MORPHOLOGY I

LING 440A - FALL 2002
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UNIT 1 BASIC CONCEPTS

1.1 What is morphology?

Morphology: *The study of word-formation.*

1.1.1 Some English words:

(1) dog board black berry spider
spit teach fish chef widow

(2) worker, teacher, presidential, ungrammatical, antidisestablishmentarianism

(3)

hospital	refute	chalkboard
hospitalize	refutable	blackberry
hospitalization	irrefutable	workshop
rehospitalization	irrefutability	snowboard

The words in (2) and (3) differ from those in (1) in an important way:

- The words in (2) and (3) are *complex words*. They have other words inside them.

chalk.board **teach**er **president**ial **hospital**ize

- The words in (1) are *simple words*: their meanings are not derived from their pieces.
- (i.e. the individual pieces/sounds have no meaning on their own).

*d *og *fi berry ≠ *ber + *ry
black ≠ *bl + *ack

1.1.2 Pieces of Words

chalkboard is made up of two words: chalk and board.
each has a separate meaning, and these are more or less combined
(Unit 3: Why *greenhouses* aren't green & *blackboards* aren't black)

So, are complex words just words made up of two other words?

No: *teacher* is a complex word, since it has *teach* inside it.
But, *er* is not a word.

- *teach* has a meaning – it was in our list of simple words above.
- *er* has a meaning, too – it means something like "one who does something"

How do we know this?

(4) teacher, driver, worker, lecturer, reader, softener, whitener, blender, modernizer …

These all have a word (a verb to be precise) followed by –er Sound/Signal
and
they all mean "one who" or "that which" does whatever the verb means. Meaning/Function

- This is a *pattern.* It is *systematic*. SAME SOUND/SIGNAL –SAME MEANING

<verb> + er = "one who <verbs>"

- It is also *productive*. It is *generative.*
- We can produce or generate, **and understand** novel forms:
- *Recall:* *Linguistics is the study of what we know when we are said to know a language.*

(5) I need to debug this computer program. I should run a debugger.
Do you telemark ? I'm an OK telemarker, but a better snowboarder.

My cat kreels a lot. She is a regular _____.
Fido is a good blicker. I see him _____ all the time.

Krum got a penalty for blatching. He ___ too much.

- *er* has a consistent meaning, and it is a minimal unit of meaning (it's not ə + *r*)

So, it **is not** true that all complex words are made up of more than one (simple) word,
but it **is** true that all complex words are made up of more than one thing with a separate meaning.

Morpheme:$_{def}$ = *The smallest* ***meaningful*** *unit of grammar.*

= *The minimal unit of* ***phonology : meaning*** *correspondence*

exx: un- (meaning: 'not'), -er (meaning: 'one who Vs')
dog , Fido, teach, berry

(6) Are the following words morphologically simple or morphologically complex?

a. spit snail tall catch

Don't they contain the words:pit, it; nail, ail; all, cat ?

b. chef, widow, bachelor

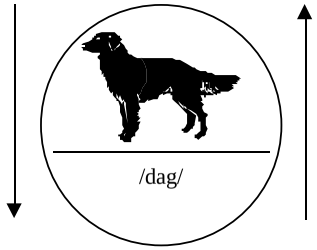
Don't they contain the meanings of '(to) cook', 'woman', 'unmarried' etc.?

(7) MORPHEMES are SYSTEMATIC CORRESPONDENCES of sound and meaning.

Homophony: same sound, different meanings. hear, here

Synonomy: same meaning, different sounds. bachelor, unmarried man.

(8) Saussurean *sign*: an arbitrary pairing of *signal* 'sound pattern' and *signification* 'concept'



The linguistic sign is a two-sided psychological entity… a *sign* is the combination of a concept and a sound pattern.

Saussure, *Course* p. [99]

1.1.3 Morphology in Generative Grammar

Like syntax and phonology, morphology is a part of a GENERATIVE grammar. It consists of a list of primitive/atomic **ELEMENTS** (morphemes) and **RULES FOR COMBINING** these. Like syntax and phonology, a generative morphology has two important properties:

- The set of objects it describes (words) is potentially infinite
  …non-pseudo-antidisestablishmentarianists
- We can produce and understand novel combinations of morphemes (same example)

1.2 Words and Morphemes in Other Languages

(9) a. tuktu 'caribou' — tuktusiuqtuŋa 'I'm caribou-hunting' — Inuktitut

b. məmkəɬ 'button' — məmkəɬənniɣʔi 'He was sewing a button (on).' — Chukchi

c. Buch 'book' — Wörterbuch 'dictionary' — Rechtschreibwörterbuch 'orthographic dictionary' — German

- *Are these simple or complex words? How can we tell? How reliable are our hypotheses?*

1.2.1 ***Segmentation****: the basic technique of morphological analysis*

(10) a. Some Inuktitut words [g = ɣ , r = ʁ]

igluga	my house	iglumi	in a house	iglurjuaq	big house
igluŋa	her house	iglutut	like a house	umiarjuaq	big boat
uiga	my husband	uitut	like a husband	umialik	someone with a boat
uiŋa	her husband	tupiqtut	like a tent		
nunaga	my land	paniktut	like a daughter	uilik	someone with a husband
qukiutiga	my gun	aggaktut	like a hand		
nunait	your land	nunakkut	across the land	umilik	someone with a beard
		aputikkut	across the snow		

- Look at the four top, left forms:

igluga	my house	iglumi	in a house
igluŋa	her house	iglutut	like a house

- What do they all have in common?
  They all start with *iglu* SAME SOUND
  and
  they all mean something about a house SAME MEANING

⇨ *iglu* means 'house'

- After we take out the common element of sound and meaning, what do we have left?

____ga	my ____	____mi	in a ____
____ŋa	her ____	____tut	like a ____

- Look at the next four forms in columns 1 and 2:

uiga	my husband	uitut	like a husband
uiŋa	her husband	tupiqtut	like a tent
nunaga	my land	paniktut	like a daughter
qukiutiga	my gun	aggaktut	like a hand

- They're obviously not as complete, but again, if we take out the elements we've identified above (i.e., the pairs of sound and meaning) what are we left with?

ui__	__ husband	ui___	___ husband
ui__	__ husband	tupiq___	___ tent
nuna__	__ land	panik___	___ daughter
qukiuti__	__ gun	aggak___	___ hand

- As we extend this approach through the rest of the table, we will gradually build up a list pairs of sound and meaning, which we cannot break into smaller parts.

- Consider now what happens when we get to the last column:

iglurjuaq	big house
umiarjuaq	big boat
umialik	someone with a boat
uilik	someone with a husband
umilik	someone with a beard

iglurjuaq Since *iglu* means 'house', *–rjuaq* must mean 'big ___'.
umiarjuaq Since *–rjuaq* means 'big', *umia* must mean 'boat'.
umialik Since *umia* means 'boat', *-lik* must mean 'someone with a ___'.
uilik Since *–lik* means 'someone with a', *ui* must mean 'husband'.
(We knew that already – a good way to check ourselves)
umilik Since *–lik* means 'someone with a', *umi* must mean 'beard'.

BUT WAIT ! *umilik* and *umialik* BOTH have *umi-* at the beginning… SAME SOUND

BUT WAIT ! Do they have the same meaning?

-lik means 'someone with a' (cf. *uilik* < *ui* + *lik*)
This leaves *umia* 'boat' and *umi* 'beard'
Can we take things apart and say *umia* 'boat' is *umi-* + *a* ?
What could the meaning of *a* be ?

(11) cf.

it	at	and
pit	pat	brand
spit	spat	bland

- Our list of (tentative) MORPHEMES, then, should be:

iglu	house	*tupiq*	tent	*-ga*	my __	*-mi*	in a __
ui	husband	*panik*	daughter	*-ŋa*	her __	*-tut*	like a __
nuna	land	*aggak*	hand	*-it*	your __	*-kkut*	across __
qukiuti	gun	*aputi*	snow			*-rjuaq*	big __
umia	boat	*umi*	beard			*-lik*	someone with a ___

and, from above: *tuktu* caribou *-siuqtuŋa* I am ____ -hunting

It turns out we're mostly right, we'll learn how to deal with some of the complexities we encounter along the way.

Extra Inuktitut words

❶	Iglulik	name of a city in …	Nunavut	
			qimmivut	our dogs
	ilinniaqtitsiji	teacher	ilinniaqtitsijiga	my teacher
	ilinniaqtisijiksaq	teacher-to-be, in training		
	uiksaq	fiancé (male),	nuliaksaq	fiancée (female)

1.2.2 Traps are everywhere, not only in Inuktitut.

(12)

bassoon	buffoon	balloon	baboon

(13)

unfaithful	unlawful	untreated	untouched
unthinkable	unhappy	unable	uncle
untied	until	unsuspecting	unpretentious
underwear	undershirt	unprepared	underprepared

1.3 Lexical Entries

What information does a speaker need to know about the morphemes of their language? (The top two rows constitute Saussure's signs.)

phonological shape:	/wərk/	/ər/	/lɛs/	/ʌn/	/ʁ̆juaq/	/ui/
meaning:	labour, toil	one who Vs	without N	not Adj	big N	husband
position	Simple Word	Suffix	Suffix	Prefix	Suffix	Root!
"selectional restrictions"	--	attaches to verbs	attaches to nouns	attaches to adjectives	attaches to nouns	--
syntactic category (result, for affixes)	Verb	Noun	Adjective	Adjective	Noun	Noun

1.4 Roots, Bound and Free

In the Table above, we labeled various morphemes as prefixes and suffixes. The distinction was:

Prefix:	*An affix which attaches to the left of the root of a word*	*ex: un-*
Suffix:	*An affix which attaches to the right of the root of a word.*	*ex: -er*

We also noted that affixes have *selectional restrictions* (also called *morphological subcategorization*)—they specify what they need to attach to. This can be taken as a defining characteristic of affixes.

Affix: *A morpheme with selectional requirements.*

But what about the morphemes that aren't affixes?

- English /wərk/ is a simple word.
- But what about Inuktitut *ui* 'husband' which we called a "Root". What's that? Why didn't we call it a "Simple Word"?
- We would happen to be right, but is there any evidence that we are right – would we be justified in doing this?

(14) Ojibwa (Algonquian; Canada and US)

nidoon	'my mouth'	nigwis	'my son'	niʒiʃibim	'my duck'
gidoon	'your mouth'	gigwis	'your son'		
*doon	(mouth)	*gwis	(son)	ʒiʃip	'duck'

- The morphemes (*ni-* 'my', *gi-* 'your') are affixes (prefixes to be exact) which have particular attachment properties (they attach to nouns).
- The form meaning 'my duck' is composed of the prefix *ni-* 'my' attached to a morpheme which can stand freely and means 'duck'. (The suffix is not important here.)
- It would be wrong to say then, that affixes attach only to words. In the forms for 'mouth' and 'son' the affixes are attaching to something that is not a *word.*
- The morpheme *doon* clearly means 'mouth' and the morpheme *gwis* clearly means 'son', however, these morphemes are not *words*—they cannot stand alone. They are *roots*…

Root: *A morpheme which is not an affix.*

Some typical identifying characteristics of roots:

The most deeply embedded morpheme in a word.
A morpheme which can be the basis for a well-formed word.

- The morphemes *doon* 'mouth' and *gwis* 'son' in a sense contribute the basic meaning to words like *nidoon* 'my mouth'. We will call such things "roots".

Exx.	Ojibwa:	-doon	'mouth'
	English:	care	in careless
			and in carelessly

Why is "careless" not a *root ?*

- It would be wrong to call the Ojibwa morphemes *–doon*, and *–gwis* "words" since they cannot stand alone. But, they do meet the definition of "root" just given.
- At this point though, we still have no terms that can distinguish between the Ojibwa root *–doon* and the English root *care*. What is the key difference between them?

care	is *FREE*	It can stand alone. (It can also be called a *simple word* -see below)
-doon	is *BOUND*	It can only occur when connected to another morpheme.

Important: This is not just a difference between English and Ojibwa.
Many languages have some bound roots, and some free roots.

(15) Ojibwa Free Roots: *agoon* 'snow', *dadoon* 'bull', *ciis* 'turnip'

(16) Some Bound Roots in English:

*scissor	scirssors, scissor-kick, scissor-hands …
*capt	capture, captive
*nat	nature, native

(17) Bound roots are common in some languages. Spanish (rough paraphrases):

hablar	'to speak' (infinitive)	vivir	'to live' (infinitive)
habl-o	'I speak'	viv-o	'I live'
habl-as	'you speak'	viv-es	'you live'
habl-ábamos	'we were speaking'	viv-íamos	'we were living'
habl-aríamos	'If we spoke'	viv-iríamos	'If we lived'
habl-a	'Speak!'	viv-e	'Live!'
*habl		*viv	

1.5 Working Definitions

*Morpheme: The smallest **meaningful** unit of grammar.*

Affix: *A morpheme with attachment properties / selectional requirements.*

Prefix: *An affix which attaches to the left of the root of a word* *ex: un-*
Suffix: *An affix which attaches to the right of the root of a word.* *ex: -er*

Root: *A morpheme which is not an affix.*

Free Root: *A simple word.*
Bound Root: *A root which is not a word.*

Word: *A string of sounds that can meaningfully stand alone.*

Simple word: *A word which has just one morpheme.*
Complex word: *A word made up of more than one morpheme.*

1.6 Criteria for word-hood

How do we know that *snowboard* is a word (as opposed to two words that are just very 'close' to each other? What about the 'words' in (9), or others?

(18) Two strings of sounds in Mohawk:

a. /wahuwaja?dawitsherahetkʌ́:?dʌ?/

'she made the thing one puts on one's body ugly for him'

b. /gí:gʌgʌ́:dzuyakawé:kasneuwá:ri/

'Mary likes the taste of that fish.'

The morphemes:

wa 'past'	huwa 'she… him'	j 'self's'
aʔd 'body'	awi 'put on'	tsher 'thing'
ahetkʌ 'ugly'	ʔd 'make'	ʌ 'for someone'
ʔ 'one time'		
gígʌ 'this'	s 'regularly'	gʌ́dzu 'fish'
ne '?'	yakaw 'she'	uwá:ri 'Mary'
éka 'likes the taste of'		

Mohawk speakers share the intuition that (18a) is a word, but (18b) is not. What kind of linguistic knowledge underlies these shared intuitions?

PHONOLOGY

- certain sound processes are defined over a unit we may call the 'phonological word':
  - Words in English must have at least one syllable.

    /kæt/ is a word, /uk/ is a possible word, /k/ is not, neither is /s/
    (though /s/ is a morpheme, as in the plural *cat-s*)

  - In many languages, every word has at most one stressed syllable. Morphemes need not have stress and some cannot (e.g., English -s). In French, stress falls on the last syllable of a word. This string of sounds means 'I buy a lot of fruit(s)'.

    [ʒaʃétbokúdfrʷí] Three stresses, therefore (at least) three words.

  - Certain clusters of sounds are impossible within words, but possible across them:

    [hɪzsɪksstrɛɳθs] The sequence [ksstr] is impossible internal to a word in English

- Some phonological properties of (content) words in Mohawk:
  - must have at least two syllables
  - exactly one stressed syllable, generally the second to last
  - The sequences /sn/ and /eu/ cannot occur inside a word (these are parts of more general rules of Mohawk phonology).

What does the phonology force us to conclude about word boundaries in the Mohawk examples:

a. wa huwa j aʔd awi tsher ahetkʌ́: ʔd ʌ ʔ

b. gí:gʌ gʌ́:dzu yakaw é:ka s ne uwá:ri

SYNTAX

Syntactic generalizations are also stated in terms of words (and bigger units called phrases). For example, words (and phrases) can be moved around for stylistic effect, while morphemes cannot:

(19) a. I really don't like snowboarders.
b. Snowboarders, I really don't like.
c. *Snow, I really don't like boarders.
d. *Snowboard, I really don't like ers.
e. *Ers, I really don't like snowboard.

What do the following facts tell us about the word boundaries in Mohawk?

"b" can be re-ordered in various ways:

uwá:ri yakaw-é:ka-s ne gí:gʌ gʌ́:dzu

yakaw-é:ka-s ne uwá:ri gí:gʌ gʌ́:dzu

uwá:ri ne gí:gʌ yakaw-é:ka-s gʌ́:dzu

but not all morphemes in "b" can be reordered: * s-yakaw-é:ka *é:ka-yakaw-s

no reordering of the morphemes in "a" will yield a grammatical form in Mohawk.

Another syntactic generalization about English: certain verbs take only a single Noun Phrase (NP) as a direct object:

I saw a ski. I saw a toboggan. * I saw [a ski toboggan] * I saw [a ski] [a toboggan].

OK: I saw [$_{NP}$ a snowboard] / [$_{NP}$ a snow-shovel] / [$_{NP}$ a snow fence] etc…

NOTES: a. Orthography (especially in English) is often misleading.
b. None of the tests for word-hood is foolproof and there are some interesting issues that arise when different tests conflict. We will lay this aside for the most part (for now…)

1.7 Allomorphy and Phonology

1.7.1 Morphophonemics and Underlying Representations

It is often not possible to do morphological segmentation without also doing some phonology:

because… A single morpheme may have more than one surface phonological form:

(20) Identify the English plural morpheme:

	sg.	pl.	sg.	pl.
a.	kæt	kæts	perəkit	perəkits
	dak	daks	stæmp	stæmps
b.	dag	dagz	hæ^{w}nd	hæ^{w}ndz
	dɛn	dɛnz	stænd	stændz
c.	bʌs	bʌsəz	bʌz	bʌzəz
	tʃərtʃ	tʃərtʃəz	garaʒ	garaʒəz

phonology	a. = [s]	b. = [z]	c. = [əz]
meaning	plural	plural	plural
position	suffix	suffix	suffix
selection	attaches to some nouns	attaches to some nouns	attaches to some nouns
category	N	N	N

Are three different plural suffixes in English?

(21) The surface forms are in **complementary distribution**.

What ***conditions*** the variation?

PHONOLOGY and MORPHOPHONEMICS

Condition 1: if the last segment of the stem is a coronal fricative
then the plural suffix surfaces as [əz]

Condition 2: if the last segment of the stem is a voiceless
then the plural suffix surfaces as [s]

Elsewhere (= when no other condition applies)
then the plural suffix surfaces as [z]

IMPORTANT NOTE: The **ordering** of the conditions is quite important.
If condition 2 applied first, what would the plural of *church* be?

(22) Allomorphy

1 Morpheme (Lexical Entry) : Multiple Surface Realizations (**Allomorphs**)

PLURAL : əz, z, s

(23) Surface Allomorphy$_{def}$ = apparent instances of allomorphy that are derivable by phonological rule

(24) Other parts of English phonology that show the same or similar behaviour:

Possessive	's	Nash's [əz],	Matt's [s],	Harold's [z]
Third person singular	-s	buzzes[əz],	walks [s],	plays [z]
Past tense	"ed"	edited [əd],	walk ed[t],	played [d]

(with appropriate restatement of Condition 1)

SURFACE ALLOMORPHY IS PHONOLOGY

(25) Lexical Entry for (regular) plural suffix in English:

Phonology:	/z/	← The **Underlying Representation** "UR"
Position:	suffix	
Meaning:	PLURAL	
Attachment:	Attaches to nouns	
Cat. of Result:	Noun	

(26) The lexical entry includes only the information which is not predictable from other parts of grammar. For this reason, in the "phonology" part of the lexical entry, only the UR is given. The variation in the actual realization is predictable from the **phonology** of English.

Therefore, the Lexical Entry alone is not a complete **account** of the data in (20). An account of the data would include the lexical entries for each of the roots, plus the lexical entry for the suffix (25), **plus** the phonological rules in (27), or their equivalent in the phonological framework of choice.

(27) English phonology:

Rule1 Ø → ə / C]$_{\mu}$ __z # where: C = coronal, fricative

Rule2 $\begin{bmatrix}\text{coronal}\\ \text{+ voice}\end{bmatrix} \rightarrow \begin{bmatrix}\text{coronal}\\ \text{- voice}\end{bmatrix}$ / C]$_{\mu}$ __ # where: C = [- voice]

Aside: The Basic Phonological Rule Schema

INPUT → OUTPUT / Environment (+conditions)

(The underline __ indicates the position of the input in the environment)

1.7.2 URs, Indeterminacy and Labels

(28) Inuktitut (glosses simplified)

oral consonant :	voiceless stops:	p	t	k	q
inventory	voiced fricatives:	v	j	ɣ	ʀ
	other:		s , l		

anijuŋa	I leave	anivit	you walk
takujuŋa	I see	takuvit	you see
isumajuŋa	I think	isumavit	you think
pisuktuŋa	I walk	pisukpit	you walk
ikajuqtuŋa	I help	ikajuqpit	you help
isiqtuŋa	I enter	isiqpit	you enter
takujumajuŋa	I want to see	takujumavit	you want to see
takujumalauqtuŋa	I wanted to see	takujumalauqpit	you wanted to see

Find affixes corresponding to 1st person and 2nd person singular subject agreement.

1sg: -juŋa ~ -tuŋa 2sg: -vit ~ -pit

These are representative of a large class of Inuktitut affixes, where the first consonant undergoes an alternation as follows:

$\begin{bmatrix}\text{-continuant}\\ \text{-voice}\end{bmatrix} / \begin{bmatrix}\text{-continuant}\\ \text{-voice}\end{bmatrix}\_\_$ or $\begin{bmatrix}\text{+continuant}\\ \text{+voice}\end{bmatrix} / \begin{bmatrix}\text{(+continuant)}\\ \text{+voice}\end{bmatrix}\_\_$

The **place** of articulation is clearly part of the UR, but it is not clear that either of the surface representations (stop or continuant) is "the" UR.

(29) a. Lexical Entries for affixes in (28):

LABEL:	**-Tuŋa**	**-Pit**
Phonology:	/ C [+coronal] uNa /	/ C [+labial] it /
Meaning:	1 SG SUBJ	2 SG SUBJ
Position:	suffix	suffix
Selection:	Attaches to verbs	Attaches to verbs
Category:	Inflected Verb	Inflected Verb

b. Plus phonology

C → [α voice] / [α voice] ___

redundancy: C [-voice] → [-continuant]
C [+voice] → [+continuant]

LABEL: A convenient means to refer to a morpheme when the phonological form is indeterminate in some way (or just complex).

No theoretical status. Not (necessarily) part of mental representation in the way that the other information is.

Can be arbitrary, any convenient identifier of a morpheme.

Conventions include: using capital letters for alternating segments.
(we'll see others later)

Highlights (potential) **abstractness** of morphemes.

Morphemes are NOT just their sound, they are **pairings of sound and meaning** (and other properties).

/dag/ is not a morpheme. The lexical entry Phonology: /dog/ + Meaning DOG + Category Noun etc. is a morpheme. since the phonology is trivial, we use the phonology (or orthography) as a label, to stand in for the whole morpheme.

1.7.3 Labels, Abstractness and True Allomorphy

(30) Hungarian

i:r-	'write'	i:r-**s**	'you write'
seret-	'love'	seret-**s**	'you love'
fog-	'will'	fog-**s**	'you will'
olvɒʃ-	'ask'	olvɒʃ-**ol**	'you ask'

??? s → ol / ʃ __ [highly implausible as phonological rule]

"label"	2 sg / 'you'
phonology & allomorphy	**ol / ʃ __** **s / <elsewhere>**
meaning	2 sg agreement
position	suffix
selection	att. to verbs
category	"inflected verb"

(31) TRUE ALLOMORPHY must be listed as a part of the lexical entry
i.e., not predictable by phonological rule

(32)

phonology & allomorphy	ol / ʃ __ s / <elsewhere>

❶ Allomorphy is an ordered list of phonologically unpredictable URs

❷ The allomorphs are **not** given as rules. (there are no arrows in (32))

❸ The ordering is important, the list is **disjunctive** and consulted top to bottom.

(33) True Allomorphy in English

a computer	an apple
a spire	an obelisk
a basilisk	an eel

No plausible synchronic rule of phonology deletes or inserts *n* in the appropriate environment

(34)

"label"	a(n)
phonology & allomorphy	**æn / __ V** **ə / <elsewhere>**
meaning	indef. article
position	root
selection	--
category	DETERMINER

(35) Allomorphy in Tzeltal

k'ab 'hand'	hk'ab 'my hand'
akan 'leg'	kakan 'my leg'
lumal 'land'	alumal 'your land'
inam 'wife'	awinam 'your wife'
k'op 'language'	sk'op 'his language'
at'el 'work'	yat'el 'his work'

What are the possessive prefixes?

(36) my = h / __C; k / __V
your = a / __C; aw / __V
his = s / __C; y / __V

(37) With no further information about Tzeltal phonology, we must (tentatively) posit allomorphy and list the allomorphs in the lexical entries we posit for the possessive morphemes.

(38)

"label"	h- ~ k-		
phonology & allomorphy	**h / __ C** **k / <elsewhere>**		
meaning	my		
position	prefix		
selection	att. to N		
category	<IGNORE>	<IGNORE>	<IGNORE>

(39) convention: symbol "~" means "alternates with"

(40) It goes without saying: Like segmentation into morphemes, our positing of allomorphy is always considered tentative. Consideration of further data (or advances in theory) might lead us to reclassify some particular alternation as phonology (hence surface allomorphy).

FAQ: How can a morpheme have two different allomorphs, if morphemes are pairs of sound and meaning?

A: Morphemes are not "*pairs*" of sound and meaning, but rather "*systematic correspondences*" of sound and meaning. The simplest correspondences are 1:1 (=pairs), but the correspondences as we have just seen can also be 1:many as long as they are systematic, for example, meeting the criterion of complementary distribution.