse [to push] ?

Romance Layer: Nist

How many words can you think of that
share these Latin base elements:
mit-miss [to send] ?

Romance Layer: Nist

How many words can you think of that
share these Latin base elements:
secute-seque [to follow] ?

Derivational → Inflectional

- When a word with a **DERIVATIONAL** ending is made plural, past, comparative, or possessive, the **INFLECTIONAL** suffix is always added to the **END** of the word and does not precede any derivational suffix.

RULE: derivation **FIRST** inflection **LAST**
remediated inventions generalizing

Greek Layer

- Scientific and mathematical terms incorporated into English in the past 500 years have most often been constructed from Greek morphemes.
- Many Greek-derived morphemes **combine with other bound morphemes** of equal importance in flexible order:

photosynthesis geography
philanthropic psychology
chronic synonym

Derivational Complexity

Several types of phonological changes can occur between a stem and a derivational suffix:

- syllable regrouping differ → different
- vowel alternation sane → sanity
- consonant alternation electric → electricity
- stress alternation philosophy → philosophical

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Vowel Sound // Alternation

- Long vowel // reduced to schwa (or schwi) //:
define → definition compete → competition
- Long vowel // becomes accented short vowel //:
extreme → extremity precise → precision
profane → profanity produce → production
- Schwa (or schwi) // becomes accented short vowel //:
industry → industrious solid → solidify
brutal → brutality electric → electrician
- Schwa (or schwi) // becomes accented long vowel //:
injure → injurious labor → laborious
specific → species separate → separation

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Consonant Sound // Alternation

Consonants change in pronunciation from one form of a word to another, even though most of the root (base) words stay the same in spelling:

- bomb ➔ bombard ➔ bombardier
- crumb ➔ crumble
- malign ➔ malignant
- sign ➔ signature ➔ signify ➔ signal
- anxious ➔ anxiety
- medic ➔ medicine
- definite ➔ definition
- precise ➔ precision

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How We Remember Words

- Related words are activated in memory when they have meaningful connections and when they share structural elements at the morpheme level, especially when spelling reveals those connections (Nagy et al, 1989):

relate ➔ relative ➔ relation ➔ relationship ➔ interrelate

- Awareness of morphemes aids understanding and recall of differences among homophones:

site ➔ situation

cite ➔ citation

accept ➔ except

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How We Remember Words

We know from cognitive experimental research that people with morphological awareness **organize their mental dictionaries so that related words are associated and more readily retrieved** (Schreuder & Baayen, 1995).

... the mind is **always seeking pattern recognition** to reduce the load on memory and facilitate retrieval of linguistic information:

auditory ➔ auditorium ➔ audit ➔ audition ➔ audience
scribble ➔ inscribe ➔ subscription ➔ scribe ➔ describe ➔ script

Why are these words spelled this way?

commitment
committee
referral
reference
illegal
accommodate
efficacious
effective

Effects of Morphological Awareness

- On both oral and written language tasks, **good verbal learners** have been shown to be **more sensitive to derivational relationships** and to use this knowledge more productively than have poor verbal learners (Rubin, 1988; Shankweiler, Lundquist, Dreyer, & Dickinson, 1996; Stolz & Feldman, 1995).
- **Linguistically superior fifth graders** do **better than typical eighth graders** with identification and generation of derivational morphemes (Freyd & Barron, 1982).

Effects of Morphological Awareness

- **Better readers with excellent language abilities** in fourth through eighth grade **are able to talk about word structure and word meaning in a precise, decontextualized manner that reveals conscious knowledge of phonology and morphology** (Snow, 1990).
- **Adults who read poorly** have less information in their mental dictionaries as well as **less ability to organize and gain access to words using morphological relationships** (Cunningham & Stanovich, 1997; Leong, 1989; Shankweiler et al., 1996).
- **Adults who read accurately and fluently** have accumulated **wide networks of word families for ready access and cross-referencing in the lexicon** (Nagy et al., 1989).

Effects of Morphological Awareness

- ❑ Phonological awareness facilitates morphological awareness in younger children (Carlisle & Nomanbhoy, 1993), and both are associated with stronger reading skills.
- ❑ Problems that poor readers have with applying morphological rules to unfamiliar base words are attributable in large part to more basic weaknesses in phonological processing (Carlisle, 1987, 1988; Fowler & Liberman, 1995).
- ❑ Because morphemes are units of both sound and meaning, deficits in phonological processing contribute to confusion of similar-sounding words and word parts, failure to recognize similarities of structure, and failure to either store or retrieve word form with precision.

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Effects of Morphological Awareness

Differences between good and poor spellers are associated with significant differences in sensitivity to word structure at the morphological level. Children with specific written language and spelling disorders have been shown to misuse, substitute, or omit inflected endings more than typical children (Bailet, 1990; Moats, 1996). Insensitivity to morphological aspects of word structure also characterizes adults who spell poorly.

(Fischer, Shankweiler, & Liberman, 1985; Liberman, Rubin, Duques, & Carlisle, 1985; Shankweiler et al., 1996).

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Effects of Morphological Awareness

Well-designed spelling and vocabulary programs make use of morphological structures in word study, making explicit the kind of understanding that good spellers tend to get on their own from seeing words in print. Good spellers and people with larger vocabularies search for and notice in new words **letter sequences that can give them clues to meaning (Moats).**

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