

Historical Linguistics

Course script 2005/6
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Review of phonology

Classification of consonants

Consonants are classified along three dimensions:

1. Voicing
2. Manner of articulation: degree of constriction in the oral cavity
3. Place of articulation: constriction in the front or back of oral cavity

Voiced and unvoiced speech sounds

[f]	'father'	[v]	'vase'
[s]	'salt'	[z]	'zoo'
[t]	'tree'	[d]	'door'

Manner of articulation

Plosives	[p] [b] [t] [d] [k] [g]	[c] [ɟ] [q] [G]
Fricatives	[f] [v] [r] [ð] [s] [z] [ʃ] [ʒ]	[ç] [x]
Affricates	[tʃ] [dʒ]	[ts] [pf]
Nasals	[m] [n] [ŋ]	[ɲ]
Liquids	[l] [r]	[R]
Glides	[w] [y]	

Place of articulation

Bilabial:	[p] [b] [m] [w]	
Labiodental:	[f] [v]	
Interdental:	[θ] [ð]	
Alveolar:	[t] [d] [s] [z] [n] [l] [r]	
Palatal-alveolar:	[ʃ] [ʒ] [tʃ] [dʒ] [y]	[c] [ɟ] [ɲ]
Velar:	[k] [g] [ŋ]	[x] [χ]
Uvular:		[q] [G]
Pharyngeal:		[ħ] [ʕ]
Glottal	[ʔ]	

	bilab.	labiod.	interdent	alveolar	alv-palatal	palatal	velar
Stops	p b			t d		k g	
Affric.					tʃ dʒ		
Fricativ.		f v	θ ð	s z	ʃ ʒ		
Nasal	m			n			ŋ
Liquid				l / r			
Glide	(w)					y	(w)

Classification of vowels

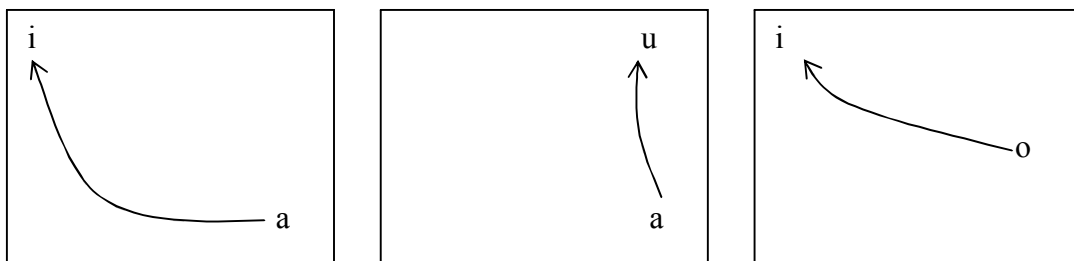
Vowels are classified along four dimensions:

- | | |
|------------------------------|------------------------|
| 1. Height of the tongue | high – mid - low |
| 2. Advancement of the tongue | front – central – back |
| 3. Lip rounding | rounded - unrounded |
| 4. Tenseness | tense - lax |

English vowels

i		u
ɪ		ʊ
e	ə	o
ɛ	ʌ	ɔ
æ		ɑ

English diphthongs



German vowels

i	y			u
ɪ	ʏ			ʊ
e	ø	ə		o
ɛ	æ			ɔ
				a

Phonemes and allophones

Phonology is concerned with the mental dimension of the production and recognition of speech sounds. The mental representation of a speech sound is called a *phoneme*. Native speakers are aware of the phonemes of their language, but they usually do not recognize the different physical instantiations of a phoneme. Many phonemes are differently pronounced in different phonetic environments; aspirated and non-aspirated stops:

[t ^h ɒp]	‘top’	aspirated
[stɒp]	‘stop’	plain

The concrete pronunciation of a phoneme is called a *phone* or *allophone*. The derivation of allophones from phonemes can be expressed in a *phonological rule*:

$$/p t k/ \rightarrow \begin{matrix} [p^h t^h k^h] / \# _ , _ V' \\ [p, t, k] \text{ elsewhere} \end{matrix}$$

Contrastive – complementary distribution

English		Korean	
[læk]	‘lack’	[param]	‘wind’
[ræk]	‘rack’	[irɪm]	‘name’
[lif]	‘leaf’	[pal]	‘foot’
[rif]	‘reef’	[mal]	‘horse’

In English, [l] and [r] are in contrastive distribution, but in Korean, [l] and [r] are in complementary distribution, i.e. they are allophones of the same phoneme.

$$/l/ \rightarrow \begin{matrix} [r] / V _ V \\ [l] \text{ elsewhere} \end{matrix}$$

$$/r/ \rightarrow \begin{matrix} [l] / _ \# \\ [r] / \text{ elsewhere} \end{matrix}$$

Phonological processes of English

Aspiration

[t^hop] ‘top’
[stop] ‘stop’

p t k/ → [p^h t^h k^h] / # __, __V
 [p, t, k] elsewhere

Nasalization

[kæ̃n] ‘can’
[kām] ‘come’

/V/ → [Ṽ] / __N
 [V] elsewhere

Vowel lengthening

[bɛ:d] ‘bed’
[hæ:v] ‘have’

/V/ → [V:] / __ [+voice]
 [V] elsewhere

Flapping (American English)

[bʌɾɾ] ‘butter’
[bɛɾɾ] ‘better’

/t/ → [ɾ] / (after stressed syllables at the beginning of unstressed syllables)
 [t] elsewhere

Morphophonemic processes

The *allophonic process* that we have seen thus far must be distinguished from *morphophonemic processes*. Allophonic processes involve the derivation of allophones from phonemes; the process is obligatory and automatic. Morphophonemic processes occur when two morphemes are combined into a complex word. Such processes are also obligatory and automatic, but they do not involve allophones but rather ‘basic’ speech sounds (i.e. phonemes); thus native speakers easily perceive such processes when they are pointed out to them.

English plural

[kæts]	‘cats’
[dɒgz]	‘dogs’
[bʊʃəz]	‘bushes’
[kɑːz]	‘cars’
[laɪts]	‘lights’
[bæŋks]	‘banks’
[kɪsəz]	‘kisses’
[dʒəˈræfɪz]	‘giraffes’
[ɡəˈrɑːʒəz]	‘garages’
[mætəz]	‘matches’
[deθs]	‘deaths’

Three allomorphs: [s] after voiceless speech sound
[z] after voiced speech sounds
[əz] after sibilants

Place harmony in the negative prefix:

[ɪmˈpɒsɪbl]	‘impossible’
[ɪnsensətɪv]	‘insensitive’
[ɪŋkɒnsɪstənt]	‘inconsistent’

Three allomorphs: [m] before labials
[n] before alveolars
[ŋ] before velar

The Indo-European Language Family

Germanic

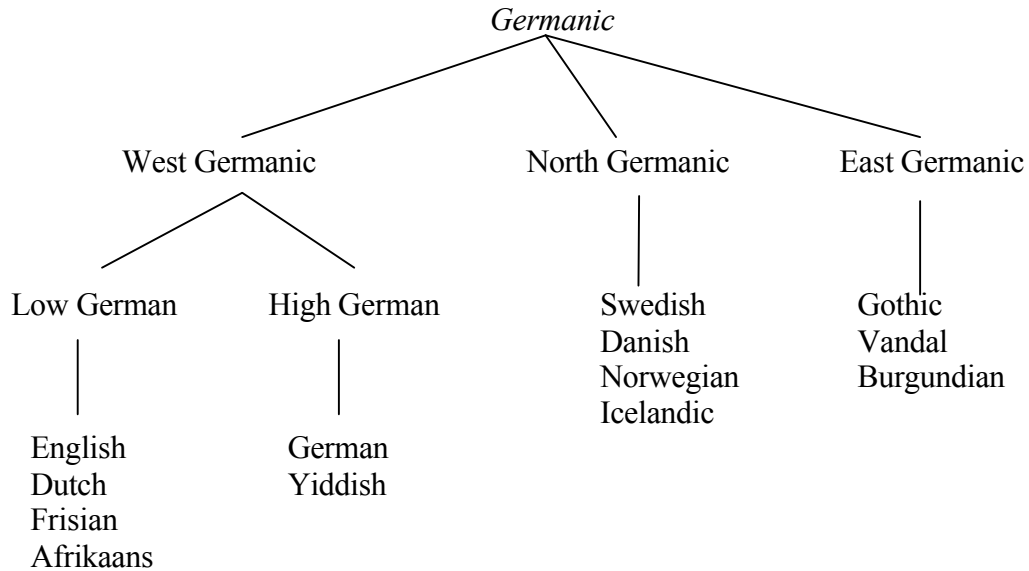


Table 1. Systematic sound correspondences between English and German

English	German
time	Zeit
tongue	Zunge
ten	Zehn
tame	Zahm
tent	Zelt
to	Zu
two	Zwei
twelve	Zwölf
twins	Zwillinge

The second German sound shift

time	Zeit
tongue	Zunge
ten	zehn
that	das
there	da
through	durch

pan	Pfanne
path	Pfad
pole	Pfahl
hate	hassen
eat	essen
let	lassen
grip	greifen
deep	tief
sleep	schafen

Romance

French	Catalan
Italian	Galician
Spain	Sardinian
Portuguese	Provençal
Romanian	Rhaeto-Romance

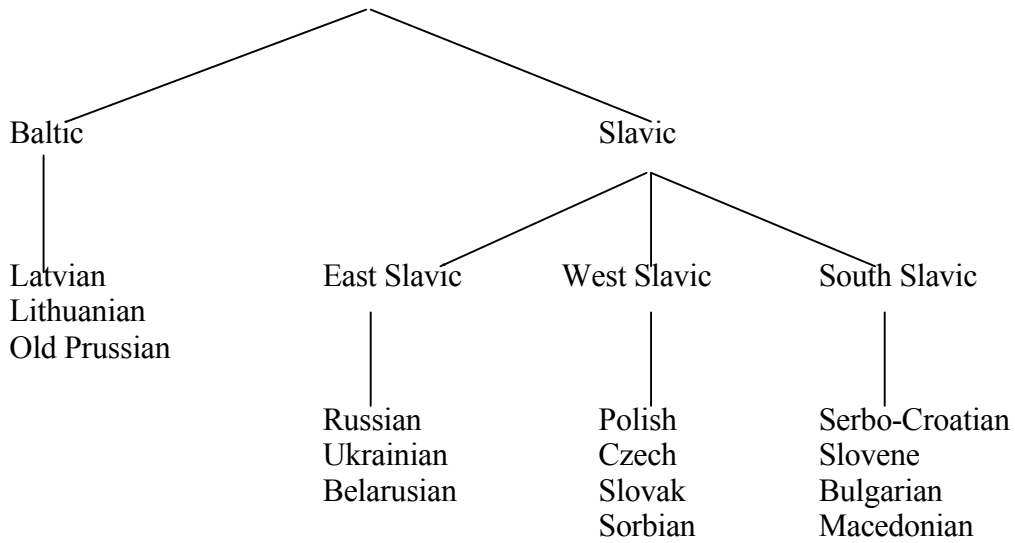
Table 2. Systematic sound correspondences in the Romance languages

	Sardinian	Italian	Romansh	French	Spanish
<i>Hundred</i>	kentu	tʃento	tsjent	sã	θjen
<i>Sky</i>	kɛlu	tʃelo	tsil	sjel	θjelo
<i>Stag</i>	kerbu	tʃervo	tserf	sɛR	θjerbo
<i>Wax</i>	kɛra	tʃera	tsaira	sɪR	θera

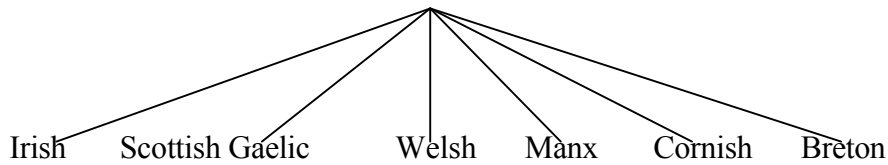
Indo-European

Germanic	Greek
Romance	Iranian
Slavic	Indian
Baltic	Albanian
Celtic	Armenian

Slavic



Celtic



Speakers today:

- Welsh (Wales): 250.000
- Irish (Ireland): 500.000
- Gaelic (Scotland): 75.000
- Manx (Ilse of man): extinct
- Cornish (Cornwell): extinct
- Breton (Brittany): 500.000

The comparative method

Languages for which we have long and comprehensive historical records

Indo-European
Semitic (Hebrew, Arabic, Egyptian)
Chinese
Japanese
Turkish
Native American languages
African languages
Dravidian

Sound structure of a dead language

1. Rhyme

You spotted snakes with double **tongue**,
Thorny hedge-hogs, be not seen;
Newts, and blind-worms, do no **wrong**;
Come not near our fairy queen. (Shakespeare)

2. Spelling mistakes

consul 'cosul'
censor 'cesor' (Latin inscriptions)

3. Phonetic descriptions of ancient scholars

'We produce this letter by pressing the lower lip on the upper teeth. The tongue is turned back towards the roof of the mouth, and the sound is accompanied by a gentle puff of breath.' (Roman grammarian)

Comparative evidence

Table 1. Numerals in Indo-European and non-Indo-European languages

English	Gothic	Latin	Greek	Old Ch. Slavic	Sanskrit	Chinese	Japanese
one	ains	unus	heis	jedinu	ekas	i	hitotsu
two	twai	duo	duo	duva	dva	erh	futatsu
three	þrija	tres	treis	trije	trayas	san	mittsu
four	fidwor	quattuor	tettares	cetyre	catvaras	ssu	yottsu
five	fimf	quinque	pente	peti	panca	wu	itsutsu
six	saihs	sex	heks	secti	sat	liu	muttsu
seven	sibun	septem	hepta	sedmi	sapta	ch'i	nanatsu
eight	ahtau	octo	okto	osmi	asta	pa	yattsu
nine	niun	novembe	ennea	deveti	nava	chiu	kokonotsu
ten	taihun	decem	deka	deseti	dasa	shih	to

Table 2. Proto-Indo-European numerals

Proto-Indo-European	English
<i>*sems, *oi-</i>	one
<i>*duwo / *dwo</i>	two
<i>*treyes</i>	three
<i>*kwetwores</i>	four
<i>*penkwe</i>	five
<i>*sweks / *seks</i>	six
<i>*septam</i>	seven
<i>*októ</i>	eight
<i>*newan</i>	nine
<i>*dekamt</i>	ten

Table 3. Systematic sound correspondences in the Indo-European languages

English	Latin	Greek	Irish
fish	piscis	ikhthys	iasg
father	pater	pater	athair
foot	ped-	pod-	troigh
for	pro	para	do
six	sex	hexa	se
seven	septem	hepta	seacht
sweet	suavis	hedys	millis
salt	sal	hal	salann
new	novus	neos	nua
night	noct-	nykt-	(in)nocht
nine	novem	(en)nea	naoi

Table 4. Sound correspondences across unrelated languages

	Arabic	Urdu	Turkish	Swahili	Malay
<i>news</i>	xabar	xabar	haber	habari	khabar
<i>time</i>	waqt	vaqt	vakit	wkati	waktu
<i>book</i>	kitab	kitab	kitab	kitab	kitab
<i>service</i>	xidmat	xidmatgari	hizmet	huduma	khidmat
<i>beggar</i>	faqir	faqir	fakir	fakiri	fakir

Grimm's law

/p/ → /f/

Latin	Sanskrit	Old English	Gothic
pedum	padam	fot	fotus
piscis	—	fisc	fiskis

/t/ → /θ/

Latin	Sanskrit	Old English	Gothic
tres	trayas	three [θri]	thrir
tu	tuvam	thou [ðau]	thuŭ

/k/ → /x/ (/x/ = /h/)

Latin	Sanskrit	Old English	Gothic
cordem	craidd	heart	hairto
centum	cant	hundred	hund

/d/ → /t/

Latin	Sanskrit	Old English	Gothic
edo	admi	eat	itan
decem	daca	ten	taihun

/g/ → /h/

Latin	Sanskrit	Old English	Gothic
ager	—	acre	akrs
genus	—	kin	kuni

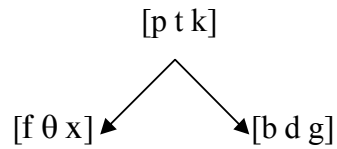
Table 4. Grimm's law

Indo-European		became	English	
[bh] [dh] [gh]	[bhero:] 'I carry' [dedhe:i] 'I place' [ghans] 'goose'	→	[b] [d] [g]	'bear' 'do' 'goose'
[b] [d] [g]	No sure examples [dekm] 'ten' [genos] 'tribe'	→	[p] [t] [k]	'ten' 'kin'
[p] [t] [k]	[pater] 'father' [treyes] 'three' [kornu] 'horn'	→	[f] [θ] [h]	'father' 'three' 'horn'

Grimm's Law

*p t k → f θ x/h
 *b d g → p t k
 *bh dh gh → b d g

Verner's law



<i>Sanskrit</i>	<i>Old English</i>
vártate	weorþan
varárta	wearþ
vavrtimá	wurdon
vavrtá:ná	worden

The Neogrammmian Hypothesis

Every sound change takes place according to laws that admit no exceptions.
 [Brugmann]

Internal reconstruction

[ð]

father

mother

feather

heather

weather

bother

[θ]

think

thief

thick

thin

thigh

thank

Lexical and semantic change

I. Loan words

Computer (originally 'compute' is from Romance)

Desktop

Mouse

Server

Bytes

Keyboard

Disk

Ram

Email

Loan words from Scandinavian (800-1050)

law leg

neck bag

cake egg

fellow dirt

anger knife

skin give

sister [sweaster] take

Loan words from Latin (throughout its history)

GERM	OE	ME	EME
wall	noon	history	occurrence
street	rule	gesture	expectation
onion	cap	infancy	insane
church	pear	individual	frequency

Borrowings from French (1100-1400)

action adventure

age air

bucket person

carpenter powder

coast river

cost country

clear usual

advice approach

enjoy prefer

Borrowings from other languages

moose (Native American)	banana (Africa)
tobacco (Native American)	chimpanzee (Africa)
canoe (Native American)	zebra (Africa)
curry (East Asia)	canyon (Spanish)
jungle (East Asia)	taco (Spanish)
mango (East Asia)	angst (German)
kangaroo (Australia)	kindergarten (German)

Loan translations

Greek:	sym-pathia	‘with-suffering’	original
Latin:	com-passion	‘with-suffering’	loan translation
German	Mit-leid	‘with-suffering’	loan translation

Intensive borrowing can influence the phonological system

[v] and [f]

very	voice	virgin
victory	value	vowel
vine	vinegar	
few	vs.	view
fat	vs.	vat
rifle	vs.	rival
strife	vs.	strive

[ʒ]

measure
pleasure
treasur
leisure
azure

Phonotactics

shrink
shred
shrimp

schmuck
shlep
schnoz
spiel
shtick

Yiddish

schnapps
schnauzer
schnittel
schmaltz

German

The morphological treatment of loan words

phenomenon	phenomena
criterion	criteria
datum	data
hypothesis	hypotheses

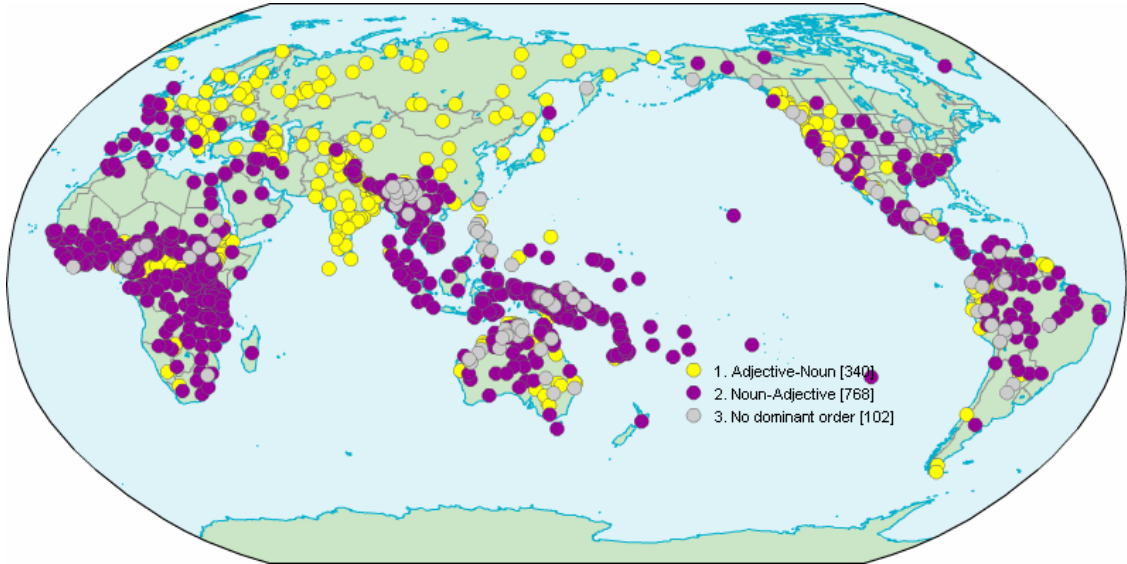
Grammatical borrowing

reiterate
repeate
reunion
resign
resist
restrict

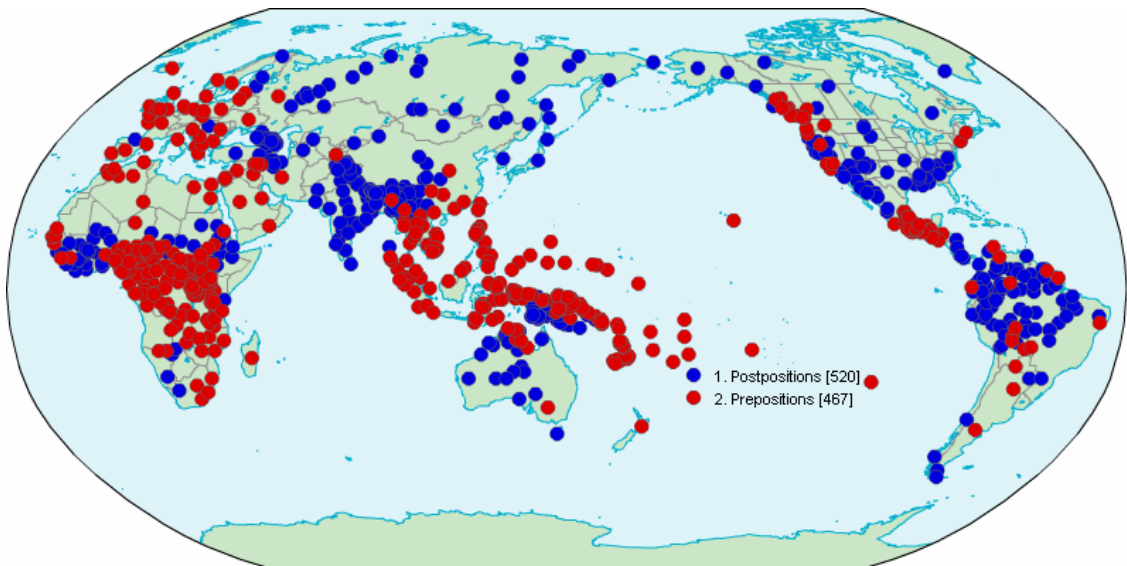
Ballan Sprachbund

1. Rumanian om-ul 'man-the'
Bulgarian kniega-ta 'book-the'
Albanian mik-u 'friend-the'
 2. *English*
I saw Peter leave.
I want Peter to leave.
 - Balkan languages*
I saw that Peter left.
I want that Peter is leaving.
3. Future

The cross-linguistic distribution of grammatical features

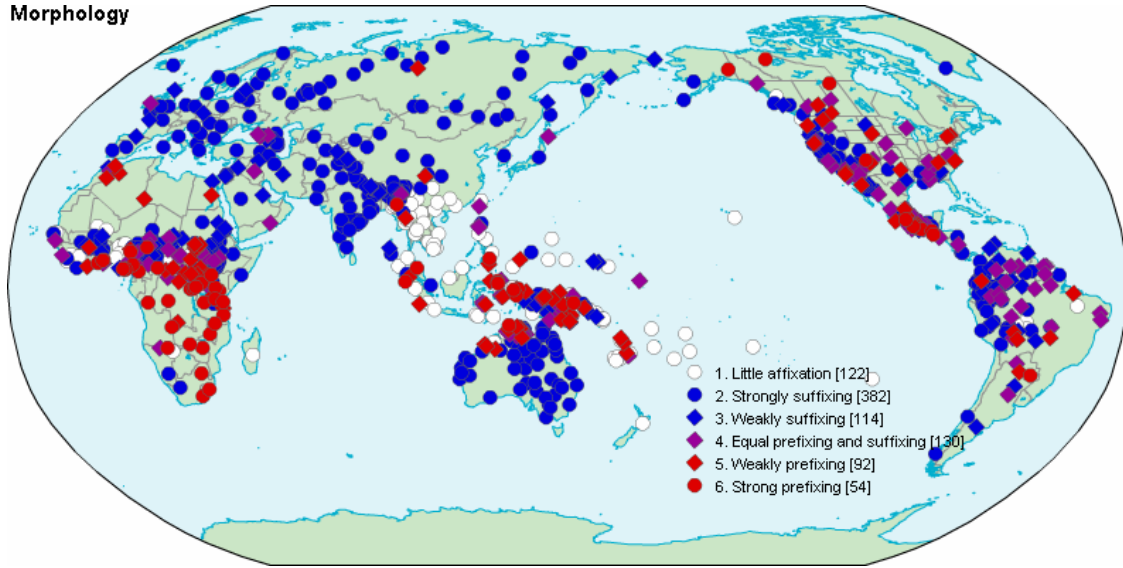


Order of Adjective-Noun

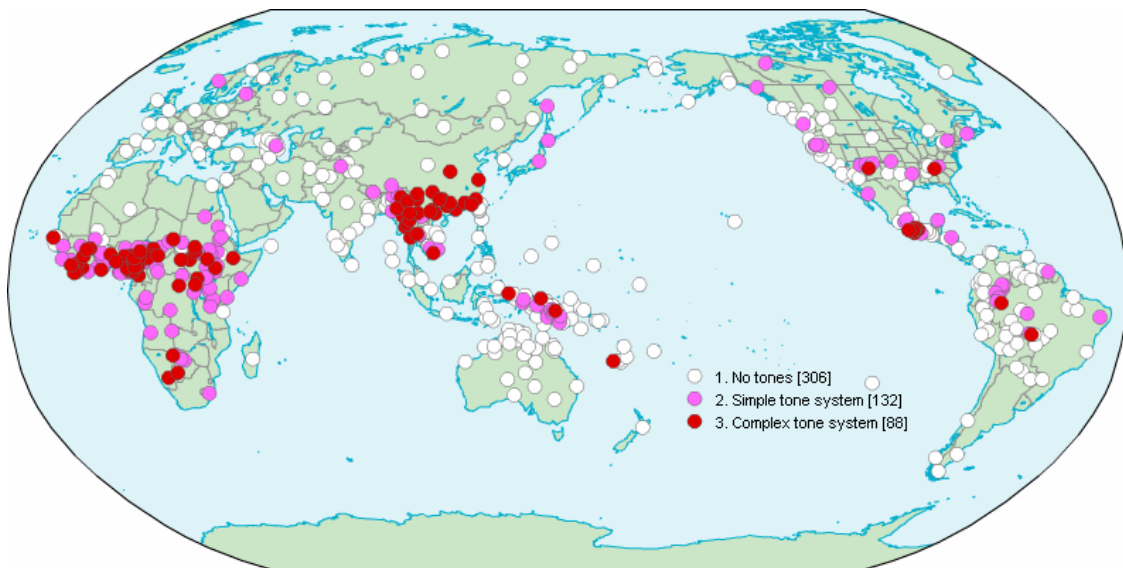


Preposition – Postposition

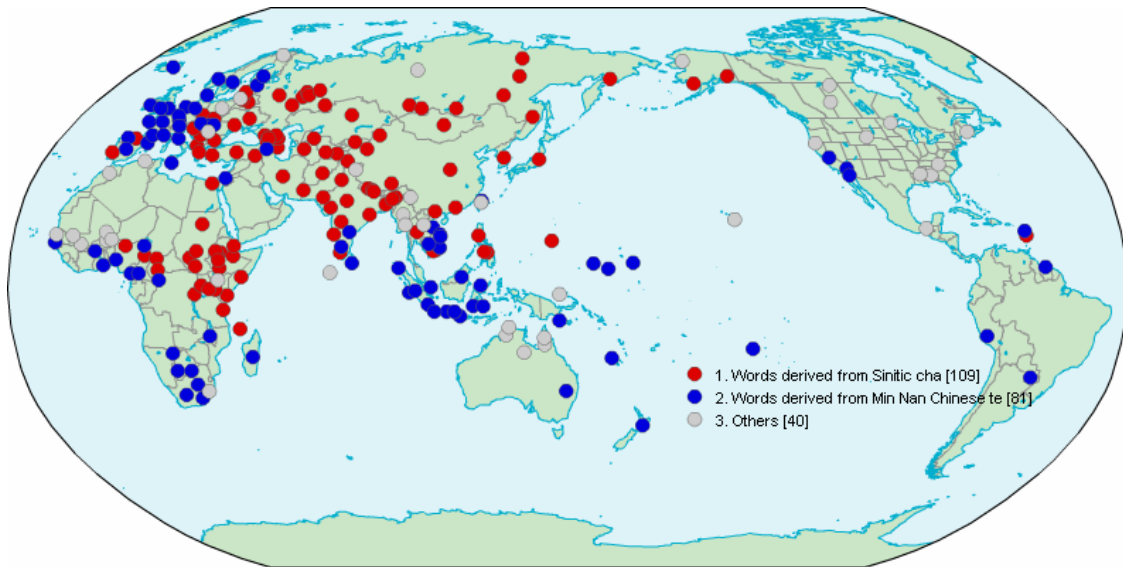
Morphology



Prefixing-Suffixing



Tone



Tea (lexical)

II. Word formation processes

- Compounding

girlfriend		lipstick		jetlag
ice cream		soundproof		close-up
- Affixation

pre-, re-, anti-, non-, ex-, over-
-ness, -ful, -ity, -al, -ize, -er
- zero derivation

to bridge
to sandwich
- clipping

telephone	>	phone
gymnasium	>	gym
influenza	>	flu
- blending

motel	>	motor + hotel
smog	>	smoke + fog
chunnel	>	channel + tunnel

- Acronyms
 - Acquired immune deficiency syndrome > AIDS
 - North Atlantic Treaty Organization > NATO
 - Radio detecting and ranging > radar
 - Strategic Arms Limitation Talks > SALT
 - For your information > FYI

- Eponyms
 - Sandwich
 - Hamburger
 - Pentium
 - Kodak
 - Xerox

- New inventions
 - blurb
 - nylon
 - chirrup
 - blatant
 - pentium

III. Semantic change

Metaphor

to terminate	'to kill'
to take care of	'to kill'
to eliminate	'to kill'
to dispose of	'to kill'
blasted	'drunk'
ripped	'drunk'
smashed	'drunk'
wasted	'drunk'

Metonymy

tea	'evening meal'
head	'leader'
give me a hand	'help me'

Widening

dog	Original meaning: specific type of dog
salary	From Latin 'salarium', i.e soldiers' allotment of salt; then it came to mean soldiers' wages in general; finally pay for all kinds of work
arrive	originally it meant 'come to shore', 'arrive by ship'

Narrowing

meat	Originally: food including non-meaty food
wife	Originally: woman
deer	Originally: animal
fowl	Originally: bird
starve	Originally: to die

Degeneration

spinster	Originally: older unmarried woman (who spins)
mistress	Originally: woman who has control over household
peasant	Originally: small farmer

Elevation

knight	Originally: mounted warrior serving a king
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Traugott: From concrete to abstract

- 'felan' (meaning 'touch') > 'feel' ME (psychological, emotional)
 - 'realize' (make real) > (understand)
 - 'see' (visual) > (understand)
 - 'hot' (temperature) > (sexually attractive, interesting, super)
 - 'shit' (physical) > (expressions of anger)
- 'while' (ðā hwile ðe 'at the time that') > temporal conjunction
 - 'but' (on the outside) > adversative conjunction
 - 'well' (adverb of 'good') > discourse marker
 - 'this/that' (demonstrative) > complementizer
 - 'there' (demonstrative) > existential marker
- deontic modals (She must go) > epistemic modals (This must be it)

Phonological change: Types of sound change

1. *sporadic change* — *regular change*

(i) Examples of sporadic change

spræc ‘language/speech’	>	speech
grammar	>	glamour

(ii) Examples of regular change

Grimm’s law: [p t k] > [f θ h]

2. *conditioned change* — *unconditioned change*

(i) Examples of unconditioned change

[fif]	>	[faif]	‘five’
[wif]	>	[waif]	‘wife’

(ii) Examples of conditioned change

[bed]	>	[be : d]
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3. *phonemic change* — *allophonic change*

(i) Examples of allophonic change

All of the changes we have seen so far were examples of non-phonemic change.

(ii) Examples of phonemic change

	PIE	Latin	Gothic	OHG	PDE
*o	*okto-	octo	ahtau	ahto	‘eight’
*ə	*pəter-	pater	fadar	fater	‘father’
*a	*agro-	ager	akrs	ackar	‘acre’

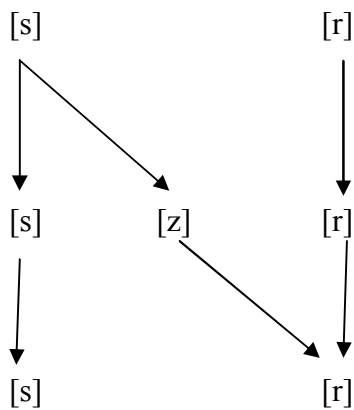
(1) [k] > [tʃ]

	cat	chaff	chin
Stage 1	katt	keaff	kinn
Stage 2	katt	tʃeaf	tʃinn
Stage 3	katt	tʃaff	tʃinn

(2) Umlaut

	SG Mouse	PL Mice	SG Foot	PL Feet
Original	/mu:s/ [mu:s]	/mu:s-i/ [mu:s-i]	/fo:t/ [fo:t]	/fo:t-i/ [fo:t-i]
		/mu:s-i/ [my:s-i]		/fo:t-i/ [fø:t-i]
		/mu:s/ [mu:s]		/fo:t/ [fø:t]
		/mi:s/ [mi:s]		/fe:t/ [fe:t]
		/mais/ [mais]		/fi:t/ [fi:t]

(3) [s] > [r] in Latin



What motivates sound change?

Assimilation

- | | | | |
|-----|---|---|---|
| (1) | <i>Latin</i>
nocte [nokte] | | <i>Italian</i>
notte [notte] |
| (2) | <i>English</i>
cheese
child
chin
church | | <i>German</i>
Käse
Kind
Kinn
cyrice (Old English) |
| (3) | nature
education
tissue | | [ty] > [tʃ]
[dy] > [dʒ]
[sy] > [ʃ] |
| (4) | pain [pɛ̃]
fin [fɛ̃] | | ‘bread’
‘end’ |
| (5) | <i>English</i>
*[mus]
*[mys-i] | | ‘mouse’ SG
‘mice’ PL |
| (6) | <i>Latin</i>
*[peŋkwe] | > | *[kweŋkwe] |

Lenition

stop	>	fricative	> approximate
stop	>	liquid	
oral stop	>	glottal stop	
voiceless	>	voiced	
geminate	>	simplex	

- Spirantization

<i>Latin</i>			<i>Italian</i>
habebat ‘he had’	>		aveva
faba ‘bean’	>		fava

- Stop > liquid

<i>English</i>		<i>American English</i>
[wɔtr]	>	[wɔrr]

- Oral stop > glottal stop

<i>English</i>		<i>London, Glasgow</i>
[wɒtr]		[wɒʔr]
- Voicing

<i>Latin</i>		<i>Italian</i>
strata	>	strada
lacu	>	lago
- Degemination

<i>Latin</i>		<i>Spanish</i>
cuppa ‘cup’	>	copa ‘wine glass’
gutta ‘drop’	>	gota ‘drop’
siccu ‘dry’	>	seco ‘dry’
- The minimal consonant: [h]

<i>Old English</i>		<i>English</i>
hnuti ‘nut’	>	nut
hit ‘it’	>	it
where [hw]ere	>	where [w]ere

Deletions

- (1) *French*

lit	‘bed’	<i>English</i>
gros	‘big’	knee
murs	‘walls’	knot
		knife
- (2) *English (syncope)*

chocolate	medicine
camera	battery
police	dictionary
correct	

Additions

- (1)

[sʌmpθɪŋ]	‘something’
[drɛmpt]	‘dreamt’
[tʃʌmpski]	‘Chomsky’
- (2)

[fæntsi]	‘fancy’
[prints]	‘prince’

- | | | |
|-----|-------------------|-----------------|
| (3) | [æθəlt] | ‘athlete’ |
| (4) | Spanish | |
| | <i>Esnobe</i> | ‘snob’ |
| | <i>eslalom</i> | ‘slalom’ |
| | <i>estricnina</i> | ‘strychnine’ |
| | <i>Latin</i> | <i>Spanish</i> |
| | spatha | espada ‘sword’ |
| | statu | estado ‘state’ |
| | scala | escala ‘ladder’ |

Other types of sound change

Metathesis

<i>Old English</i>		<i>Modern English</i>
wæps	>	wasp
bridd	>	bird
frist	>	first
thridde	>	third
ask /aks	>	ask

Compensatory lengthening

Pre-Old English		Middle English		Modern English
*[finf]	>	[fi : f]	>	[faif]
*[gans]			>	[gu : s]

Phonological change: The drive for symmetry

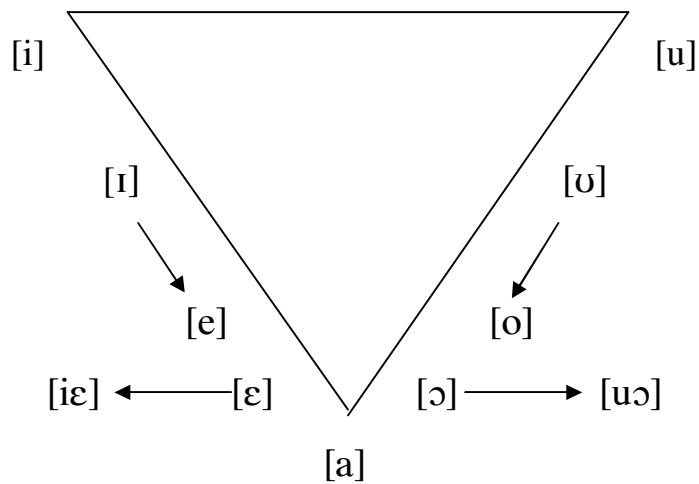
English plosives

	Labial	Alveolar	Velar
Voiceless plosive	p	t	k
Voiced plosive	b	d	g
Nasal	m	n	ŋ

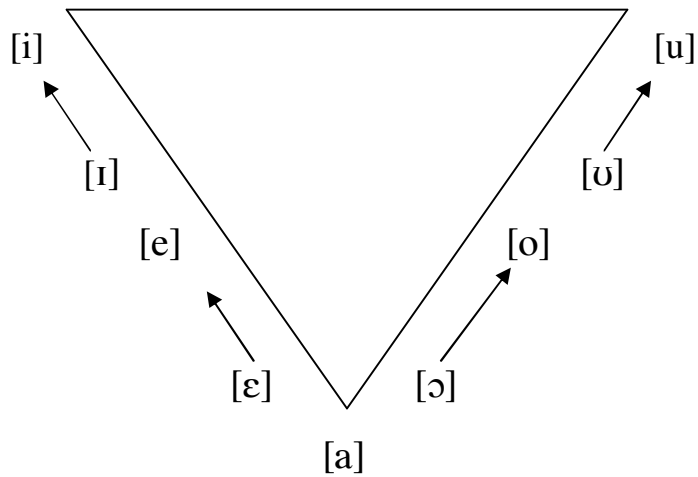
English fricatives

	Labiodent.	Interdental	Alveolar	Palatal	Velar
Voiceless	f	θ	s	ʃ	h
Voiced	v	ð	z	ʒ	

Italian



Sardinian



The Great English Vowel Shift

Old English	Modern English	
[bru:n]	‘brown’	u: > aʊ
[de:man]	‘deem’	e: > i
[do:m]	‘doom’	o: > u
[du:n]	‘down’	u: > aʊ
[æ:l]	‘eel’	æ: > i
[æ:fen]	‘even(ing)’	æ: > i
[la:tə]	‘late’	a: > e
[fi:f]	‘five’	i: > ai
[he:]	‘he’	e: > i
[ra:d]	‘rode’	a: > o
[h:æ:θ]	‘heath’	æ: > i
[na:mə]	‘name’	a: > e
[hu:s]	‘house’	u: > aʊ
[i:s]	‘ice’	i: > ai
[læ:ce]	‘leech’	æ: > i
[mu:θ]	‘mouth’	u: > aʊ
[mi:n]	‘my’	i: > ai

[a:ɔ]	‘oak’	a: > o
[ro:st]	‘roost’	o: > u
[madə]	‘made’	a: > e
[ha:m]	‘home’	a: > o
[so:θ]	‘sooth’	o: > u
[sta:n]	‘stone’	a: > o
[te:θ]	‘teeth’	e: > i
[ti:d]	‘time’ / ‘tide’	i: > ai
[to:θ]	‘tooth’	o: > u
[hwɪ:t]	‘white’	i: > ai

Middle English	Chaucer	Shakespeare	Modern spelling
i:	[fi:f]	[faɪv]	five
e:	[me:de]	[mi:d]	mid
ɛ:	[klɛ:ne]	[kle:n]	clean
a:	[na:ma]	[ne:m]	name
u:	[du:n]	[daʊn]	down
o:	[ro:tə]	[ru:t]	root
ɔ:	[gɔ:tə]	[go:t]	goat

Competing motivations

“The maintenance or restoration of symmetry appears to be a powerful force in sound change, and chain shifts in particular can be more readily understood in terms of movement within phonological space. A crucial observation has been that there are always competing phonological pressures, both syntagmatic and paradigmatic; these can never all be satisfied at once, and a great deal of phonological change can be understood as endless attempts at satisfying these competing pressures, with each resulting change typically introducing new strains into the system.” [Trask 1996: 95-96]

Morphological change

Today's morphology is yesterday's syntax

- (1) -ly N meaning 'body' ('mann-lic')
 -hood N meaning 'person', 'sex', 'quality'

- (2) English past tense
 -ed V 'did'

- (3) Spanish future

Latin	Spanish	Gloss
cantare habeo	cantaré	'I'll sing'
cantare habes	cantarás	'you'll sing'
cantare habet	cantará	'he'll sing'
cantare habermus	cantaremos	'we'll sing'
cantare habetis	cantareís	'you'll sing'
cantare habent	cantarán	'they'll sing'

- (4) Basque

Verb		Pronoun	
noa	'I'm going'	ni	'I'
noa	'you are going'	hi	'you'
doa	'he/she is going'	-	'he/she'
goaz	'we are going'	gu	'we'
zoas	'you are going'	zu	'you'
doaz	'they are going'	-	'they'

- (5) French

- a. Jean donnera le livre à Marie. 'John will give the book to Mary.'
 b. Il te le donnera. 'He you-it-will give'

>>> Jean, il-te-le-donnera, le livre.

Analogy

Four-part analogy

A : B



C : X

Four-part analogy 1: English plural nouns

- | | | |
|-----|---------|----------|
| (1) | X | X-s |
| | ziff | ziff-[s] |
| | zo | zo-[z] |
| | zax | zax-[əz] |
| (2) | X-us | X-i |
| | cact-us | cact-i |
| | radi-us | radi-i |

Four-part analogy 2: English verb forms

- | | | |
|-----|-----------------------|------------------------|
| (1) | <i>Old English</i> | <i>Modern English</i> |
| | climb clomb | climb climbed |
| | step stope | step stepped |
| | laugh low | laugh laughed |
| (2) | Present | Past |
| | V | V-ed |
| | V | X-ed |
| (3) | throw–threw–thrown | throw–threw–thrown |
| | strive–strove–striven | strive–strove–strove |
| | dream–dreamt—dreamt | dream–dreamed–dreamed |
| | hang–hung–hung | hang–hanged–hanged |
| | light–lit–lit | light–lighted–lighted |
| | cleave–clove–cloven | cleave–cleaved–cleaved |
| (3) | <i>Original</i> | <i>New</i> |
| | dive dived | dive dove |
| | catch caught | catch caught |

Four-part analogy 3: derivational forms

- | | | |
|-----|----------|-------------|
| (1) | sea | seascape |
| | moon | moonscape |
| (2) | journal | journalese |
| | mother | motherese |
| | American | Americanese |

Sturtevant's paradox

Sound change is regular, but produces irregularity;
analogy is irregular, but produces regularity.

Table 1. Analogical leveling in French

	Latin	Old French	Modern French
1SG	ámo	aim	aime
2SG	ámas	aimes	aimes
3SG	ámat	aimet	aime
1PL	amámus	amons	aimons
2PL	anátis	amez	aimez
3PL	ámant	aiment	aiment

	<i>Old English</i>		<i>Modern English</i>	
Present	ce : osan	[z]	choose	[z]
Past SG	ce : as	[s]	chose	[z]
Past PL	curon	[r]	chose	[z]
Past PTC	gecoren	[r]	chosen	[z]

	<i>Old High German</i>		<i>Modern German</i>	
Present	kiusan	[z]	küren	[r]
Past SG	ko : s	[s]	kor	[r]
Past PL	kurun	[r]	kor	[r]
Past PTC	gikoran	[r]	gekoren	[r]

Special types of analogy

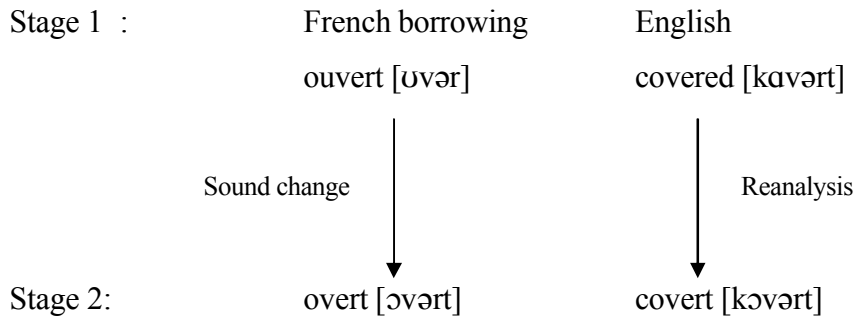
1. Structural reanalysis

- | | | |
|-----|--------------------------------------|-------------------------------|
| (1) | a naddre (type of snake)
a napron | an adder [ædər]
an apron |
| (2) | an ewt
an ekename | a newt [n(y)ut]
a nickname |

2. Contamination

- (1) male : femelle
male : *fe-male*

(2)



- (3) regard : regardless = irrespective
- ↓
- irregardless
-

3. Hypercorrection

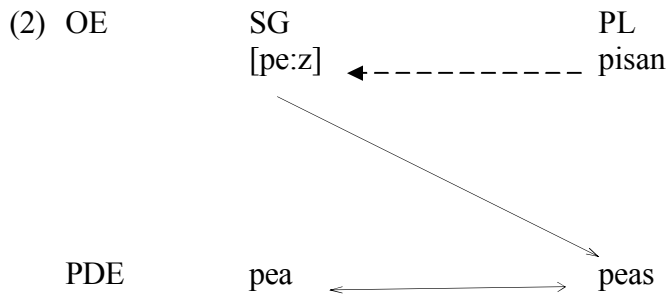
- (1) [dark] 'dark'
[kɔrt] 'court'

(2) [avɔkardo] 'avocado'

- (3) a. Peter and me went swimming. > Peter and **I** went swimming.
b. Sally talked to Peter and me. > *Sally talked to Peter and **I**.

4. Backformation

- (1) hamburger > ham + burger
cheese > cheese + burger



<i>Established pattern</i>		<i>Back formation</i>	
to exhibit – exhibit-or	>>	editor	> to edit
printer – to print	>>	laser	> to lase
maintenance – to maintain	>>	surveillance	> to surveille
book – book-s	>>	cerise (Sg)	> cherry

Change in morphological type

Isolating language

- (1) Vietnamese
 Khi tôi đến nhà bạn tôi bắt đầu làm bài
 When I come house friend I, PL I begin do.lesson
 ‘When I arrived at my friend’s house, we began to do lessons.’

Agglutinating language

- (2) Turkish
 Yap-tığ -ım hata-yı memleket-i tanı-ma-ma-m-a
 Make-PART-my mistake-OBJ country-OBJ know-not-GER-my-to
 ver-ebil-ir-siniz.
 Give-can-TENSE-you
 ‘You can ascribe the mistake I made to my not knowing the country.’

Inflectional language

- (3) Latin
 Arm-a vir-um-que can-o
 Weapon-NEUT.PL.OBJ man-MASC.SG.OBJ-and sing-1SG.Pres.Indic.Act
 ‘Arms and the man I sing.’

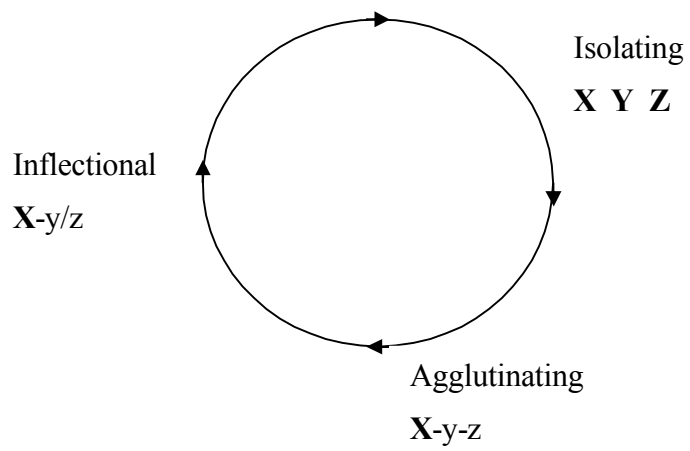
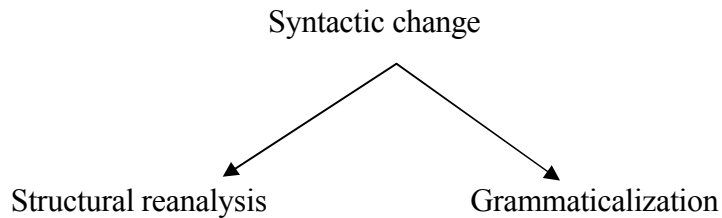


Figure 1. Language 'drift' (Sapir)

Syntactic change



The development of the perfect

- (1) Ic **hæbbe** [thone fisc **gefangene**].
I have the fish caught.ACC
'I have the fish caught' (=I have the fish in a state of being caught)
- (2) Ic **hæfde** [hine **gebundenne**].
I had him bound.ACC
'I had him bound' (=I had him in a state of being bound)
- (3) Ic **hæfde** hit**gebunden**
I had it bound.Ø
'I had it bound' (= I had it in my possession)
- (4) thin geleafa **hæfth** the **gehæled**
your faith has you healed
'Your faith has healed you.'
- (5) Ac hie **hæfdon** tha ... hiora mete **genotudne**
but they had then ... their food used-up
'But they had then used up their food.'

The development of psych verbs in English

- (1) *Peran licoden than cynge. SVO
Peras were-pleasing the-DAT king-DAT
- (2) than cynge licoden peran. OVS
The-DAT king-DAT were-pleasing pears
'Pears were pleasing to the king' (i.e. The king liked pears)

- (3) The king liceden peares
 the king were-pleased pears
 ‘Pears were pleasing to the king’ (i.e. The king liked pears)
- (4) The king liked pears.
- (5) He liked them.

The development of the Germanic complementizers

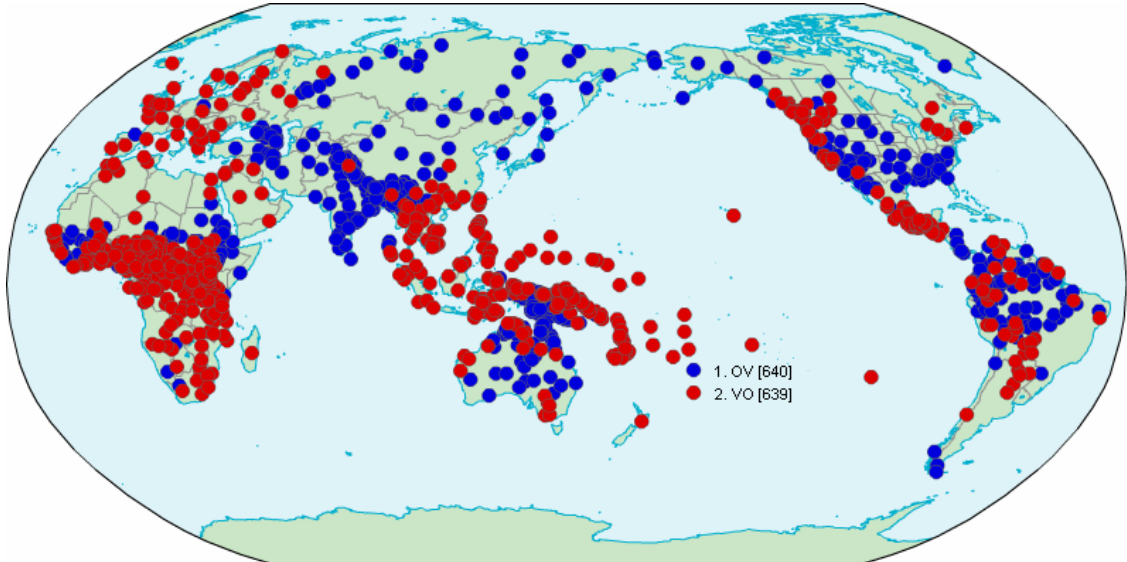
- (1) I believe **that** she will take the job. English
 (2) Ich verstehe, **dass** Sie nicht kommen. German
 (3) Ik weet **dat** hij veel vrienden heeft. Dutch
 (4) Jag trodde, **att** hans sista stund var kommen. Swedish

- (5) Middle High German
 joh gizalta in sâr **tha**3, thiu sâlda untar in uuas
 and told them immediately that the luck among them was
 ‘And he told them immediately that good fortune was among them.’

- (6) ðæt gefremede Diulus hiora consul, ðæt ðæt angin
 that arranged Diulus their consul COMP that beginning
 wearð tidlice ðurthogen
 was in.time achieved
 ‘Their consul Diulus arranged (it) that it was started on time.’

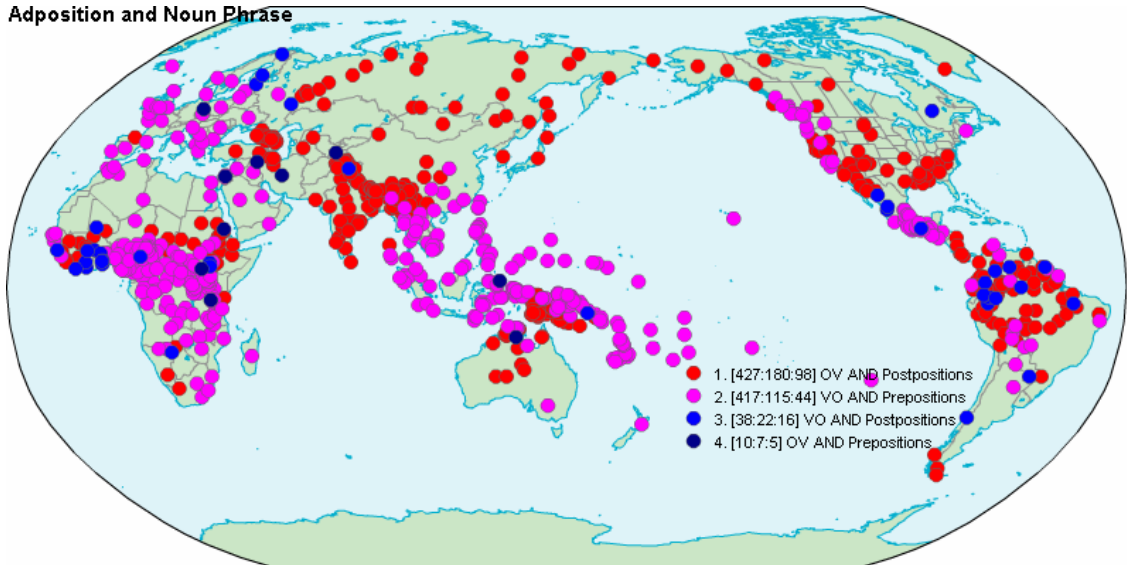
- (7) I’m like ‘What’s going on?’

Typological harmony



VO and OV languages [Dryer 2005]

Adposition and Noun Phrase



Correlation between verb-object & noun-adposition

Table 1. Word order correlates in VO and OV languages

VO languages	OV languages
VO	OV
P NP	NP P
AUX V	V AUX
N GEN	GEN N
COMP S	S COMP
N REL	REL N
V COMP-clause	COMP-clause V
case-marking absent	case-marking

The dummy auxiliary 'do'

- (1) Ædred me ah; Eanred mec agrof
 Ædred me oens Eanred me carved
 'Ædred owns me; Eanard carved me.'
- (2) b. Opened you the door?
 a. Did you open the door?

Grammaticalization

Introduction

Exercise: Identify the grammatical morphemes and determine their historical source.

Language change is a topic that spreads itself over a wide range of areas. Therefore a good historical linguist should have a solid background in all subfields of linguistics. Indeed, most historical linguists began as general linguists before they turned to the study of language change.

Traditionally, historical linguistics was primarily concerned with phonological and morphological change. However, in recent years the focus has shifted onto syntax and the development of grammar.

Grammaticalization has become a central topic for anybody who is interested in language change because it challenges central assumptions of linguistic theory. Nevertheless, given that grammaticalization involves phonological and morphological change, it also revived the interest in the study of traditional topics in historical linguistics.

Example 1: *gonna*

- (1) I am going to marry Bill. [meaning: I am leaving **in order to** marry Bill.
- (2) ??I am sure you are going to like Bill.
- (3) I [am going [to marry [Bill]]]. >>> I [[[am [going to]] marry] [Bill]]
- (4) be going to > to gonna.

Example 2: *lets*

- (1) a. Let yourself down on the rope.
b. Let Bill go.
- (2) a. Let's go to the circus tonight.
b. Let's watch a movie.
- (3) Lets give you a hand. ('I'll give you a hand')
- (4) Lets you and I take'em on for a set.
- (5) Lets you go first, then if we have any money left I'll go.
- (6) Lets wash your hand.

Examples of grammaticalization

Source construction

Target construction

'go' [motion verb]	>	<i>gonna</i> [auxiliary]
'will' [verb of intention]	>	<i>will</i> [auxiliary]
'have' [verb of possession]	>	<i>have</i> [auxiliary]
noun meaning 'with an x-appearance'	>	<i>x-ly</i>
noun meaning	>	<i>x-hood</i>
auxiliary 'do'	>	<i>x-ed</i>
DEM hwile SUB (hwile = 'time')	>	<i>while</i> [conjunction]
'by cause' preposition+noun	>	<i>because</i> [conjunction]
'given' [past participle of 'go']	>	<i>given</i> [conjunction]
'during' [verb in continuous form]	>	<i>during</i> [preposition]
'in front of' [PP]	>	<i>in front of</i> [preposition]
'a-gone' [PREFIX-verb]	>	<i>ago</i> [postposition]
'be-foran' [be- prefix meaning 'by', + foran 'ADV' meaning 'in front']	>	<i>before</i> [preposition]
'some body' [NP]	>	<i>somebody</i> [indefinite pro]
'one' [numeral]	>	<i>one</i> [article/pronoun]
'(do you) you know' [question]	>	<i>y'know</i>
'I think' [matrix clause]	>	<i>(I) think</i>
'guess' [imperative matrix clause]	>	<i>guess</i>

The grammaticalization of demonstratives

All grammatical morphemes have developed out of lexical morphemes, principally nouns and verbs... [Bybee 2003]

Definite article

the
der/die/das

Third person pronouns

he / it
er / sie / es

Relative pronouns

that
der/die/das

Complementizers

that
dass

Sentence connectives/conjunctions

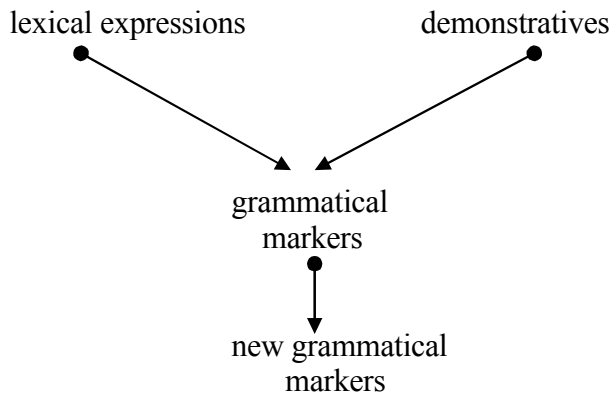
thus / therefore
deshalb / dadurch

Directional preverbs

hin-gehen
her-kommen

Copulas

NP, [DEM NP] > NP be NP
Der Mann, der (ist) ein Polizist. > Der Mann ist ein Polizist.



Frequency, habituation, and storage

The reduction effect

1. Phonetic reduction

going to	>	gonna
I will	>	I'll
I am	>	I'm
do not	>	don't

2. Loss of constituent structure

want to	>	wanna
[in [front [of__]]]	>	[in front of [__]]
some _{DET} body _N	>	[somebody] _{PRO}

3. Semantic bleaching

to [from directional preposition to INF marker]
going [from motion verb to future tense marker]
-ly [from noun meaning 'body' to ADV marker]

The preservation effect

1. Regularization of irregular verbs

wept	>	weaped	(low token frequency)
kept	>	kept	(high token frequency)

2. Suppletion

go – went
be – am – are – is
good – better
bad – worse

3. Case marking

SUBJ	OBJ	SUBJ	OBJ
he	him	car	car
she	her	tree	tree

	Reduction Effect	Conserving effect
Psychological mechanism	Ritualization (processing effect)	Entrenchment (storage effect)

Variation as the vehicle of language change

The linguistic system

Table 1. Person-number inflection in German

SINGULAR • person • person • person	ich du er/sie/es
PLURAL • person • person • person	wir ihr sie

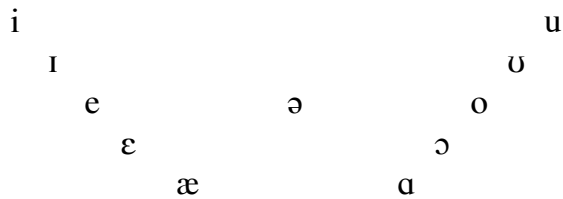


Figure 1. The English vowel system

Saussurean paradox

If language is primarily a system of relations, how is it that a language can change without disrupting the system?

Labov: Martha's Vineyard

Table 1. Age and degree of centralization

Age	Degree of centralization [ai]	Degree of centralization [au]
75+	0.25	0.23
61-75	0.35	0.37
46-60	0.62	0.44
31-45	0.81	0.88
14-30	0.37	0.46

1933 [ai] 0.86
[au] 0.06

Table 2. Degree of centralization and occupation and environment

Age	Degree of centralization [ai]	Degree of centralization [au]
<i>Occupation</i>		
Fisherman	1.00	0.79
Farmers	0.32	0.22
<i>Environment</i>		
Towns	0.35	0.33
Rural areas	0.61	0.66

Table 3. Centralization and attitude to the island

Age	Degree of centralization [ai]	Degree of centralization [au]
Positive (40 subjects)	0.63	0.62
Neutral (19 subjects)	0.32	0.42
Negative (6 subjects)	0.09	0.08

Trudgill: the –ng variable in Britain

[gɔŋ]	going
[gɔɪn]	goin'

Table 1. The alveolar pronunciation of the –ing suffix

	Word list	Reading	Formal speech	Casual speech
Middle class	0	0	3	28
Lower middle class	0	10	15	42
Upper working class	5	15	74	87
Middle working class	23	44	88	95
Lower working class	29	66	98	100

Cheshire: Teenage talk in Reading (Aitchison 2001: 77-80)

- (1) I **knows** how to handle teddy boys.
- (2) You **knows** my sister, the one who's small.
- (3) They **calls** me all the name under the sun.

Table 5. Nonstandard verb inflection in Reading

	Casual speech	Formal
Boys	60%	31%
Girls	49%	13%
Total	50%	22%

Labov: The pronunciation of non-prevocalic [r] in New York City

Table 5. The pronunciation of [r] in non-prevocalic position in NYC

	Word list	Reading	Formal speech	Casual speech
Upper middle class	41	27	27	18
Lower middle class	61	24	19	7
Upper working class	25	20	15	7
Middle working class	23	17	14	7
Lower working class	18	15	7	2
Lower class	10	10	4	1

Geographical and lexical diffusion

1. Geographical diffusion

- | | |
|--|---------------|
| (1) hem:ɑ hɑR ja intə sɔ me:ɔd sɔm et gam:ɑlt ɡɑusɑbɑin | south. Swed. |
| (2) hem:ɑ hɑR ja intə sɔ myk:rət sɔm et gam:ɑlt ɡɔ:sbe:n | central Swed. |
| (3) jem:rə hɑR jə ik:rə sɔ my:rə sɔm et gam:ɑlt ɡɔ:səbe:n | east. Norw. |
| (4) heim: ə hɑR eg iç:rə sɔ my:rə sɔm et gam:ɑlt ɡɔ:səbe:n | east. Norw. |

Translation: At home have I not so much as an old goose-leg

Isoglosses

<i>Low German</i>	<i>High German</i>
dorp	dorf
dat	das
makən	maxən

2. Lexical diffusion

All sound changes are mechanical processes, taking place according to laws with no exceptions. [Osthoff and Brugmann 1978]

Example 1: Schwa deletion

- | | | |
|-------------|------------|-------------|
| (1) ev(e)ry | deliv(e)ry | desult(o)ry |
| fam(i)ly | nurs(e)ry | curs(o)ry |

Table 1. Schwa deletion and word frequency (Bybee 2001)

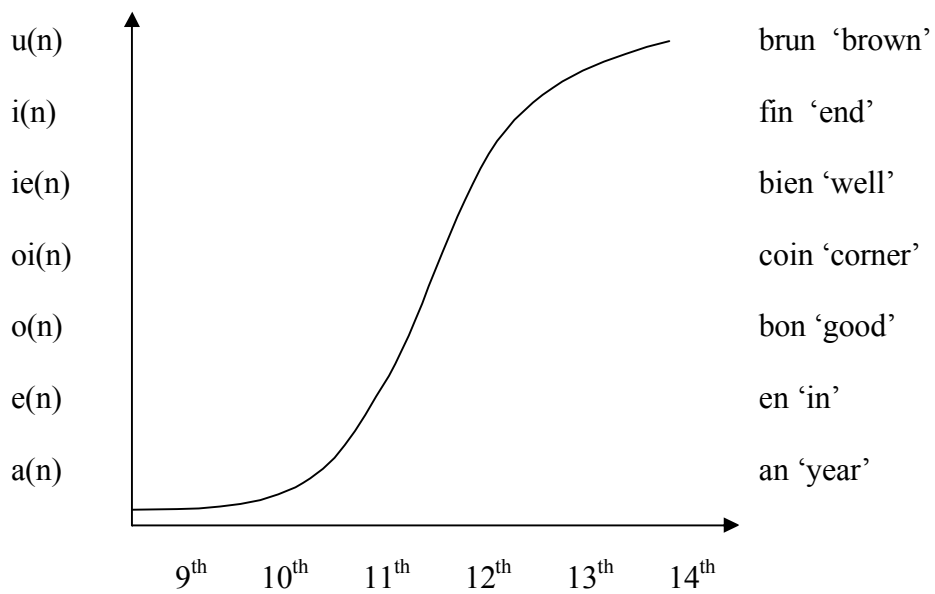
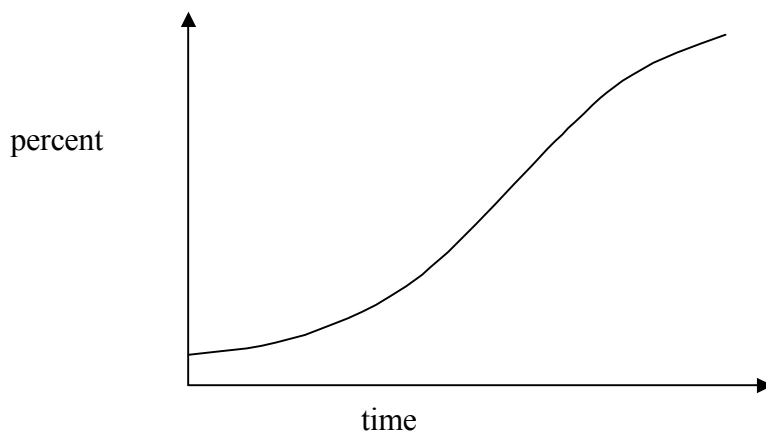
No schwa	Frequent schwa deletion	Infrequent schwa deletion
every (492)	memory (91)	artillery (11)
family (149)	salary (51)	cursorry (4)
	summary (21)	mammary (0)

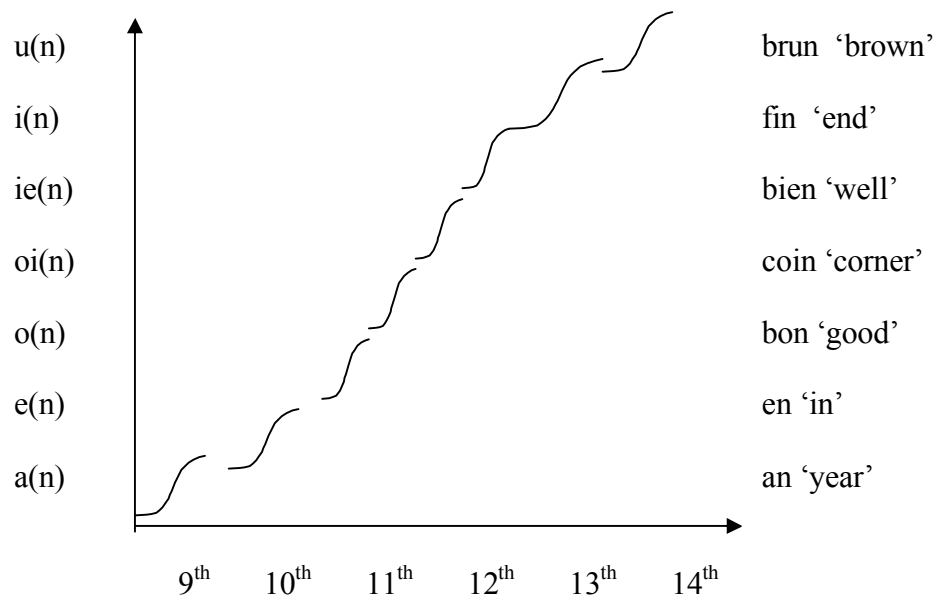
- (2) burgl(a)ry
forg(e)ry

Example 2: Auxiliary contraction

I'll, you'll
he'll, she'll, we'll, they'll
*Peter'll, man'll

S-shaped development





The invisible hand phenomena

Languages are organisms of nature; they have never been directed by the will of man; they rose, and developed themselves according to definite laws; they grew old, and died out. They, too, are subject to that series of phenomena which we embrace under the nature of 'life'. The science of language is consequently a natural science; its method is generally altogether the same as that of any other natural science. [August Schleicher 1863]

The desire of communication is a real living force, to the impelling action of which every human being, in every stage of culture, is accessible; and so far as we can see, it is the only force that was equal to initiating the process of language-making, as it is also the one that has kept up the process to the present time. It works both consciously and unconsciously, as regards the further consequences of the act. [William Dwight Whitney 1967]

Phenomena of the third type

