verb is derived, as in *dark* + *en*. One may form a noun from an adjective, as in *sweet* + *ie*. Other examples are:

Noun to Adjective

boy + -ish
virtu + -ous
Elizabeth + -an
pictur + -esque
affection + -ate
health + -ful
alcohol + -ic

Verb to Noun

acquitt + -al
clear + -ance
accus + -ation
sing + -er
conform + -ist
predict + -ion

Adjective to Adverb

exact + -ly

Noun to Verb

moral + -ize
vaccin + -ate
hast + -en
im- + prison
be- + friend
en- + joy
in- + habit

Adjective to Noun

tall + -ness
specific + -ity
feudal + -ism
free + -dom

Verb to Adjective

read + -able
creat + -ive
migrat + -ory
run(n) + -y

Adjective to Verb

en + large
en + dear
en + rich

Some derivational affixes do not cause a change in grammatical class.

Noun to Noun

friend + -ship
human + -ity
king + -dom
New Jersey + -ite
vicar + -age
Paul + -ine
America + -n
libr(ary) + -arian
mono- + theism
dis- + advantage
ex- + wife
auto- + biography
un- + employment

Verb to Verb

un- + do
re- + cover
dis- + believe
auto- + destruct

Adjective to Adjective

pink + -ish
red + -like
a- + moral
il- + legal
in- + accurate
un- + happy
semi- + annual
dis- + agreeable
sub- + minimal

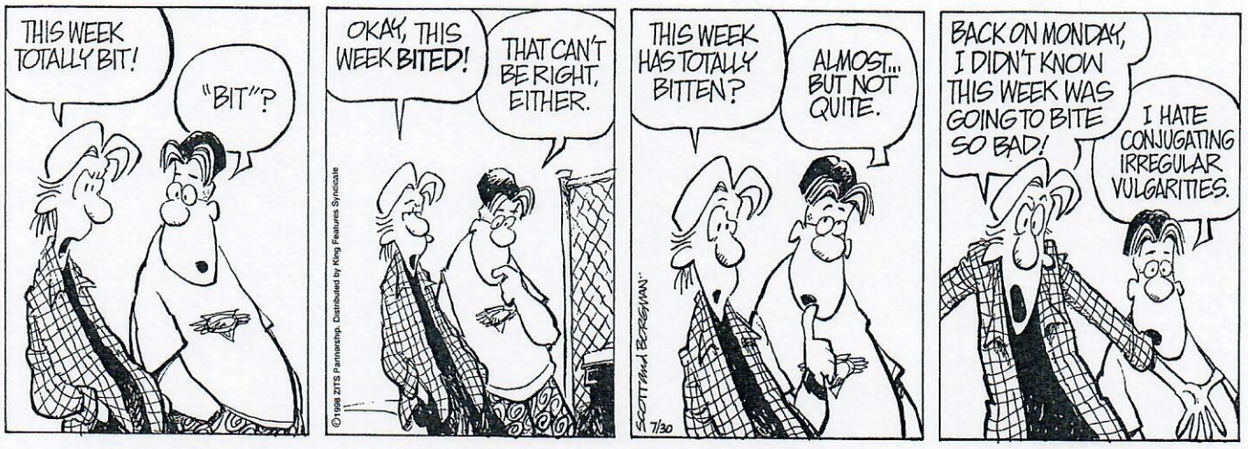
When a new word enters the lexicon by the application of morphological rules, other complex derivations may be **blocked**. For example, when *Commun* + *ist* entered the language, words such as *Commun* + *ite* (as in *Trotsky* + *ite*) or *Commun* + *ian* (as in *grammar* + *ian*) were not needed; their formation was blocked. Sometimes, however, alternative forms do coexist: for example, *Chomskyan* and *Chomskyist* and perhaps even *Chomskyite* (all meaning 'follower of Chomsky's

views of linguistics'). *Semanticist* and *semantician* are both used for linguists who study meaning in language, but the possible word *semantite* is not.

Finally, derivational affixes appear to come in two classes. In one class, the addition of a suffix triggers subtle changes in pronunciation. For example, when we affix *-ity* to *specific* (pronounced "specifik" with a *k* sound), we get specificity (pronounced "specifisity" with an *s* sound). When deriving *Elizabeth* + *-an* from *Elizabeth*, the fourth vowel sound changes from the vowel in *Beth* to the vowel in *Pete*. Other suffixes such as *-y*, *-ive*, and *-ize* may induce similar changes: *sane/sanity*, *deduce/deductive*, *critic/criticize*.

On the other hand, suffixes such as *-er*, *-ful*, *-ish*, *-less*, *-ly*, and *-ness* may be tacked onto a base word without affecting the pronunciation, as in *baker*, *wishful*, *boyish*, *needless*, *sanely*, and *fullness*. Moreover, affixes from the first class cannot be attached to a base containing an affix from the second class: **need* + *less* + *ity*, **moral* + *ize* + *ive*; but affixes from the second class may attach to bases with either kind of affix: *moral* + *iz(e)* + *er*, *need* + *less* + *ness*.

Inflectional Morphology



Zits Partnership/King Features Syndicate

Function words like *to*, *it*, and *be* are free morphemes. Many languages, including English, also have bound morphemes that have a strictly grammatical function. They mark properties such as tense, number, person, and so forth. Such bound morphemes are called **inflectional morphemes**. Unlike derivational morphemes, they never change the grammatical category of the stems to which they are attached. Consider the forms of the verb in the following sentences:

1. I sail the ocean blue.
2. He sails the ocean blue.
3. John sailed the ocean blue.
4. John has sailed the ocean blue.
5. John is sailing the ocean blue.

In sentence (2) the *-s* at the end of the verb is an agreement marker; it signifies that the subject of the verb is third-person and is singular, and that the verb is in the present tense. It doesn't add lexical meaning. The suffix *-ed* indicates past tense, and is also required by the syntactic rules of the language when verbs are used with *have*, just as *-ing* is required when verbs are used with forms of *be*.

Inflectional morphemes represent relationships between different parts of a sentence. For example, *-s* expresses the relationship between the verb and the third-person singular subject; *-ed* expresses the relationship between the time the utterance is spoken (e.g., now) and the time of the event (past). If you say "John danced," the *-ed* affix places the activity before the utterance time. Inflectional morphology is closely connected to the syntax and semantics of the sentence.

English also has other inflectional endings, such as the plural suffix, which is attached to certain singular nouns, as in *boy/boys* and *cat/cats*. In contrast to Old and Middle English, which were more richly inflected languages, as we discuss in chapter 8, Modern English has only eight bound inflectional affixes:

English Inflectional Morphemes		Examples
-s	third-person singular present	She wait-s at home.
-ed	past tense	She wait-ed at home.
-ing	progressive	She is eat-ing the donut.
-en	past participle	Mary has eat-en the donuts.
-s	plural	She ate the donut-s.
-'s	possessive	Disa's hair is short.
-er	comparative	Disa has short-er hair than Karin.
-est	superlative	Disa has the short-est hair.

Inflectional morphemes in English follow the derivational morphemes in a word. Thus, to the derivationally complex word *commit + ment* one can add a plural ending to form *commit + ment + s*, but the order of affixes may not be reversed to derive the impossible *commit + s + ment = *commitsment*.

example of adding/applying both types of morphology derivational + inflectional

Yet another distinction between inflectional and derivational morphemes is that inflectional morphemes are **productive**: they apply freely to nearly every appropriate base (except "irregular" forms such as *feet*, not **foots*). Most nouns take an *-s* inflectional suffix to form a plural, but only some nouns take the derivational suffix *-ize* to form a verb: *idolize*, but not **picturize*.

Compared to many languages of the world, English has relatively little inflectional morphology. Some languages are highly inflected. In Swahili, which is widely spoken in eastern Africa, verbs can be inflected with multiple morphemes, as in *kimeanguka* (ki + me + anguka), meaning 'it has fallen.' Here the verb root *anguka* meaning 'fall' has two inflectional prefixes: *ki-* meaning 'it' and *me* meaning 'completed action.'

Even the more familiar European languages have many more inflectional endings than English. In the Romance languages (languages descended from Latin), the verb has different inflectional endings depending on the subject of the sentence. The verb is inflected to agree in person and number with the subject, as illustrated by the Italian verb *parlare* meaning 'to speak':

Io parl**o**	'I speak'	Noi parli**amo**	'We speak'
Tu parl**i**	'You (singular) speak'	Voi parl**ate**	'You (plural) speak'
Lui/Lei parl**a**	'He/she speaks'	Loro parl**ano**	'They speak'

Russian has a system of inflectional suffixes for nouns that indicates the nouns grammatical relation—whether a subject, object, possessor, and so on—something English does with word order. For example, in English, the sentence

Maxim defends Victor means something different from *Victor defends Maxim.* The order of the words is critical. But in Russian, all of the following sentences mean 'Maxim defends Victor' (the *č* is pronounced like the *ch* in cheese; the *š* like the *sh* in shoe; the *j* like the *y* in yet):

Maksim zašiščajt Viktora.
Maksim Viktora zašiščajet.
Viktora Maksim zašiščajet.
Viktora zašiščajet Maksim.

The inflectional suffix *-a* added to the name *Viktor* to derive *Viktora* shows that Victor, not Maxim, is defended. The suffix designates the object of the verb, irrespective of word order.

The grammatical relation of a noun in a sentence is called the **case** of the noun. When case is marked by inflectional morphemes, the process is referred to as **case morphology**. Russian has a rich case morphology, whereas English case morphology is limited to the one possessive *-'s* and to its system of pronouns. Many of the grammatical relations that Russian expresses with its case morphology are expressed in English with prepositions.

Among the world's languages is a richness and variety of inflectional processes. Earlier we saw how German uses circumfixes to inflect a verb stem to produce a past particle: *lieb* to ***geliebt,*** similar to the *-ed* ending of English. Arabic infixes vowels for inflectional purposes: *kitáab* 'book' but *kútub* 'books.' Samoan (see exercise 10) uses a process of **reduplication**—inflecting a word through the repetition of part or all of the word: *savali* 'he travels,' but *sava**va**li* 'they travel.' Malay does the same with whole words: *orang* 'person,' but *orang orang* 'people.' Languages such as Finnish have an extraordinarily complex case morphology, whereas Mandarin Chinese lacks case morphology entirely.

Inflection achieves a variety of purposes. In English verbs are inflected with *-s* to show third-person singular agreement. Languages like Finnish and Japanese have a dazzling array of inflectional processes for conveying everything from 'temporary state of being' (Finnish nouns) to 'strong negative intention' (Japanese verbs). English spoken 1,000 years ago had considerably more inflectional morphology than Modern English, as we shall discuss in chapter 8.

In distinguishing inflectional from derivational morphemes in Modern English we may summarize in the table below and the Figure (2.1) that follows it:

Inflectional	Derivational
Grammatical function	Lexical function
No word class change	May cause word class change
Small or no meaning change	Some meaning change
Often required by rules of grammar	Never required by rules of grammar
Follow derivational morphemes in a word	Precede inflectional morphemes in a word
Productive	Some productive, many nonproductive

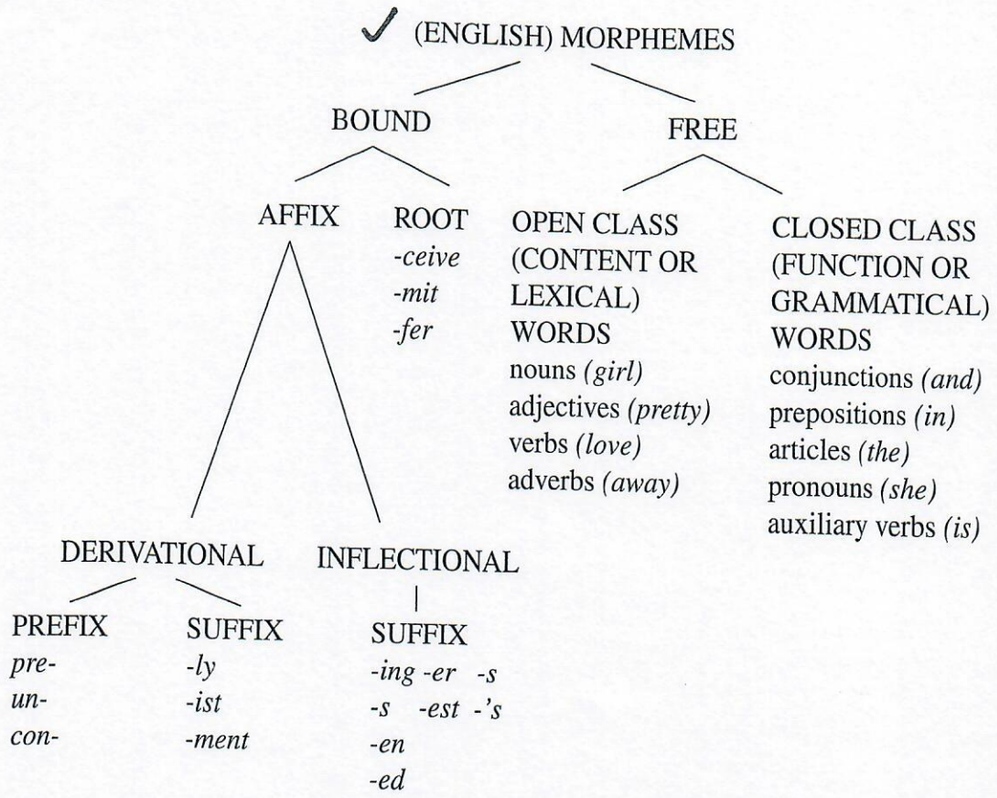
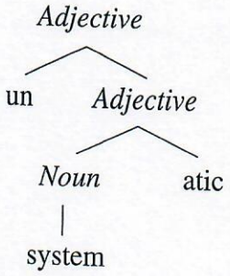


FIGURE 2.1 | Classification of English morphemes.

The Hierarchical Structure of Words

We saw earlier that morphemes are added in a fixed order. This order reflects the *hierarchical structure* of the word. A word is not a simple sequence of morphemes. It has an internal structure. For example, the word *unsystematic* is composed of three morphemes: *un-*, *system*, and *-atic*. The root is *system*, a noun, to which we add the suffix *-atic*, resulting in an adjective, *systematic*. To this adjective, we add the prefix *un-*, forming a new adjective, *unsystematic*.

In order to represent the hierarchical organization of words (and sentences), linguists use **tree diagrams**. The tree diagram for *unsystematic* is as follows:



This tree represents the application of two morphological rules:

1. Noun + atic → Adjective
2. un + Adjective → Adjective

Rule 1 attaches the derivational suffix *-atic* to the root noun, forming an adjective. Rule 2 takes the adjective formed by rule 1 and attaches the derivational prefix *un-*. The diagram shows that the entire word—*unsystematic*—is an adjective that is composed of an adjective—*systematic*—plus *un*. The adjective is itself composed of a noun—*system*—plus the suffix *-atic*.

Hierarchical structure is an essential property of human language. Words (and sentences) have component parts, which relate to each other in specific, rule-governed ways. Although at first glance it may seem that, aside from order, the morphemes *un-* and *-atic* each relate to the root *system* in the same way, this is not the case. The root *system* is "closer" to *-atic* than it is to *un-*, and *un-* is actually connected to the adjective *systematic*, and not directly to *system*. Indeed, **unsystem* is not a word.

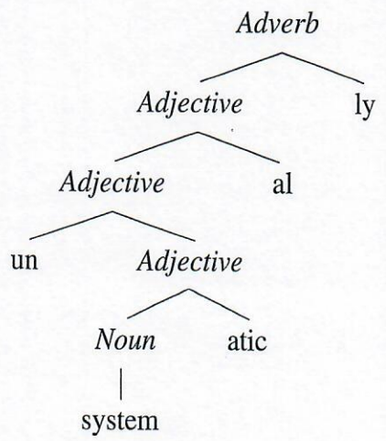
Further morphological rules can be applied to the given structure. For example, English has a derivational suffix *-al*, as in *egotistical, fantastical,* and *astronomical*. In these cases, *-al* is added to an adjective—*egotistic, fantastic, astronomic*—to form a new adjective. The rule for *-al* is as follows:

3. Adjective + al → Adjective

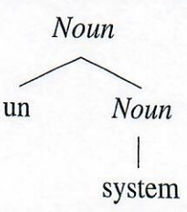
Another affix is *-ly*, which is added to adjectives—*happy, lazy, hopeful*—to form adverbs *happily, lazily, hopefully*. Following is the rule for *-ly*:

4. Adjective + ly → Adverb

Applying these two rules to the derived form *unsystematic*, we get the following tree for *unsystematically*:



This is a rather complex word. Despite its complexity, it is well-formed because it follows the morphological rules of the language. On the other hand, a very simple word can be ungrammatical. Suppose in the above example we first added *un-* to the root *system*. That would have resulted in the nonword **unsystem*.



flavor additives to the traditional martini libation. Based on analogy with such pairs as *act/action*, *exempt/exemption*, and *revise/revision*, new words *resurrect*, *preempt*, and *televise* were formed from the existing words *resurrection*, *preemption*, and *television*.

Language purists sometimes rail against back-formations and cite *enthuse* and *liaise* (from *enthusiasm* and *liaison*) as examples of language corruption. However, language is not corrupt; it is adaptable and changeable. Don't be surprised to discover in your lifetime that *shevelled* and *chalant* have infiltrated the English language (from *disheveled* and *nonchalant*) to mean 'tidy' and 'concerned,' and if it happens do not cry "havoc" and let slip the dogs of prescriptivism; all will be well.

Compounds

> [T]he Houynhnms have no Word in their Language to express any thing that is evil, except what they borrow from the Deformities or ill Qualities of the Yahoos. Thus they denote the Folly of a Servant, an Omission of a Child, a Stone that cuts their feet, a Continuance of foul or unseasonable Weather, and the like, by adding to each the Epithet of Yahoo. For instance, Hnhm Yahoo, Whnaholm Yahoo, Ynlhmnawihlma Yahoo, and an ill contrived House, Ynholmhnmrohlnw Yahoo.
>
> JONATHAN SWIFT, *Gulliver's Travels*, 1726

Two or more words may be joined to form new, compound words. English is very flexible in the kinds of combinations permitted, as the following table of compounds shows.

	Adjective	Noun	Verb
Adjective	bittersweet	poorhouse	whitewash
Noun	headstrong	homework	spoonfeed
Verb	feel-good	pickpocket	sleepwalk

Some compounds that have been introduced fairly recently into English are *Facebook*, *linkedIn*, *android apps*, *m-commerce*, and *crowdsourcing* (the practice of obtaining information from a large group of people who contribute online).

When the two words are in the same grammatical category, the compound will also be in this category: noun + noun = noun, as in *girlfriend*, *fighter-bomber*, *paper clip*, *elevator-operator*, *landlord*, *mailman*; adjective + adjective = adjective, as in *icy-cold*, *red-hot*, *worldly wise*. In English, the rightmost word in a compound is the **head** of the compound. The head is the part of a word or phrase that determines its broad meaning and grammatical category. Thus, when the two words fall into different categories, the class of the second or final word determines the grammatical category of the compound: noun + adjective = adjective, as in *headstrong*; verb + noun = noun, as in *pickpocket*. On the other hand, compounds formed with a preposition are in the category of the nonprepositional part of the compound, such as (to) *overtake* or (the) *sundown*. This is further evidence that prepositions form a closed-class category that does not readily admit new members.

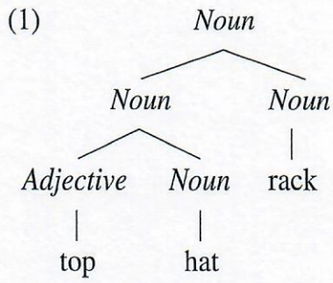
Although two-word compounds are the most common in English, it would be difficult to state an upper limit: Consider *three-time loser*, *four-dimensional*

space-time, *sergeant-at-arms*, *mother-of-pearl*, *man about town*, *master of ceremonies*, and *daughter-in-law*. Dr. Seuss uses the rules of compounding when he explains "when tweetle beetles battle with paddles in a puddle, they call it a tweetle beetle puddle paddle battle."[3]

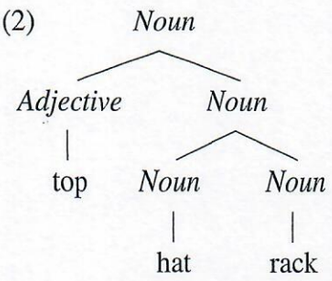
Spelling does not tell us what sequence of words constitutes a compound; whether a compound is spelled with a space between the two words, with a hyphen, or with no separation at all depends on the idiosyncrasies of the particular compound, as shown, for example, in *blackbird*, *six-pack*, and *smoke screen*.

Like derived words, compounds have internal structure. This is clear from the ambiguity of a compound like *top + hat + rack*, which can mean 'a rack for top hats' corresponding to the structure in tree diagram (1), or 'the highest hat rack,' corresponding to the structure in (2).

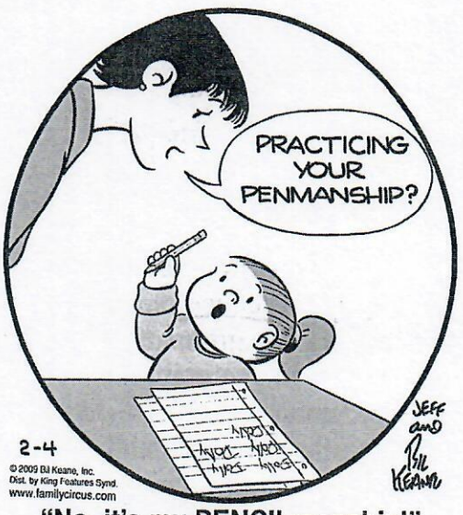
(1)



(2)



Meaning of Compounds



"No, it's my PENCILmanship!"

FAMILY CIRCUS © 2009 BIL KEANE, INC. KING FEATURES SYNDICATE

The meaning of a compound is not always the sum of the meanings of its parts; a *blackboard* may be green or white. Not everyone who wears a red coat is a

[3]From FOX IN SOCKS by Dr. Seuss, Trademark™ & copyright© by Dr. Seuss Enterprises, L.P., 1965, renewed 1993. Used by permission of Random House Children's Books, a division of Random House, Inc., International Creative Management, and HarperCollins Publishers, Ltd., UK.

Redcoat (slang for British soldier during the American Revolutionary War). The difference between the sentences "She has a red coat in her closet" and "She has a Redcoat in her closet" would have been highly significant in America in 1776.

Other compounds reveal other meaning relations between the parts, which are not entirely consistent because many compounds are idiomatic (idioms are discussed in chapter 4). A *boathouse* is a house for boats, but a *cathouse* is not a house for cats. (It is slang for a house of prostitution or whorehouse.) A *jumping bean* is a bean that jumps, a *falling star* is a star that (appears to) fall, and a *magnifying glass* is a glass that magnifies; but a *looking glass* is not a glass that looks, nor is an *eating apple* an apple that eats, and *laughing gas* does not laugh. *Peanut oil* and *olive oil* are oils made from something, but what about *baby oil*? And is this a contradiction: "horse meat is dog meat"? Not at all, since the first is meat *from* horses and the other is meat *for* dogs.

In the examples so far, the meaning of each compound includes at least to some extent the meanings of the individual parts. However, many compounds nowadays do not seem to relate to the meanings of the individual parts at all. A *jack-in-a-box* is a tropical tree, and a *turncoat* is a traitor. A *highbrow* does not necessarily have a high brow, nor does a *bigwig* have a big wig, nor does an *egghead* have an egg-shaped head.

Like certain words with the prefix *un-*, the meaning of many compounds must be learned as if they were individual whole words. Some of the meanings may be figured out, but not all. If you had never heard the word *hunchback*, it might be possible to infer the meaning; but if you had never heard the word *flat-foot*, it is doubtful you would know it means 'detective' or 'policeman,' even though the origin of the word, once you know the meaning, can be figured out.

The pronunciation of English compounds differs from the way we pronounce the sequence of two words that are not compounded. In an actual compound, the first word is usually stressed (pronounced somewhat louder and higher in pitch), and in a noncompound phrase the second word is stressed. Thus we stress *Red* in *Redcoat* but *coat* in *red coat*. (Stress, pitch, and other similar features are discussed in chapters 5 and 6.)

Universality of Compounding

Other languages have rules for conjoining words to form compounds, as seen by French *cure-dent*, 'toothpick'; German *Panzerkraftwagen*, 'armored car'; Russian *cetyrexetaznyi*, 'four-storied'; and Spanish *tocadiscos*, 'record player.' In the Native American language Tohono O'odham, the word meaning 'thing' is *ha?ichu*, and it combines with *doakam*, 'living creatures,' to form the compound *ha?ichu doakam*, 'animal life.'

In Twi, by combining the word meaning 'son' or 'child,' *ɔba*, with the word meaning 'chief,' *ɔhene*, one derives the compound *ɔheneba*, meaning 'prince.' By adding the word 'house,' *ofi*, to *ɔhene*, the word meaning 'palace,' *ahemfi*, is derived. The other changes that occur in the Twi compounds are due to phonological and morphological rules in the language.