

Word Structure

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2013 Jan

Outline

1 Introduction

2 Form-Meaning mapping

3 Falsifiability

4 Word structure

5 Position classes

Linking forms to meaning

Example types (Lotuko, Sudan)

MINIMAL PAIR	One thing differs	i. idulak atulo ema 'The man is planting grain.' ii. idulak atulo afui 'The man is planting peanuts.'
RECURRING PARTIAL WITH CONSTANT MEANING	One thing the same	iii. ohonya eito erizo 'The child is eating meat.' iv. amata eito aari 'The child is drinking water.'

Pattern-matching

Form	Meaning	Function				
ema	grain	Object	i.	idulak	atulo	ema O
aful	peanuts	Object				'grain'
eito	the child	Subject	ii.	idulak	atulo	afui O
						'peanuts'
			iii.	ohonya	eito S	erizo
i. The man is planting grain.						'the child'
ii. The man is planting peanuts.			iv.	amata	eito S	aari
iii. The child is eating meat.						'the child'
iv. The child is drinking water.						

Pattern-matching

Form	Meaning	Function				
ema	grain	Object	i.	idulak	atulo	ema
aful	peanuts	Object			S	O
eito	the child	Subject				'grain'
		Subject	ii.	idulak	atulo	afui
					S	O
						'peanuts'
			iii.	ohonya	eito	erizo
					S	
					'the child'	
i. The man is planting grain.			iv.	amata	eito	aari
ii. The man is planting peanuts.					S	
iii. The child is eating meat.					'the child'	
iv. The child is drinking water.						

Pattern-matching

Form	Meaning	Function
ema	grain	Object
afui	peanuts	Object
eito	the child	Subject
atulo	the man	Subject

i.	idulak	atulo	ema
		S	O
		'the man'	'grain'
ii.	idulak	atulo	afui
		S	O
		'the man'	'peanuts'
iii.	ohonya	eito	erizo
		S	
		'the child'	
iv.	amata	eito	aari
		S	
		'the child'	

- i. The man is planting grain.
- ii. The man is planting peanuts.
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		Object			S	O
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erizo	meat	Object			S	O
		Object			'the man'	'peanuts'
			iii.	ohonya	eito	erizo
					S	O
					'the child'	'meat'
i. The man is planting grain.			iv.	amata	eito	aari
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erizo	meat	Object
aari	water	Object

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aful	peanuts	Object
eito	the child	Subject
atulo	the man	Subject
erizo	meat	Object
aari	water	Object Verb

- i. The man is planting grain.
- ii. The man is planting peanuts.
- iii. The child is eating meat.
- iv. The child is drinking water.

i.	idulak V	atulo S 'the man'	ema O 'grain'
ii.	idulak V	atulo S 'the man'	afui O 'peanuts'
iii.	ohonya V	eito S 'the child'	erizo O 'meat'
iv.	amata V	eito S 'the child'	aari O 'water'

Pattern-matching

Form	Meaning	Function
ema	grain	Object
aful	peanuts	Object
eito	the child	Subject
atulo	the man	Subject
erizo	meat	Object
aari	water	Object
idulak	is planting	Verb

- i. The man is planting grain.
- ii. The man is planting peanuts.
- iii. The child is eating meat.
- iv. The child is drinking water.

i.	idulak V	atulo S	ema O
	is planting	'the man'	'grain'
ii.	idulak V	atulo S	afui O
	is planting	'the man'	'peanuts'
iii.	ohonya V	eito S	erizo O
		'the child'	'meat'
iv.	amata V	eito S	aari O
		'the child'	'water'

Pattern-matching

Form	Meaning	Function
ema	grain	Object
aful	peanuts	Object
eito	the child	Subject
atulo	the man	Subject
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aari	water	Object
idulak	is planting	Verb

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		'the child'	'meat'
iv.	amata V	eito S	aari O
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Testing hypotheses I

Data

v. ohonya odwoti aful

The girl is eating the peanuts.

Hypotheses

Form	Meaning
ema	grain
aful	peanuts
eito	the child
atulo	the man
erizo	meat
aari	water
idulak	is planting
ohonya	is eating

Syntax

VSO

Testing hypotheses I

Data

- v. ohonya odwoti aful
 is eating
 The girl is eating the peanuts.

Hypotheses

Form	Meaning
ema	grain
aful	peanuts
eito	the child
atulo	the man
erizo	meat
aari	water
idulak	is planting
ohonya	is eating

Syntax

VSO VSO

Testing hypotheses I

Data

- v. ohonya odwoti aful
 is eating **peanuts**
 The girl is eating the peanuts.

Hypotheses

Form	Meaning
ema	grain
aful	peanuts
eito	the child
atulo	the man
erizo	meat
aari	water
idulak	is planting
ohonya	is eating

Syntax

VSO VSO

Testing hypotheses I

Data

- v. ohonya odwoti aful
 is eating the girl peanuts
 The girl is eating the peanuts.

Hypotheses

Form	Meaning
ema	grain
aful	peanuts
eito	the child
atulo	the man
erizo	meat
aari	water
idulak	is planting
ohonya	is eating
odwoti	the girl
Syntax	
VSO	VSO

Lotuko: Sudan

(a) Confirm or disprove hypotheses developed thus far; (b) Find the meanings of any unknown words; (c) Fill in the blanks in [h] and [i].

- a idulak atulo ema 'the man is planting grain'
 b idulak atulo aful 'the man is planting peanuts'
 c ohonya eito erizo 'the child is eating meat'
 d amata eito aari 'the child is drinking water'
 e ohonya odwoti aful 'the girl is eating peanuts'
 f abak atulo ezok 'the man hit the dog'
 g amati odwoti aari 'the girl is drinking water'
 h _____ 'the girl hit the child'
 i ohonya ezok erizo _____

Hypotheses

Form	Meaning
ema	grain
aful	peanuts
eito	the child
atulo	the man

Syntax

VSO

Testing hypotheses II

- h odwoti abak eito 'the girl hit the child'
 i ezok ohonya erizo 'the dog is eating meat'

Hypotheses

Form	Meaning
eito	the child
erizo	meat
ezok	dog
ohonya	is eating
abak	hit
odwoti	the girl

Syntax

VSO

Criteria

- The grammar must be stated in a way which allows us to make **clear** and **testable** predictions. It must be **explicit**.

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- But however confident we may be, we proceed with the assumption that all our hypotheses are revisable.
- Testable predictions are **falsifiable**.

Meaningful parts (Isthmus Zapotec, Mexico)

kañee	'feet'	kaʒigi	'chins'
ñeebe	'his foot'	ʒigibe	'his chin'
kañeebe	'his feet'		
ñeeļu?	'your foot'	ʒigilũ?	'your chin'
kañeeļu	'your (pl) feet'	kaʒigitũ	'your (pl) chins'
kañeeļu	'our feet'	kaʒigilũ	'our chins'

Linking form to meaning

Example types (Isthmus Zapotec, Mexico)

MINIMAL TRIPLET	One thing differs	i. kañeetu 'your (pl) feet' ii. kañeebe 'his feet' iii. kañeedu 'our feet'
RECURRING PARTIAL WITH CONSTANT MEANING	One thing the same	iii. kañeetu 'your (pl) feet' iv. kaʒigidu 'our chins'

Meaningful elements

Identify the meaningful elements using the methods of MINIMAL CONTRAST and RECURRING PARTIALS. Fill in the blanks.

kañee	'feet'	kazigi	'chins'
ñeebe	'his foot'	zigibe	'his chin'
kañeebe	'his feet'	??	'his chins'
ñeelu?	'your foot'	zigilu?	'your chin'
kañeetu	'your (pl) feet'	kazigitu	'your (pl) chins'
kañeedu	'our feet'	kazigidu	'our chins'
		kazikelu?	'your shoulders'
-----	'foot'	-----	'chin'
-----	'your foot'	-----	'his shoulder'

Morphemes

Definition

Morphemes are the smallest individually meaningful elements in the utterances of a language.

Hockett (1958)

Fine points

- 1 The word 'smallest' in '**smallest individually meaningful element**' does not entail smallness. It just means containing no other meaningful elements inside you. 'a' is a morpheme in 'amoral' because it means 'not', as we see in other words like 'atonal', 'atheistic', and 'asymmetric', but so is 'Mexic(o)' in 'Mexican', because 'Mexic(o)' contains no meaningful subparts.
- 2 Similarly smallness does not guarantee something is a morpheme. /b/ is NOT a morpheme because it is not a RECURRING PARTIAL WITH CONSTANT MEANING. There is no meaning element common to words like /bin/, /bæt/, /bit/, and /bit/.
- 3 A single sound or sequence of sounds may be a morpheme in context A but not in context B if it does not function to signal a meaning in context B. Thus, 'a' is not a morpheme in 'ape', 'amos', 'air', or 'aphid'.

Examples

How many morphemes in the following English words?

incomprehensibility

disability

undoable

redistribution

caterpillar

Canadians

warmth

feet

freed

cranberry

Discussion

incomprehensibility	in-comprehen(d)-able-ity
disability	dis-able-ity
undoable	un-do-able
redistribution	re-distribute-tion
caterpillar	caterpillar
Canadians	Canada-(i)an-s
warmth	warm-th
feet	feet
cranberry	cran-berry

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warmth	warm-th (cf. length, width, heal(thy)th)
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warmth	warm-th (cf. length, width, heal(thy)th)
feet	feet (not foot + pl?)
cranberry	cran-berry (but what does <i>cran-</i> mean?)

Cranberry morphs

Definition

*Morphemes that can only occur inside words and cannot occur as words on their own are called **BOUND** morphemes.*

Example

<i>incomprehensibility</i>	<i>in-comprehen(d)-able-ity</i>
<i>disability</i>	<i>dis-able-ity</i>
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Roots/affixes

Example

connect, connection, reconnect, connectivity, disconnect

Definition

*The CORE morpheme of the word is called the **ROOT**. The other morphemes are called affixes. (to be revised).*

ROOT	AFFIX
Usually free	always bound
Lexical	grammatical
Open class	closed class

Prefixes				Suffixes		
-3	-2	-1	0	1	2	3
af ₁	af ₂	af ₃	ROOT	af ₄	af ₅	af ₆

Word types

- a. Affixes added onto a single root incomprehensibility, disability, undoable, redistribution, Canadians, warmth
- b. Compound words (more than one free root) chairman, underside, outhouse, butterfly, teethmarks

Question

Consider *cranberry*. *berry* is a root. What is *cran*-?

Open/closed class morphemes

Definition

A **closed class affix** is one of a small set of affixes that can occur with a particular function in a word of a particular part of speech. Often the function is associated with a particular morpheme position in words of that part of speech. In that case, the morphemes which can occupy that position constitute a **position class**.

Members of the same position class can never co-occur.

Example

The **comparative morpheme** -er is a closed class morpheme which expresses comparative meaning; er is a suffix on adjectives. Another example of the same position class is the **superlative morpheme**, -est, which expresses superlative meaning.

Position class Motivations

Observations about Isthmus Zapotec words

- General* *No word contains more than one prefix or more than one suffix*
Occurrences of the plural and possessive markers are independent
- Possessor* *Possessors are always identified by suffixes*
More than one possessor mark disallowed
- PLural* *Plurality is always identified by a suffix (ka-)*
More than one plural mark disallowed

Position class chart

-1 (NUMBER)	0 ROOT	1 (POSSESSOR)
ka- 'plural'		-be '3sg' -lu? '2sg' -tu '2pl' -du '1pl'

Criteria

- 1 Items in the same position class never co-occur.
- 2 Roots all go in one position called 0.
- 3 Morphemes expressing the same grammatical category (tense, number, person) all go in one position, if possible.

Example: Gee Togo

	Example	Size	Gloss
a.	biʔ-ʃu-ni	3	'I came'
b.	bai-ʃu-ni	3	'I went'
c.	dos-ʃu-me	3	'you(sg) ran.'
d.	meʔ-ʃu-mi	3	'they spoke'
e.	bai-te-mi-leʔ	4	'will they go?'
f.	biʔ-paʔ-ni-do	4	'I am not coming'
g.	dos-ʃu-ni-risa	4	'I ran first'
h.	bai-paʔ-me-duʔa	4	'you(sg) only are going'
i.	dos-te-mi-risa-leʔ	5	'will they run first?'
j.	bai-ʃu-ni-tuʃi	4	'I went suddenly'
k.	meʔ-te-mi-risa-do-leʔ	6	'will they not speak first?'
l.	biʔ-te-me-duʔa-do	5	'you(sg) only will not come'
m.	meʔ-paʔ-mi-tuʃi-leʔ	5	'are they suddenly speaking?'

Gee position class: Version 1

	ROOT	TNS	PNUM	FIRST	SUDD	ONLY	NEG	QUE
k.	me?	te	mi	risa			do	le?
i.	dos	te	mi	risa				le?
l.	bi?	te	me			du?a	do	
m.	me?	pa?	mi		tufi			le?
e.	bai	te	mi					le?
f.	bi?	pa?	ni				do	
g.	dos	fu	ni	risa				
h.	bai	pa?	me			du?a		
j.	bai	fu	ni		tufi			
a.	bi?	fu	ni					
b.	bai	fu	ni					
c.	dos	fu	me					
d.	me?	fu	mi					

Gee position class: Version 2

	ROOT	TNS	PNUM	ADV	QUE
k.	meʔ	te	mi	risa do	leʔ
i.	dos	te	mi	risa	leʔ
l.	biʔ	te	me	duʔa do	
m.	meʔ	paʔ	mi	tufi	leʔ
e.	bai	te	mi		leʔ
f.	biʔ	paʔ	ni	do	
g.	dos	ʃu	ni	risa	
h.	bai	paʔ	me	duʔa	
j.	bai	ʃu	ni	tufi	
a.	biʔ	ʃu	ni		
b.	bai	ʃu	ni		
c.	dos	ʃu	me		
d.	meʔ	ʃu	mi		

Gee position class: Version 2

	ROOT	TNS	PNUM	ADV	QUE
k.	me?	te	mi	risa do	le?
i.	dos	te	mi	risa	le?
l.	bi?	te	me	du?a do	
m.	me?	pa?	mi	tufi	le?
e.	bai	te	mi		le?
f.	bi?	pa?	ni	do	
g.	dos	ʃu	ni	risa	
h.	bai	pa?	me	du?a	
j.	bai	ʃu	ni	tufi	
a.	bi?	ʃu	ni		
b.	bai	ʃu	ni		
c.	dos	ʃu	me		
d.	me?	ʃu	mi		

Two morphemes
in one slot! Bad!

Gee position class: Correct

	0	1	2	3	4	5
	ROOT	TNS	PNUM	MANNER	NEG	QUE
k.	me?	te	mi	risa	do	le?
i.	dos	te	mi	risa		le?
l.	bi?	te	me	du?a	do	
m.	me?	pa?	mi	tufi		le?
e.	bai	te	mi			le?
f.	bi?	pa?	ni		do	
g.	dos	fu	ni	risa		
h.	bai	pa?	me	du?a		
j.	bai	fu	ni	tufi		
a.	bi?	fu	ni			
b.	bai	fu	ni			
c.	dos	fu	me			
d.	me?	fu	mi			

Gee position classes: final chart

Corpus-based analysis of the grammar of Gee verbs

0	1	2	3	4	5
	TNS	PNUM	MAN	NEG	QUE
	-fu 'past'	-ni '1sg'	-duʔa 'only'	-do 'not'	-leʔ 'que'
	-paʔ 'pres'	-me '2sg'	-risa 'first'		
	-te 'fut'	-mi '3pl'	-tuʃi 'sdnly'		

When position classes work

- (a) Fixed linear ordering: each morpheme has a consistent precedes/follows relation with all the others

Present tense morpheme ALWAYS immediately follows the root.

- (b) An affix expresses exactly one grammatical category (TENSE, PERSON/NUMBER, NEG, QUE)

- (c) Consistency: Affixes with the same grammatical category have the same ordering relation with other morphemes.

ALL tense morphemes immediately follow the root. NOT: Present tense immediately follows the root, future immediately precedes.

Agglutination

AGGLUTINATING LANGUAGES

Morphemes are strung together like 'beads on a string'; the first bead is the root. Each morpheme expresses one concept.

Other morphological types

ANALYTIC	No morphology. Each word is one morpheme. Chinese. To a large extent, English
FUSIONAL SYNTHETIC INFLECTIONAL	Multiple affixes to a word, but each affix may encode a set of grammatical categories PORTMANTEAU MORPHEMES
POLYSYNTHETIC	Words built out of multiple root. One word clauses (incorporationm of one word into another).

Fusional

- (a) Many PORTMANTEAU morphemes
- (b) Suppletion: No affix added. Form of root changes, resulting in a portmanteau morpheme
- (c) Being a fusional language is a tendency, a matter of degree. Although primarily analytic, English has many fusional features.

Italian	am -o
English	love -s
	simple present first singular active indicative
English	go ~ went bring ~ brought see ~ saw good ~ better bad ~ worse

Polysynthetic

Onandaga, North America

waʔ -ha -yvʔkw -ahni:nu -ʔ

PAST he/it tobacco buy ASPECT

'He bought tobacco'

Rembarrnga, Australia

yarran -mæʔ -kuʔpi -papna -ni -yuwa

1pl.IO/3sg.SUBJ might sweat smell INF along.PRES

'It (the kangaroo) might smell our sweat along (i.e. as we try to sneak up on it)'

Hockett, Charles F. 1958.

A Course in modern linguistics.

New York: Macmillan.