

MORPHOLOGY

Class 4

**Morphemes and their
properties II: fusion**

FS 2015
Rik van Gijn

MORPHEMES II: FUSION

Goal of this class

This class is about the way morphology and phonology interact, and you will learn more about non-linear morphology

- √ Allomorphy (regular, phonologically conditioned)
- √ Morphophonology
- √ Several types of non-concatenative or non-linear morphology

MORPHEMES II: FUSION

Preliminaries: the International Phonetic Alphabet (consonants)

Voicing

Voicing is caused by the vibration of the vocal cords.

Place

The point in the vocal tract where two or more articulators block or constrict the air flow.

Manner

How the speech organs are configured to manipulate the air stream, by constricting the airflow in various ways.

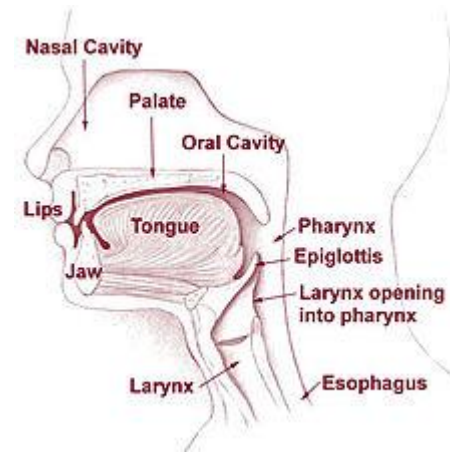
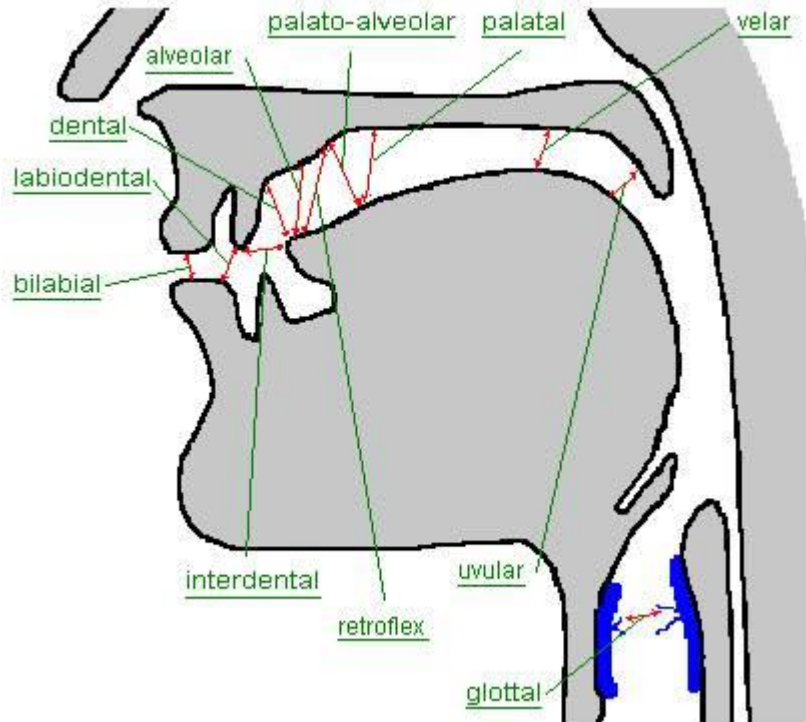
CONSONANTS (PULMONIC)

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			ʀ					ʀ		
Tap or Flap				ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

MORPHEMES II: FUSION

Preliminaries: the International Phonetic Alphabet (consonants)



Speech organs (Arcadian)

<http://training.seer.cancer.gov/head-neck/anatomy/overview.html>

Places of articulation (Instituto Lingüístico de Verano
www-01.sil.org/mexico/ling/glosario/E005ci-PlacesArt.htm)

MORPHEMES II: FUSION

Preliminaries: the International Phonetic Alphabet (vowels)

Rounding

Lips can be rounded to produce rounded vowels.

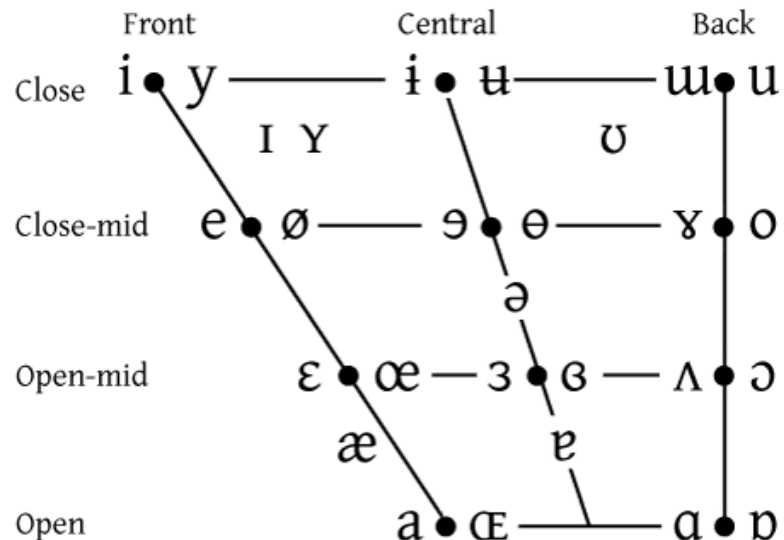
Tongue body position II

The body of the tongue is pushed forward to produce front vowels or backward to produce back vowels.

Tongue body position I

Raising the body of the tongue while letting the airflow out freely produces high (close) vowels, whereas pushing the body of the tongue down produces low (open) vowels.

VOWELS



MORPHEMES II: FUSION

Internal sandhi/morphophonology

Languages have different types of phonological rules that apply to certain domains. Processes that apply within words, at boundaries of between morphemes are often called **internal sandhi rules**, or **morphophonological** rules.

A common type of morphophonological rule is the type where a sound changes under the influence of adjacent sounds (we will talk about these more later on).

MORPHEMES II: FUSION

Contextual adaptation: lenition/fortition

Yurakaré

lëtta kajun	[læt:a kahun]	'one box'
tijajun	[tihahun]	'my box'
tinkama	[tiŋkama]	'He calls me.'
ajama	[ahama]	'He is calling.'



MORPHEMES II: FUSION

Contextual adaptation: lenition/fortition

Yurakaré

lëtta kajun	[læt:a kahun]	'one box'
tijajun	[tihahun]	'my box'
tinkama	[tiŋkama]	'He calls me.'
ajama	[ahama]	'He is calling.'

Rule in Yurakaré:

If an underlying /k/ appears after a vowel, it is changed to [h] within a word

/k/ → [h] / [V_]ω



MORPHEMES II: FUSION

Contextual adaptation: lenition/fortition

Lenition: making consonants more vowel-like, «softer» (often under the influence of adjacent vowels)

Prototypical consonant	Prototypical vowel
Non-continuant	Continuant
Voiceless	voiced
Closed vocal tract	Open vocal tract

Fortition: making consonants more consonant-like, «harder»

MORPHEMES II: FUSION

Exercise 1

MORPHEMES II: FUSION

Contextual adaptation: assimilation/dissimilation

Sounds that are next to each other often adapt in a way that makes them more alike, they acquire features of adjacent sounds. This is called assimilation. An example from Yurakaré again:

Prefix default = *n-*

ti-n-tütü	[tintiti]	'He waits for me'
ti-n-kaya	[tiŋkaja]	'He gives it to me'
ti-n-bache	[timbatʃe]	'He sends it to me'

MORPHEMES II: FUSION

Contextual adaptation: assimilation/dissimilation

Sounds that are next to each other often adapt in a way that makes them more alike, they acquire features of adjacent sounds. This is called assimilation. An example from Yurakaré again:

Prefix default = *n-*

ti-n-tütü	[tintiti]	‘He waits for me’
ti-n-kaya	[tiŋkaja]	‘He gives it to me’
ti-n-bache	[timbatʃe]	‘He sends it to me’

The nasal assimilates to the following consonant in terms of its place of pronunciation

MORPHEMES II: FUSION

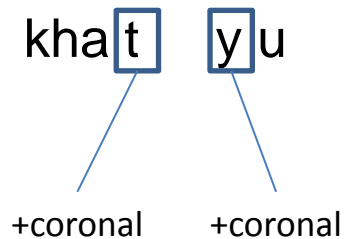
Contextual adaptation: assimilation/dissimilation

Belhare dissimilation

khat 'go'
-yu 'non-past'



khaʔyu 's/he goes'



Bickel & Nichols (2007) Inflectional morphology. In: Shopen (ed.) *Language typology and syntactic description III*, p. 182



MORPHEMES II: FUSION

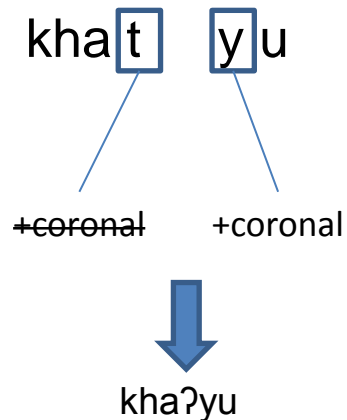
Contextual adaptation: assimilation/dissimilation

Belhare dissimilation

khat 'go'
-yu 'non-past'



khaʔyu 's/he goes'



Bickel & Nichols (2007) Inflectional morphology. In: Shopen (ed.) *Language typology and syntactic description III*, p. 182



MORPHEMES II: FUSION

Phonotactics

Another common set of rules can be termed phonotactic rules, which apply to avoid disallowed sequences of sounds, i.e. sound sequences that violate phonotactic constraints

These types of rules often lead to the deletion or addition of sounds

MORPHEMES II: FUSION

Phonotactics

Minimality constraints: Yurakaré

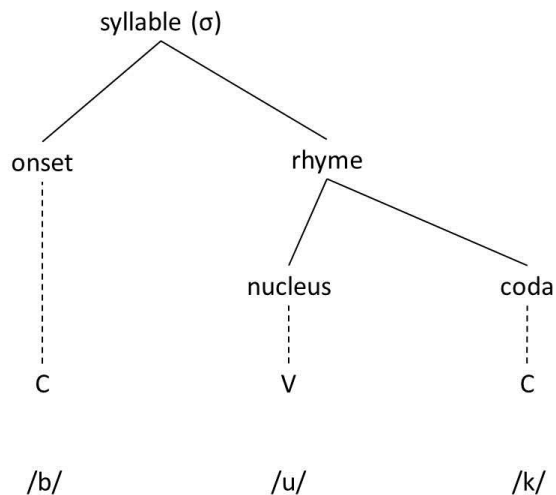
püü	/pii/	'road'
tapü	/tapi/	'our road'
paa	/paa/	'brother'
tapa	/tapa/	'our brother'
too	/too/	'bone'
tato	/tato/	'our bone'



MORPHEMES II: FUSION

Phonotactics

Syllable structure



There are many differences between languages in what they allow in terms of syllable structure.

Major constraints are:

No coda allowed (or only some sounds)

No complexity allowed

MORPHEMES II: FUSION

Phonotactics

Phonotactic constraints: epenthesis in Yuki (Tupí-Guaraní)

a-be-akiw [aberakiw]

1SG-CAU-warm

'I am warming up.'

o-ye-ire [ojejire]

3S-REF-wash

'He washes himself.'



Villafañe Lucrecia (2004) *Gramática Yuki*.
PhD thesis RU Nijmegen, p. 35

MORPHEMES II: FUSION

Phonotactics

Phonotactic constraints: epenthesis in Lenakel

r- 3sg
va come

He comes = riva



Bickel & Nichols (2007) Inflectional morphology. In:
Shopen (ed.) *Language typology and syntactic
description III*, p. 182

MORPHEMES II: FUSION

Phonotactics

Phonotactic constraints: vowel elision in Emérillon (Tupí-Guaraní)

o-paʔam-**oŋ** ikiʔi

3.I-stand-PL.S now

‘They are standing now.’

o-boʔi baipuri-r-**ie-ŋ**

3.I-cut tapir-REL-stomach-PL.S

‘They cut open the tapir’s stomach.’

Word-internal elision of sounds is also called **syncope**.

Rose, Françoise (2011): *Grammaire de l'émérillon teko, une langue tupi-guarani de Guyane française*. Louvain: Peeters.



MORPHEMES II: FUSION

Phonotactics

Consonant coalescence in Suruí (Tupí-Mondé)

/òn+pór/ → [òmor]

‘my brother’

/èn+kánè → [èŋámè]

‘(Somebody) wants you.’

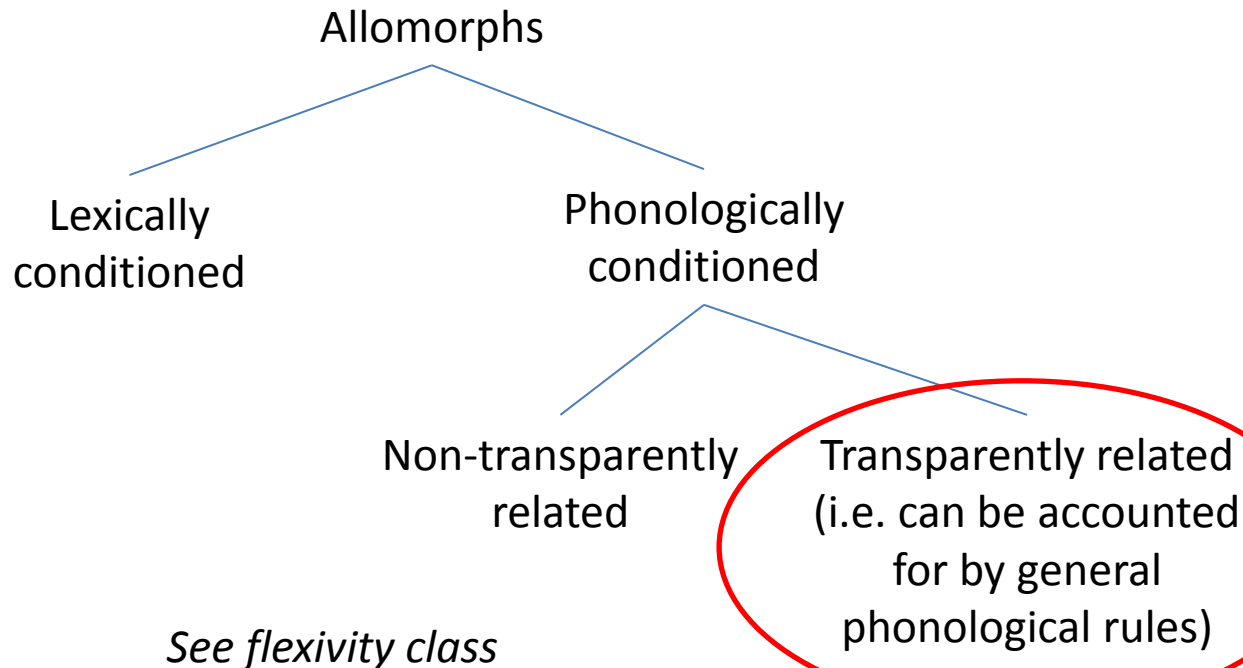
Van der Meer 1982: Fonologia da língua Suruí. São Paulo ,
PhD thesis Campinas, p.41



MORPHEMES II: FUSION

Allomorphs

These interactions between phonology and morphology create **allomorphs**.



MORPHEMES II: FUSION

Transparently related phonologically conditioned allomorphs

English past tense

The Past Tense Rule

- a. If the verb stem ends in [t] or [d] (the alveolar stops), insert [ə] before the past tense morpheme (e.g. defeated [dɛfɪt + d] → [dɛfɪt + əd]).
- b. Assimilate [d] to the voicing of an immediately preceding consonant (e.g., licked [lɪk + d] → [lɪk + t])

Lieber (2009)

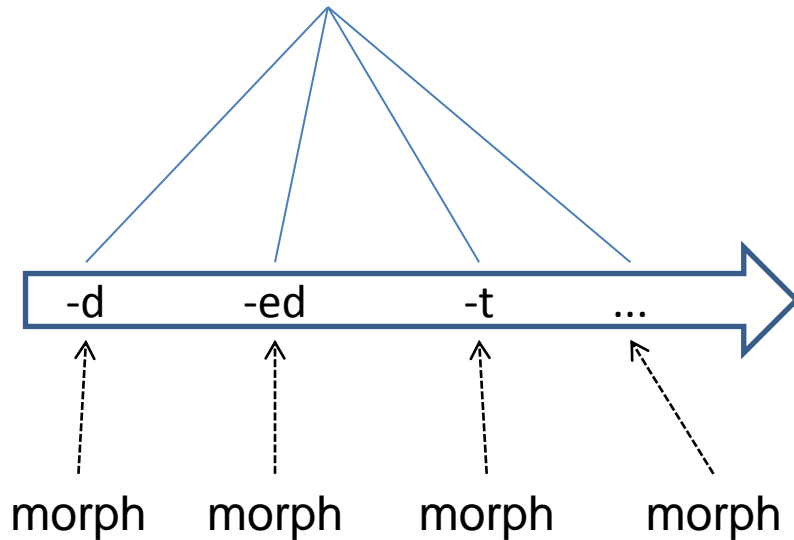


MORPHEMES II: FUSION

Transparently related phonologically conditioned allomorphs

English regular past tense

Past Tense English



Allomorphs of past tense morpheme



MORPHEMES II: FUSION

Transparently related phonologically conditioned allomorphs

English plurals

Infinitive Irregular past Pattern

1	burn	burnt	devoicing of suffix
2	keep	kept	vowel shortening
3	hit	hit	no change
4	feel	felt	vowel shortening with devoicing of suffix
5	bleed	bled	vowel shortening and no suffix
6	leave	left	devoicing of stem consonant
7	sing	sang	vowel ablaut (i > æ)
8	win	won	vowel ablaut (i > ʌ)
9	fight	fought	vowel ablaut (ai > ɔ)
10	come	came	vowel ablaut (ʌ > e)

Lieber (2009)

MORPHEMES II: FUSION

Exercises 2-3

MORPHEMES II: FUSION

Typological parameter II: fusion

From the perspective of the morph:

If you can identify a morph, what can you say about the degree of fusion it has with its host?

Three basic values:

Isolating - Concatenative - Nonlinear



MORPHEMES II: FUSION

Concatenating morphology

Concatenating: segmentable dependent morphs

Think of the rules discussed above for Yurakaré (lenition) Yuki and Lenakel (epenthesis), Emérillon (elision), Belhare (dissimilation), Turkish (vowel harmony), Dutch and English (assimilation).

They all show evidence of phonological integration of affixes with their host.



MORPHEMES II: FUSION

Concatenating morphology

Concatenating: segmentable dependent morphs

Yurakaré

dúla	'He makes it'
dulá-ni	'He is going to make it.'
dula-ní-shta	'He will be going to make it.'



MORPHEMES II: FUSION

Concatenating morphology

Concatenating: segmentable dependent morphs

Fusion of concatenative morphs seems to be a matter of degree

Movima (Isolate)

onarana-us [ʔɔnara'naʔus]

know=MASC.ABST
'He knows X.'

iye:ni-as [i'jɛ:niʔas]

move=NEUT.ABST
'It moves.'



Non-cohering affixes

MORPHEMES II: FUSION

Isolating morphology

Isolating

Morphophonological evidence of fusion may be entirely absent

Lai Chin (Tibeto-Burman)

Tsew	Mán	niʔ	ʔa-ka-t̪hoʔŋ
Tsew	Mán	ERG	3SG.A-1SG.P-hit
ω	ω	ω	ω

‘Tsew Mang hit me.’

(Although spelling suggests differently, this is a situation equivalent to Yidiny)



Bickel & Nichols (2007), p. 173

MORPHEMES II: FUSION

Nonlinear morphology

Nonlinear: morphs that are not segmentable in linear strings

We have already seen a number of examples last week

- Vowel mutation
- Consonant mutation

MORPHEMES II: FUSION

Vowel mutation

German (Germanic)

Mutter - Mütter

Vater - Väter

Tochter - Töchter



Manchu (Tungusic)

haha 'man'

ama 'father'

amila 'rooster'

hehe 'woman'

eme 'mother'

emile 'hen'



Haenisch 1961: 34 in Lieber (2009) *Introducing morphology* (CUP).

MORPHEMES II: FUSION

Nonlinear morphology

Conversion

A type of word formation in which the lexical class of a base is changed without any formal marking (zero derivation).

English

NOUN

hammer

plant

ship

walk

drink

VERB

hammer

plant

ship

walk

drink



MORPHEMES II: FUSION

Nonlinear morphology

Suppletion

English

Present

go
am

Past

went
was

buy
teach

bought
taught

Strong suppletion

Weak suppletion



MORPHEMES II: FUSION

Nonlinear morphology

Replacive morphology

Yurakaré

bata	'go'	baché	'send'	ba = ?
duta	'burn (itr)	duché	'burn (tr)'	du = ?
bějta	'see'	bějche	'show'	běj = ?
wilita	'return'	wiliche	'bring back'	wili = ?

Alternative: weak suppletion



MORPHEMES II: FUSION

Nonlinear morphology

Subtraction

French (Romance, IE)

æxø	æxøz	'happy'
gkã	gkãd	'big'
lõ	lõg	'long'
ʃo	ʃod	'hot'
vεk	vεkt	'green'
fkwɑ	fkwɑd	'cold'
pəti	pətit	'little'
blã	blãʃ	'white'
fʁε	fʁεʃ	'fresh'
fo	fos	'false'

Bauer (2003) *Introducing linguistic morphology*. Georgetown U. Press

MORPHEMES II: FUSION

Nonlinear morphology

Suprasegmental rules: tonal morphemes

Hausa (Chadic)

sháa	'to drink'	shâa	'drinking' (N)
cí	'to eat'	cîi	'eating' (N)

Tone languages make use of pitch level to distinguish words from each other. In some of these languages, tone is used systematically to perform morphological (derivation, inflection) operations.

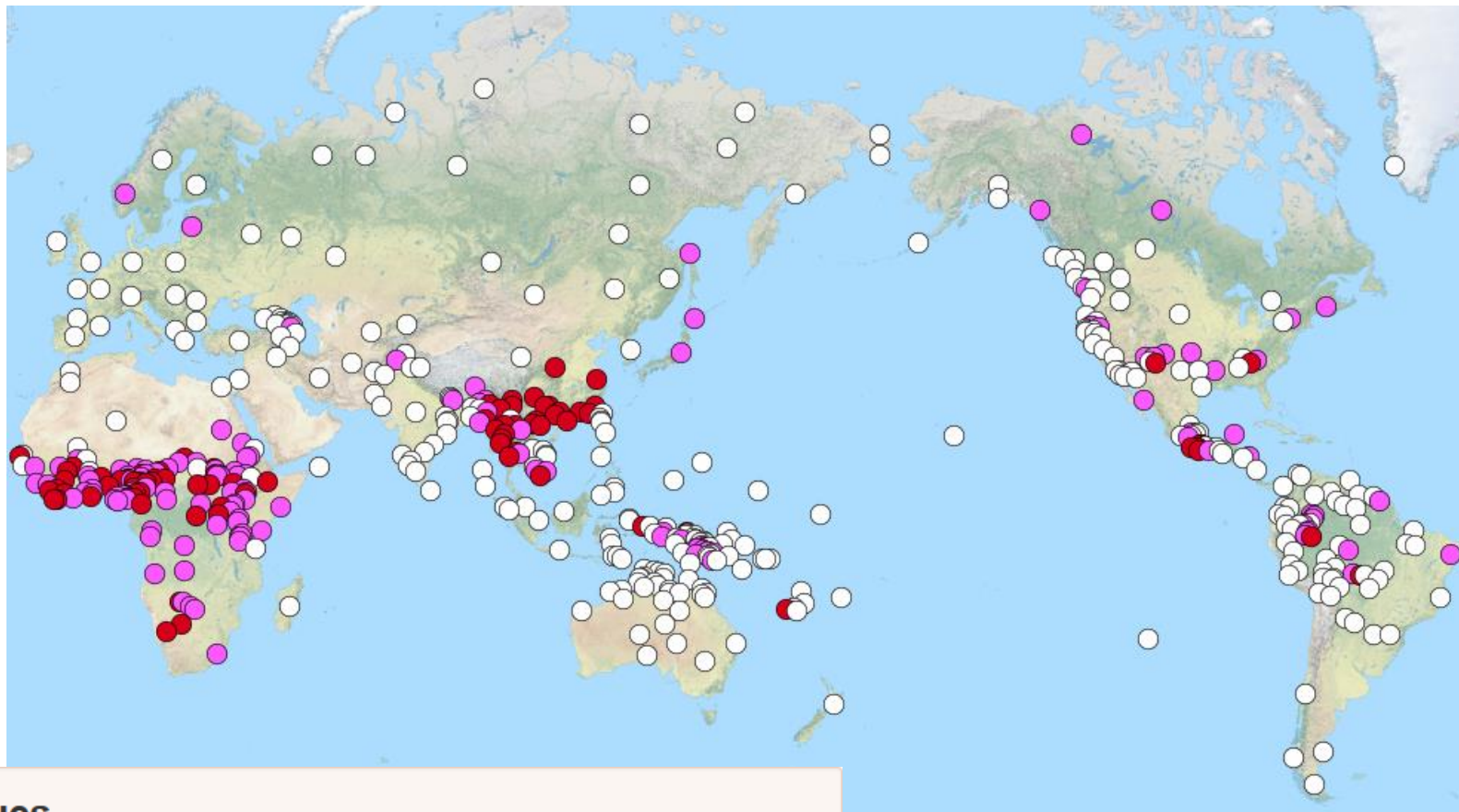
Two parameters are of particular importance for tone languages:

1. The number of distinctive pitch levels
2. Whether there are only level tones or also contour tones



MORPHEMES II: FUSION

Nonlinear morphology



Values

○	No tones	307
●	Simple tone system	132
●	Complex tone system	88

MORPHEMES II: FUSION

Nonlinear morphology

Suprasegmental rules: stress

English

convíct	vs.	cónvict
contrást	vs.	cóntrast
incréase	vs.	íncrease
permít	vs.	pérmit
recórd	vs.	récord
adréss	vs.	áddress



MORPHEMES II: FUSION

Reduplication

Reduplication is a morphological operation whereby part of a base or the entire base is copied and attached to that base.

Javanese (Austronesian)

full reduplication:

baita “ship”	baita-baita “various ships”
sesupe “ring”	sesupe-sesupe “various rings”
omaha “house”	omaha-omaha “various houses”

partial reduplication:

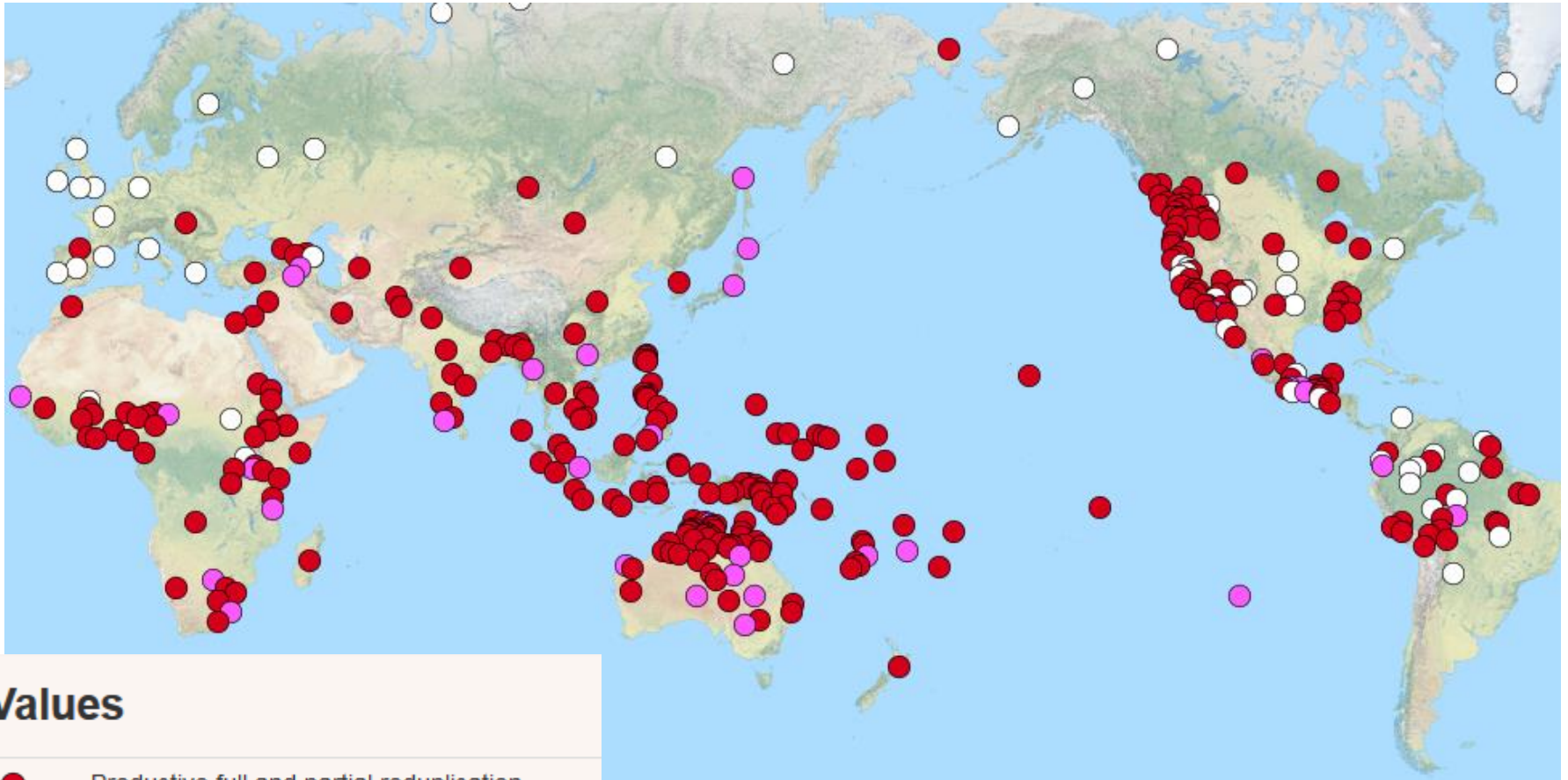
geni “fire”	gegeni “to warm oneself by the fire”
jawah “rain”	jejawah “to play in the rain”
tamu “guest”	tetamu “to visit”

Uhlenbeck 1978, cited in Booij (2007)



MORPHEMES II: FUSION

Reduplication



Values

- Productive full and partial reduplication
- Full reduplication only
- No productive reduplication

MORPHEMES II: FUSION

Reduplication

Partial reduplication: what is copied?

Ponapean (Austronesian)

duhp 'dive'	du-duhp 'be diving'
mihk 'suck'	mi-mihk 'be sucking'
wehk 'confess'	we-wehk 'be confessing'

Rehg 1981, cited in Haspelmath & Simms (2010)



MORPHEMES II: FUSION

Reduplication

Partial reduplication: what is copied?

Mangap-Mbula (Austronesian)

kuk 'bark'	kuk-uk	'be barking'
kel 'dig'	kel-el	'be digging'
kan 'eat'	kan-an	'be eating'

Bugenhagen 1995, cited in Haspelmath & Sims (2010)



MORPHEMES II: FUSION

Reduplication

Partial reduplication: what is copied?

Mangap-Mbula (Austronesian)

kuk 'bark'	kuk-uk	'be barking'
kel 'dig'	kel-el	'be digging'
kan 'eat'	kan-an	'be eating'

Bugenhagen 1995, cited in Haspelmath & Simms (2010)



MORPHEMES II: FUSION

Reduplication

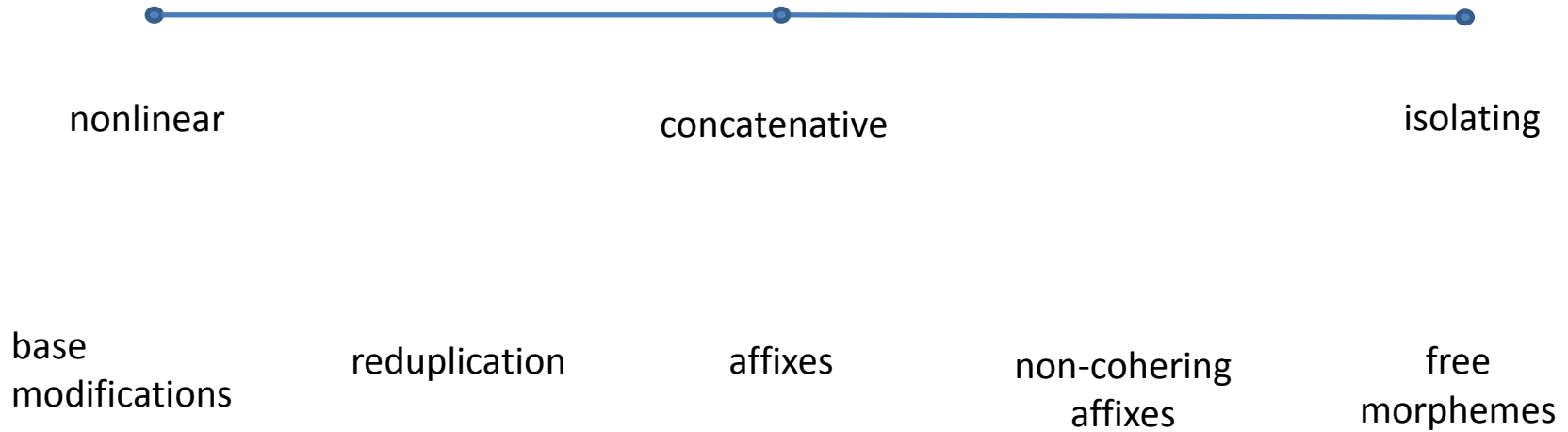
Is reduplication linear or non-linear?

It seems to involve both nonlinear (material from the base) and linear (concatenative adjunction) aspects

MORPHEMES II: FUSION

Continuum

The fusion parameter seems to have a continuous character

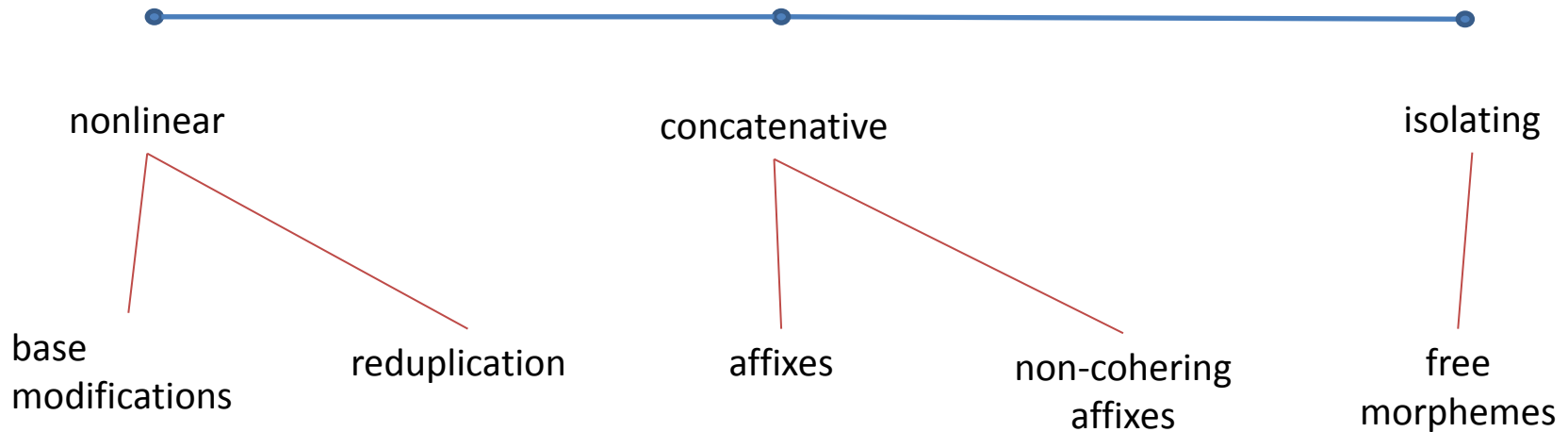


MORPHEMES II: FUSION

Continuum

The fusion parameter seems to have a continuous character

Bickel & Nichols' (2007) classification



MORPHEMES II: FUSION

Duplifixes

Duplifixes

Somali (Afro-Asiatic)

buug	'book'	buug-ag	'books'
fool	'face'	fool-al	'faces'
koob	'cup'	koob-ab	'cups'
jid	'street'	jid-ad	'streets'



MORPHEMES II: FUSION

Duplifixes

Duplifixes

Tzutzujil (Mayan)

saq	'white'	saq-soj	'whitish'
rax	'green'	rax-roj	'greenish'
q'eq	'black'	q'eq-q'oj	'blackish'
tz'iil	'dirty'	tz'il-tz'oj	'dirtyish'

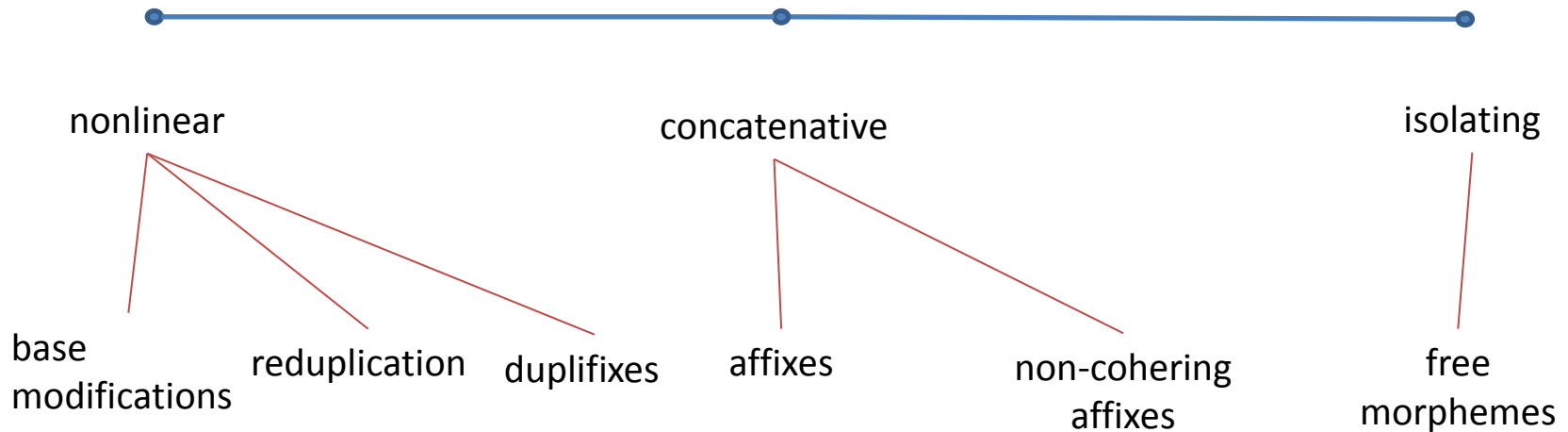


MORPHEMES II: FUSION

Continuum

The fusion parameter seems to have a continuous character

Bickel & Nichols' (2007) classification



MORPHEMES II: FUSION

Exercises 4 and 5

MORPHEMES II: FUSION

Recapitulation

This class is about the way morphology and phonology interact, and you will learn more about non-linear morphology

- √ Allomorphy (regular, phonologically conditioned)
- √ Morphophonology
- √ Several types of non-concatenative or non-linear morphology