As you can probably see, the syllable /laɾ/ occurs in all four items in our sample. From the translations of these items, you can see that a particular feature of meaning—namely, plurality—is present in all four cases as well. Using the procedure just stated, we therefore hypothesize that /-laɾ/ is the morpheme marking plurality in Turkish. Once this has been determined, we can then infer that /mum/ in /mumlaɾ/ is also a morpheme (with the meaning 'candle'), that /top/ in /toplaɾ/ is a morpheme (with the meaning 'gun'), and so on. A larger sampling of Turkish data would confirm the correctness of these inferences.

In doing morphological analysis in unfamiliar languages, a number of pitfalls must be avoided. For the type of data normally investigated at the introductory level, the following guidelines are especially important.

- Do not assume that the morpheme order in the language you are analyzing is the same as in English. In Korean, for example, morphemes indicating location (the rough equivalent of 'at', 'in', and so forth) follow rather than precede the noun (*hakkyo-eyse* 'at school' is literally 'school at').
- Do not assume that every semantic contrast expressed in English will also be manifested in the language you are analyzing. Turkish, for instance, has no equivalent for English *the* and *a*. Mandarin has no *he-she* distinction: the same pronoun form can be used to refer to a male or a female.
- Conversely, do not assume that every contrast expressed in the language you are analyzing is manifested in English. For example, some languages distinguish more than two number categories (Inuktitut distinguishes singular, dual, and plural), and some languages make multiple tense contrasts (ChiBemba has an eight-way distinction).
- Remember that a morpheme can have more than one form, or allomorph. For example, further study of Turkish would reveal that the plural suffix in this language can also be realized as /-leɾ/, depending on the vowel in the base to which the suffix is attached.

Exercises

Note: Data from languages other than English is sometimes presented in transcribed form (in which case it appears between slashes) and sometimes in the native orthography or romanization.

1. Consider the following words and answer the questions below. (See Section 1.)

a) fly	f) reuse	k) spiteful	p) preplan
b) desks	g) triumphed	l) suite	q) optionality
c) untie	h) delight	m) fastest	r) prettier
d) tree	i) justly	n) deform	s) mistreat
e) dislike	j) payment	o) disobey	t) premature

   i) For each word, determine whether it is simple or complex.
   ii) Circle all the bound morphemes. Underline all the roots.

2. The following problem, from the Lukunosh dialect of Mortlockese (a language of Micronesia), was authored by Emerson Lopez Odango. Data are in orthography.

   Note: INCL = inclusive (the speaker and the addressee)
   EXCL = exclusive (the speaker and someone other than the addressee)
   PL = plural
   SG = singular

a) ngiij	'my tooth'	e) ngiimam	'our (EXCL) tooth'
b) ngiimw	'your (SG) tooth'	f) ngiimi	'your (PL) tooth'
c) ngiin	'his/her/its tooth'	g) ngiir	'their tooth'
d) ngiish	'our (INCL) tooth'		

   i) Identify the morpheme corresponding to each of the following:

tooth _____	our (INCL) _____
my _____	our (EXCL) _____
your (SG) _____	your (PL) _____
his/her/its _____	their _____

   ii) Given that the word for 'leg/foot' in Mortlockese is *peshe*, how would you say each of the following?
   your (SG) leg/foot _____
   his/her/its leg/foot _____
   our (EXCL) leg/foot _____

3. The following problem, from Irarutu (an Austronesian language spoken in West Papua, Indonesia) was authored by Jason Jackson. Data are in orthography.

a) adena	'my mother'	i) ifra	'his/her hand'
b) odena	'your mother'	j) atgrag	'my ear'
c) idena	'his/her mother'	k) otgram	'your ear'
d) ambamba	'my elder brother'	l) itgra	'his/her ear'
e) ombamba	'your elder brother'	m) aftag	'my stomach'
f) imbamba	'his/her elder brother'	n) oftam	'your stomach'
g) afrag	'my hand'	o) ifta	'his/her stomach'
h) ofram	'your hand'		

   i) Irarutu has different strategies for expressing possession in the case of kinship and possession in the case of body parts. Based on the data above, identify the morphemes used to express each type of possession.
   ii) Given that *mce* means 'eye' and that *nfut* means 'younger sibling', how would you say each of the following in Irarutu?
   his/her younger sibling _____
   my eye _____
   his/her eye _____

4. Consider the following data from Kwakum, a Bantu language spoken in Cameroon.

a) /sɛbɔmmɛ/	'We bought (a long time ago).'
b) /sɛbɔmko/	'We bought (recently).'
c) /sɛbɔmkowɛɛ/	'We did not buy (recently).'

d) /njebɔmmɛ/ 'I bought (a long time ago).'
e) /ɔbɔmmɛ/ 'You (SG) bought (a long time ago).'
f) /jebɔmko/ 'They bought (recently).'
g) /nɛbɔmko/ 'You (PL) bought (recently).'
h) /abɔmmɛwɛɛ/ 'S/he did not buy (a long time ago).'

i) What are the Kwakum morphemes for each of the following concepts?

I ____ we ____
you (SG) ____ you (PL) ____
s/he ____ they ____
buy ____
negation (not) ____
recent past (recently) ____
remote past (a long time ago) ____

ii) How would you say the following in Kwakum?

I bought (recently). _____
I didn't buy (recently). _____
They bought (a long time ago). _____

(Data from: Malcolm Guthrie, *The Bantu Languages of Western Equatorial Africa* [Oxford: Oxford University Press, 1953].)

5. All the following Persian words (presented in Roman orthography) consist of two or more morphemes. (Note: *xar* means 'buy' and *-id* designates the past tense.)

a) xaridam 'I bought'
b) xaridi 'you (SG) bought'
c) xarid '(he) bought'
d) naxaridam 'I did not buy'
e) namixaridand 'they were not buying'
f) naxaridim 'we did not buy'
g) mixarid '(he) was buying'
h) mixaridid 'you (PL) were buying'

i) Match each of the following notions with a morpheme in the Persian data.

I ____ they ____
you (SG) ____ not ____
we ____ was/were + -ing (CONTINUOUS) ____
you (PL) ____

ii) How would you say the following in Persian?

They were buying. _____
You (SG) did not buy. _____
You (SG) were buying. _____

6. Consider the following data from Zapotec, an indigenous language of Mexico. Data are in the orthography of the source.

a)	racañeea	'I help'	racañeetonoo	'we help'
b)	racañeelo	'you (SG) help'	racañeetoo	'you (PL) help'
c)	racañeeni	's/he helps'	racañeeni	'they help'

d) cocañeea	'I helped'	cocañeetonoo	'we helped'
e) cocañeelo	'you (SG) helped'	cocañeetoo	'you (PL) helped'
f) cocañeeni	's/he helped'	cocañeeni	'they helped'
g) cacañeea	'I will help'	cacañeetonoo	'we will help'
h) cacañeelo	'you (SG) will help'	cacañeetoo	'you (PL) will help'
i) cacañeeni	's/he will help'	cacañeeni	'they will help'

Match each of the following notions with a Zapotec morpheme.

help ___	I ___	we ___
PRESENT ___	you (SG) ___	you (PL) ___
PAST ___	he/she/they ___	
FUTURE ___		

(Data from *Gramática de la lengua zapoteca*, by an anonymous author. Mexico: Oficina Tip. de la Secretaría de Formento, 1897, p. 8.)

7. Consider the following data from Turkish, presented in phonemic transcription.

a) /lokanta/	'a restaurant'	/lokantada/	'in/at a restaurant'
b) /kapɨ/	'a door'	/kapɨda/	'in/at a door'
c) /randevu/	'an appointment'	/randevuda/	'in/at an appointment'
d) /baʃ/	'a head'	/baʃta/	'in/at a head'
e) /kitap/	'a book'	/kitapta/	'in/at a book'
f) /koltuk/	'an armchair'	/koltukta/	'in/at an armchair'
g) /taraf/	'a side'	/tarafta/	'in/at a side'

i) What are the allomorphs for the Turkish morpheme meaning 'in/at'?
ii) Describe the distribution of the allomorphs as generally as possible.

8. The following problem, from Serbian (a Slavic language), was authored by Diana Stojanovic. Note: [ç] is a voiceless palatal fricative.

a) /hrabra/	'brave (FEM SG)'	/hrabrija/	'braver (FEM SG)'
b) /hrabro/	'brave (NEUT SG)'	/hrabrije/	'braver (NEUT SG)'
c) /pametna/	'smart (FEM SG)'	/pametnija/	'smarter (FEM SG)'
d) /pametno/	'smart (NEUT SG)'	/pametnije/	'smarter (NEUT SG)'
e) /sretçna/	'happy (FEM SG)'	/sretçnija/	'happier (FEM SG)'
f) /sretçno/	'happy (NEUT SG)'	/sretçnije/	'happier (NEUT SG)'
g) /lepo/	'beautiful (NEUT SG)'	/lepʃe/	'more beautiful (NEUT SG)'
h) /lako/	'light (NEUT SG)'	/lakʃe/	'lighter (NEUT SG)'

i) Make a list of the morphemes in the above data and indicate the meaning of each.
ii) If your analysis of the above data is correct, you will have noticed instances of allomorphic variation. Under what conditions does each allomorph occur?

9. Consider the following words.

a) desks	e) triumphed	i) prearrange	m) optionality
b) untie	f) ageless	j) smartest	n) prettier
c) insincere	g) loser	k) redistribute	o) mistreat
d) disprove	h) payment	l) disobey	p) resell

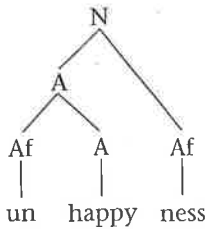
i) Draw a tree structure for each word. (See Section 2.)
ii) For the word *optionality*, what is the base for the affix *-ion*? What is the base for the suffix *-ity*? Are either of these bases also the root for the entire word? If so, which one?

10. The following problem, from Puyuma (a Formosan language, spoken in Taiwan), was authored by Yen-hsin Chen. Data are in orthography of the source.

a)	sanay	'a song'	semanay	'to sing'
b)	treli	'a decrease in weight'	tremeli	'to lighten'
c)	traetra	'a lock'	tremaetra	'to lock'
d)	sapuk	'a seedling'	semapuk	'to sow'
e)	seber	'a bud'	semeber	'to bud'
f)	garutr	'a comb'	gemarutr	'to comb'
g)	sungal	'a bow'	semungal	'to bow (to someone)'

i) What is the affix that converts nouns into verbs in Puyuma? (See Section 1.2.)
ii) What type of affix is it?

11. In this chapter, an argument was presented in favor of the following structure for the word *unhappiness*. (See Section 2.1.)



Using the same type of argument, draw and justify tree structures for the words *unresourceful*, *redisposal*, and *disinvestment*. (*Hint*: This will involve determining the type of syntactic category with which the affixes in these words can combine; see Table 4.6.)

12. In English, the suffix *-er* can be added to a place name. Examine the words in the two columns below. (See Section 2.)

Column 1	*Column 2*
Long Islander	*Denverer
Vermonter	*Philadelphiaer
New Yorker	*Delawarer
Marylander	*Atlantaer
Londoner	*Miamier

i) In general terms, what does the suffix *-er* mean in these words?
ii) How is this *-er* different in meaning from the *-er* found in the words *skater* and *walker*?
iii) State the constraint on the distribution of *-er* illustrated in this data set.
iv) Does this constraint also apply to the type of *-er* used in the word *skater*? (*Hint*: What would you call 'one who discovers' or 'one who rows'?)

13. The following words have all been formed by compounding. Draw a tree structure for each word. If you are in doubt as to the lexical category of the compound, remember that the category of the head determines the category of the word. (See Section 3.)

a) football
b) billboard
c) sunspot
d) in-crowd
e) fast food
f) softball
g) freeze-dry
h) oversee
i) tree trunk
j) lead-free
k) home plate
l) girlfriend
m) city center
n) failsafe
o) potato peel
p) bittersweet
q) hockey match
r) coffee table
s) flower pot
t) blueprint
u) red alert
v) space ship

14. Examine the following compounds and answer the questions below. (See Section 3.)

a) loudmouth
b) skinhead
c) killjoy
d) bath towel
e) death blow
f) airhead
g) snowman
h) cutthroat
i) pickpocket
j) spoilsport
k) crybaby
l) brain-dead
m) blow-dry
n) armchair

i) For each of the compounds determine whether it is endocentric or exocentric.
ii) How do you form the plural of *snowman* and *loudmouth*? (*Hint*: See Table 4.13. Also, pay special attention to the pronunciation of *mouth*. Is it any different here than when it is an independent word?)

15. English contains many verbal expressions that consist of a verb plus a preposition:
hold up (a bank)
carry on (a conversation)
drop out (of school)
back down (from a challenge)
take over (a company)

Should these sorts of expressions be considered compounds? In answering this question, be sure to refer to the properties of compounds discussed in Section 3.

Now consider the nouns that are derived from these verbal expressions via conversion: *a holdup, a dropout, a takeover*. According to the criteria you used to answer the preceding question, should they be considered compounds?

16. State whether the words in each of the following groups are related to one another by process of inflection or derivation. (See Section 4.2.)

a) go, goes, going, gone
b) discover, discovery, discoverer, discoverable, discoverability
c) lovely, lovelier, loveliest
d) inventor, inventor's, inventors, inventors'
e) democracy, democrat, democratic, democratize

17. The following sentences contain both derivational and inflectional affixes. Underline all of the derivational affixes and circle the inflectional affixes. (See Sections 2 and 4.)
    a) The farmer's cows escaped.
    b) It was raining.
    c) Those socks are inexpensive.
    d) Jim needs the newer copy.
    e) The strongest rower continued.
    f) The pitbull has bitten the cyclist.
    g) She quickly closed the book.
    h) The alphabetization went well.

    (Data from: A. Koutsoudas, *Writing Transformational Grammars* [New York: McGraw-Hill, 1966].)

18. Each of the following columns illustrates a different way of marking inflection. (See Section 5.)

Column 1	*Column 2*	*Column 3*
a) mouse/mice	f) go/went	k) record/recorded
b) dive/dove	g) is/was	l) arrive/arrived
c) take/took	h) good/better	m) start/started
d) man/men	i) she/her	n) discuss/discussed
e) eat/ate	j) am/are	o) try/tried

    i) How is inflection expressed in column 1? column 2? column 3?
    ii) Think of at least one more English example to add to each column.

19. Consider the following data from Samoan, presented in the native orthography. (The ['] symbol represents a glottal stop.) (See Section 5.1.)

a) mate	'he dies'	mamate	'they die'
b) nofo	'he stays'	nonofo	'they stay'
c) galue	'he works'	galulue	'they work'
d) tanu	'he buries'	tatanu	'they bury'
e) alofa	'he loves'	alolofa	'they love'
f) ta'oto	'he lies'	ta'o'oto	'they lie'
g) atama'i	'he is intelligent'	atamama'i	'they are intelligent'

    i) What morphological process is used to express the inflectional contrast between singular and plural here?
    ii) Describe how it works in your own words.
    iii) If 'he is strong' is *malosi* in Samoan, how would you say 'they are strong'?

20. The following words from Chamorro, spoken in Guam and the Mariana Islands, all involve derivation. (Data are presented in Chamorro orthography.) (See Sections 2 and 5.)

I. Root		*Derived word*	
a) adda	'mimic'	aadda	'mimicker'
b) kanno	'eat'	kakanno	'eater'
c) tuge	'write'	tutuge	'writer'

II. Root		*Derived word*	
d) atan	'look at'	atanon	'nice to look at'
e) sangan	'tell'	sanganon	'tellable'
f) guaiya	'love'	guaiyayon	'lovable'
g) tulaika	'exchange'	tulaikayon	'exchangeable'
h) chalek	'laugh'	chalekon	'laughable'
i) ngangas	'chew'	ngangason	'chewable'
III. Root		*Derived word*	
j) nalang	'hungry'	nalalang	'very hungry'
k) dankolo	'big'	dankololo	'very big'
l) metgot	'strong'	metgogot	'very strong'
m) bunita	'pretty'	bunitata	'very pretty'

Like inflection, derivation can be expressed in a variety of ways—including by affixation of various types (prefixation, suffixation, infixation) and by reduplication.

i) What morphological process is manifested in I? in II? in III?
ii) Formulate a general statement that describes how the derived words in I are formed. Do the same for II and III.
iii) One of these derivational processes consists of affixation involving allomorphs. What are the allomorphs, and what is the distribution of the allomorphs?

21. The following words can be either nouns or verbs.

a) record	f) outline	k) report
b) journey	g) convict	l) assault
c) exchange	h) imprint	m) answer
d) remark	i) reply	n) import
e) surprise	j) retreat	o) cripple

i) For each word, determine whether stress placement can be used to make the distinction between noun and verb. (See Section 5.2.)
ii) Think of two more English examples illustrating the process of stress shift to mark a category distinction.

22. Indicate the morphological phenomenon illustrated by the items in column 2. (See Section 5.2.)

Column 1	*Column 2*
a) automation	→ automate
b) humid	→ humidifier
c) information, entertainment	→ infotainment
d) love, seat	→ loveseat
e) 'progress	→ pro'gress
f) typographical error	→ typo
g) aerobics, marathon	→ aerobathon

h) act → deactivate
i) curve, ball → curve ball
j) methamphetamine → meth
k) (the) comb → comb (your hair)
l) beef, buffalo → beefalo
m) random access memory → RAM
n) megabyte → meg
o) Federal Express → FedEx
p) applications (for a computer) → apps
q) They have finished → They've finished
r) Global Positioning System → GPS

23. Here are ten instances where a new word is needed. Create a word for each of these definitions in the manner indicated. (See Section 5.2.)
a) Use an acronym . . . for your uncle's second oldest brother.
"We visited my _____ at Christmas."
b) Use onomatopoeia . . . for the sound of a dishwasher at work.
"I can't concentrate because my dishwasher is _____ ing."
c) Use conversion . . . for wrapping something breakable in bubble wrap.
"You'd better _____ that ornament or else it might break."
d) Use a compound . . . for the annoying string of cheese stretching from a slice of hot pizza to one's mouth.
"As the _____ hung precariously from my lips, our eyes met!"
e) Use backformation . . . for the action of backformation.
"We had to _____ words in linguistics class today."
f) Use a product name . . . for the act of cleaning a mirror with Windex.
"I _____ed the mirror to get rid of the fingerprints."
g) Use a proper name . . . for the act of breaking dishes, which Jonathan does regularly.
"He's going to _____ all of my best dishes."
h) Use clipping . . . for a course in ovinology (the study of sheep).
"Have you done your _____ assignment yet?"
i) Use derivation . . . for being able to be contacted.
"The counselor is not very _____."
j) Use a blend . . . for a hot drink made with chocolate and ginseng.
"I'll have a _____ and two peanut butter cookies, please."

24. In Korean, /p/ and /m/ are distinct phonemes, as shown by contrasts such as the following:
/pap/ 'food' /pam/ 'night'

However, under the circumstances illustrated below, /p/ is converted to /m/.

/pap/ 'food' + /məkə/ 'eat' becomes /pammək ə/ 'eat food'
/sip/ 'ten' + /njən/ 'year' becomes /simnjən/ 'ten years'
/ip/ 'mouth' + /man/ 'only' becomes /imman/ 'mouth only'

i) What type of phenomenon is this? (See Section 6.)
ii) Describe the process that is involved in terms of the change that takes place and the context in which it occurs.
iii) Now consider the following additional data.

/hak/ 'school' + /njən/ 'year' becomes /haŋnjən/ 'school year'
/ot/ 'clothes' + /mana/ 'be many' becomes /onmana/ 'there are many clothes'

Based on this data, how would you modify the statement that you made in response to question (ii)?

For the Student Linguist

BAMBIFICATION

Well, of course, language is productive. You can't possibly read this chapter without being completely convinced of how very easy it is to make up new words. Morphological productivity is mildly interesting when you're creating transparent new words, such as when you have a verb like *fax* and create a new verb like *refax* (fax again) or *speed-fax* (fax fast) or an adjective like *faxable* (can be faxed), but it's not exactly earth-shattering.

What amazes me, though, is running across a new word, knowing it's a perfectly good word in English, knowing exactly how to pronounce it, and not having a clue about what it means. I'm not talking about knowing *frete* could be a word because it doesn't break any phonological rules of English. I'm talking about a word whose meaning remains mysterious even though that word can be broken down into recognizable, meaningful parts. Take the word *Brazilification*, which appears in Douglas Coupland's novel *Generation X*. *Brazilification* might appear in a sentence like "The recent Brazilification seen in the United States will have a large impact on tax reform plans." *Brazilification* could mean 'the replacement of forests with cattle ranches' or 'the improved quality of coffee' or many other things; it actually means 'the widening gulf between the rich and the poor and the accompanying disappearance of the middle classes' (p. 11). From this, the meaning of *Brazilify* is transparent: make the gulf between the rich and the poor wider, thereby causing the disappearance of the middle classes.

Now consider *Bambification*, another morphologically complex word from Coupland's book. It means 'make like X', where X is a variable that can be replaced by *Brazil*, or *Bambi*, or some other noun. *Bambification* doesn't mean 'make like Bambi's economic system', although theoretically it could. It means