Typologies of the Segment

DGfS-CNRS Summer School on Linguistic Typology
Leipzig, 30 August – 3 September 2010

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Issues:

Nasal harmony

Voicing

Prevocalization

Length

I Nasalization (based on Walker 2000 and McCarthy 2004)

A typology of nasal harmony:

(1) **Sundanese**; glides and all less sonorant segments are blockers

ɲãĩãn	'to wet'
kumãɦã	'how?'
bʁŋɦãr	'to be rich'
mĩʔãsih	'to love'
ŋãjak	'to sift'
mãwur	'to spread'
mõlohok	'to stare'
mãro	'to halve'
ŋũdag	'to pursue'
ŋãtur	'to arrange'

(2) **Johore Malay**; glides are undergoers of harmony, but liquids and all less sonorant segments are blockers

mĩnõm	'to drink'
baŋõn	'to rise'
mãʔãp	'pardon'
pənãŋãɦãn	'central focus'
mãjãŋ	'stalk (palm)'
mənãwãn	'to capture' (active)
məratappi	'to cause to cry'
pəŋũwãsɑn	'supervision'
mãkan	'to eat'

(3) **Kolokoma Ijo**; liquids and glides can nasalize, but less sonorous segments cannot

ʊ̃mba	'breath'
ãnda	'wrestle'
w̃ãĩ	'prepare sugarcane'
j̃ɑ̃ɾ̃ɪ	'shake'
sɔ̃ɾ̃ɔ	'five'
sãnlo	'gills'
izõŋgo	'jug'
abãmu	'loft'
otõŋgbolo	'mosquito'
tɔ̃nĩ	'light (a lamp)'

(4) **Applecross Gaelic**; even fricatives nasalize, though obstruent stops never do

/mã˙har/	[mã˙ɦãr]	‘mother’
/tʲĭianu/	[tʲĭiãnũ]	‘to do, to make’
/frĩa˙v/	[frĩiã˙ṽ]	‘root’ (plural)
/ʃɛ̃nɛ˙var/	[ʃɛ̃nɛ̃˙ṽãr]	‘grandmother’
/ãhuç/	[ãɦũç]	‘neck’
/sŋã˙nʲdʲan/	[sŋã˙nʲdʲan]	‘thread’
/tʰãhusk/	[tʰãɦũsk]	‘senseless person, fool’
/strãi˙ɣ/	[strãĩ˙ɣ̃]	‘string’
/kʰõispaxk/	[kʰõĭspaxk]	‘wasp’

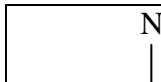
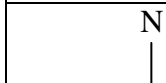
(5) Nasal incompatibiliy (after Walker 2000)

*NASOBSTSTOP
*[+nas, -cont, -son]
»
*NASFRICATIVE
*[+nas, +cont, -son]
»
*NASLIQUID
*[+nas, +approx, +cons]
»
*NASGLIDE
*[+nas, +approx, -cons, -syll]
»
*NASVOWEL
*[+nas, +approx, -cons, +syll]

ALIGN and SPREAD

These two constraints require autosegmental spreading. They are gradient constraints (McCarthy and Prince 1993).

Gradient ALIGN([+nasal], R, Wd, R) in nasal spreading (p. 16)

	*[+nas,-son]	AGREE(N, R, Wd, R)
☞ 		**
		***!**
	*!	
		***!*

Gradient alignment makes implausible typological predictions. These problems have been identified by Wilson (2003, 2004).

Because alignment seeks to minimize the number of unspread-to-segments, ranking permutation allows it to produce results that differ wildly from spreading. These are all instances of the too-many-solutions problem.

Harmony by blocked epenthesis

Effect of *[+nas,-son] » ALIGN-R(nasal) » NO-CODA » DEP-V

	*[+nas,-son]	ALIGN-R(nasal)	NO-CODA	DEP-V
/kawas/				
☞ kawasə				*
kawas			*!	
/mawas/				
☞ mãw̃ãs		*	*	
mãw̃ãsə̃	*!			*
mãw̃ãsə		**!		*

This is a language where epenthesis is blocked in forms containing a nasal segment. ‘This is a strange prediction: in reality, no known language allows the presence of a distant harmony trigger and intervening blocker to determine whether epenthesis occurs’

Harmony by selection of short allomorphs

Effect of ALIGN-R(nasal) » SWP (p. 19)

/mawasa-{ta, pta}	ALIGN-R(nasal	SWP
☞ ˡmã.w̃ã.˩sa.ta	****	**
ˡmã.w̃ã.˩sap.ta	*****!	*

This is a language where allomorphs are selected by prosodic criteria, *except in words with blocked harmony*. No known language works like this.

Harmony by alteration of blockers

Another way to improve alignment is to change the features of a potential blocker. For instance */mawasa/* could be changed to *mãw̃ãr̃ã*. This does not seem to happen.

Harmony by deletion

Gradient alignment can compel deletion of segments. Deletion of segments to promote harmony does not exist.

Effect of ALIGN-R(nasal) » MAX (p. 21)

/mawasa/	*[+nas,-son]	ALIGN-R(nasal	MAX
☞ mãw̃ã			**
mãw̃ãsa		*!*	
mãw̃ãsã	*!		

Harmony by reduplicative emergence of the unmarked

ALIGN(nasal) can determine how much is copied, favoring less copying if spreading cannot reach the copied segments.

Effect of ALIGN-R(nasal) » MAX-BR (p. 22)

	ALIGN-R(nasal	MAX-BR
/mapata+RED/		
☞ mãpata-ta	******	****
mãpata-pata	*******!*	**
/gadaba+RED/		
gadaba-ba		***!*
☞ gadaba-daba		**

Harmony by affix repositioning

Gradient ALIGN(nasal) can affect affix placement.

Effect of ALIGN-R(nasal) » ALIGN-R(suffix) (p. 23)

	ALIGN-R(nasal	ALIGN-R(suffix)
/mapata+ka/		
☞ ka-mãpata	****	******
mãpata-ka	*****!*	
/gadaba+ka/		
ka-gadaba		*!*****
☞ gadaba-ka		

Harmony by stress shift

It is possible to satisfy ALIGN-R(nasal) by moving stress.

Effect of IDENT$_{\acute{\sigma}}$(nasal) » ALIGN-R(nasal) » NONFINALITY (p. 24)

	IDENT$_{\acute{\sigma}}$(nasal)	ALIGN-R(nasal	NONFINALITY
/mawata/			
☞ mãwãtá		**	*
mãwáta		***!*	
mãwãta	*!	**	
/gawata/			
gawatá			*!
☞ gawáta			

Span-theory

In Span Theory, the segments of a word are exhaustively parsed into spans for each distinctive feature. Each span of the feature [F] has a head segment, and it is the head segment's value for [F] that determines the pronunciation of the other segments in the span.

Two kinds of constraints favor parsing segments as the head of spans. On the faithfulness side, IDENT and MAX-feature constraints are replaced by FTHHDSP, defined in the following way:

FTHHDSP(αF) McCarthy (2004: 5)
If an input segment ς_I is [αF] and it has an output correspondent ς_O,
then ς_O is the head of an [αF] span.

On the markedness side, span headship is also demanded by certain feature cooccurence restrictions. A general schema for such constraints is the following:

HEAD([βG, γH, …], [αF])
Every [βG, γH, …] segment heads a [αF] span.

Then there is a constraint reducing proliferation of spans. It forbids adjacent spans.

*A-SPAN(F)
Assign one violation mark for every pair of adjacent spans of the feature [F]

Directionality is expressed in terms of constraints on the location of a span's head:

SPHDL(+nasal)
The head segment of a [+nasal] span is initial in that span. Assign one violation-mark for each non-conforming span.

SPHDR(+nasal)
The head segment of a [+nasal] span is final in that span. Assign one violation-mark for each non-conforming span.

SPHDL(-nasal)
The head segment of a [-nasal] span is initial in that span. Assign one violation-mark for each non-conforming span.

SPHDR(-nasal)
The head segment of a [-nasal] span is final in that span. Assign one violation-mark for each non-conforming span.

Some candidates from /mawasa/ and their pronunciations.

(m̲awa)(s̲a)	[mãwə̃sa]
(m̲a)(w̲asa)	[mãwasa]
(m̲a)(w̲a)(s̲a)	,, ,,
(m̲)(awas̲a)	[mawasa]
(m̲)(awas̲a)	,, ,,
(m̲)(a̲)(w̲)(a̲)(s̲)(a̲)	,, ,,
(m̲)(a̲wasa)	,, ,,

etc.

Some spans not allowed by GEN

(m̲awa)sa	non-exhaustive parsing into [nasal] spans
(m̲a)wa(s̲a)	same
(m̲a)(w̲as̲a)	two-headed span
(m̲awa)(sa)	headless span

McCarthy replaces Walker's constraints with constraints requiring oral spans.

HEAD([-cont, -son], [-nas])
Every obstruent stop heads an oral span (= OBSTHDOR)
»
HEAD([+cont, -son], [-nas])
Every fricative heads an oral span (= FRICHDOR)
»
HEAD([+app, +cons], [-nas])
Every liquid heads an oral span (= LIQHDOR)
»
HEAD([+app, -cons, -syll], [-nas])
Every glide heads an oral span (= GLIHDOR)
»
HEAD([+app, -cons, +syll], [-nas])
Every vowel heads an oral span (= VOWHDOR)

Exemplification of this typology (based on Walker 2000)

How are blocking effects implemented?
Formally, blocking effects in nasal harmony are the result of ranking *A-SPAN(nasal) below one of the HEAD-constraints

Johore Malay-type systems (vowels and glides as undergoers) (p. 7).

/mawasa/	OBSTHD OR	FRICHD OR	LIQHD OR	*A-SPAN (nasal)	GLIHD OR	VOWHD OR
☞ (mawa)(sa)				*	*	***
(mawasa)		*!			*	***
(ma)(wa)(sa)				**!		***
(m)(a)(w)(a)(s)(a)				**!***		

By interpolating *A-SPAN(nasal) at other spots in the fixed (!) hierarchy, we obtain the typology of blockers described by Walker.

How is harmony implemented?
In any language where underlying oral segments become nasalized through harmony, FTHHDSP(-nasal) must be ranked below *A-SPAN(nasal). 'In general, the FTHHDSP constraints encourage the proliferation of spans, whereas *A-SPAN encourages economy of spans. Thus, the presence of harmony is an indication that FTHHDSP is dominated by *A-SPAN' (p. 8).

How Span Theory solves instances of the too-many-solutions problem (and related problems created by more traditional spreading constraints)

No blocking of epenthesis with *A-SPAN » NO-CODA (p. 18)

/mawas/	FRICHDOR	*A-SPAN(nasal)	NO-CODA	GLIHDOR	DEP	VOWHDOR
☞ (mawa)(sə)		*		*	*	***
(mawa)(s)		*	*!	*		**
(mawasə)	*!					***

The winner and its primary competitor (the second candidate) have identical numbers of adjacent spans, so they tie on *A-SPAN. Consequently, NO-CODA is able to rule out *mãw̃ãs̃*.

*A-SPAN(nasal) and allomorph selection

/mawasa-{ta, pta}	*A-SPAN(nasal)
(^{l}mawa)($_{l}$sa)(p)(ta)	***
(^{l}mawa)($_{l}$sa)(ta)	**
(^{l}ga)(ba)($_{l}$sa)(p)(ta)	****
(^{l}ga)(ba)($_{l}$sa)(ta)	***

The choice of allomorphs has the same effect on span structure regardless of whether a nasal precedes or not.

Span Theory does not suffer from the alteration problem. This is because lenition has the same effects on *A-SPAN in nasal and oral environments.

*A-SPAN(nasal) and lenition

	*A-SPAN(nasal)
/mawasa/	
(mawa)(sa)	*
(mawara)	
/gabasa/	
(ga)(ba)(sa)	**
(ga)(bara)	*
/nadasa/	
(na)(da)(sa)	**
(na)(dara)	*

Span Theory does not suffer from the deletion problem. Performance on *A-SPAN(nasal) can be improved by deletion, but the effect is the same whether or not the word contains a nasal trigger and blocker.

*A-SPAN(nasal) and deletion

	*A-SPAN(nasal)
/mawasa/	
(mawa)	
(mawa)(sa)	*
(mawa.a)	
/gawasa/	
(gawa)	
(gawa)(sa)	*
(gawa.a)	

Span Theory does not have the coying problem; copying has the same effect on the span structure of */mapata/* and */gadaba/*.

*A-SPAN(nasal) and copying

	A-SPAN(nasal
/mapata+RED/	
(ma)(pa)(ta)(ta)	***
(ma)(pa)(ta)(pa)(ta)	****!
/gadaba+RED/	
(ga)(da)(ba)(ba)	***
(ga)(da)(ba)(da)(ba)	****!

Span Theory does not have the problem of affix position:

*A-SPAN(nasal) and affix position

	A-SPAN(nasal
(ka)-(ma)(pa)(ta)	***
(ma)(pa)(ta)-(ka)	***
(ka)-(ga)(da)(ba)	***
(ga)(da)(ba)-(ka)	***

Span Theory does not have a problem with stress shift. *A-SPAN(nasal) and NONFINALITY determine whether stress falls on the penult or the ultima, but their effect is the same regardless of whether there is a preceding nasal or oral span.

FTHHDSP$_{\acute{\sigma}}$(-nasal) » *A-SPAN(nasal), NONFINALITY (p. 25)

	FTHHDSP$_{\acute{\sigma}}$(-nasal)	*A-SPAN(nasal)	NONFINALITY
/mawata/			
(m̲awa)(t̲á)		*	*
(m̲a)(w̲á)(t̲a)		**	
(m̲awá)(t̲a)	*!		
/gawata/			
(gawa)(t̲á)		*	*
(ga)(w̲á)(t̲a)		**	
(gaw̲á)(t̲a)	*!	*	

Conclusion

Span Theory is an interesting (and ingenious) attempt to solve the too-many-solutions problem in autosegmental spreading. The challenge now is to get the effects of Span Theory *without [-nasal]*.

II Voicing (mainly based on Lombardi 1999; Wetzels and Mascaro 2001)

Questions: we will discuss.

1) What is the typology of devoicing and voice assimilation?
2) Do we have [αvoice], or do we have Voice?

(1) A typology of σ-Final Devoicing

contrast		word-final		word-internal		assimilation	
I. German		yes		yes		no	
ei[z]ig	'icy'	Ei[s]	'ice'	Ei[s]lauf	'skating race'	Ei[sb]är	'polar bear'
wei[s]er	'whiter'	wei[s]	'white'	Wei[s]ling	'butterfly'	Wei[sb]ier	'wheat beer'
II. Yiddish		no		no		yes	
ge[z]unt	'healthy'	hoy[z]	'house'	ho[z]maynster	'handyman'	hoy[sf]un	'house of'
be[s]er	'better'	zi[s]	'sweet'	mo[s]mitl	'measure'	zi[zv]arg	'candy'
III. Dutch		yes		yes		yes	
ij[z]ig	'icy'	ij[s]	'ice'	ij[s]lolly	'ice lolly'	ij[zb]eer	'polar bear'
bo[s]en	'woods'	bo[s]	'wood'	bo[s]land	'woodland'	bo[zb]ouw	'forestry'
IV. Berber		no		no		no	
ak^{w}zar	'fig'	igmz	'cap'	izwi	'he has eaten'	tisgg^{w}in	'side'
aksar	'slope'			iswi	'excrement'	radsun	'they drink'

(2) A typology of Word-final devoicing

contrast		word-final devoicing		assimilation	
I. ?		yes		no	
IIa. Serbo-Croatian		no		yes	
vo[z]	'train'	bo[g]	'god-NOM.SG'	ne[gd]a	'sometimes'
pa[s]	'dog'			ro[pst]avo	'slavery'
IIb. Ukrainian		no		yes (only [+voice])	
lo[b]	'forehead'	sa[d]	'garden'	na[ʒd]id	'grandfather'
sni[p]	'our'			bere[zk]a	'little birch'
III. Russian		yes		yes	
[z]nat'	'know'	klu[p]	'club-NOM.SG'	koro[fk]a	'little cow'
[s]n'at'	'take away'	klu[b]a	'club- GEN.SG'	[gd]e	'where'
IV. Berber		no		no	
ak^{w}[z]ar	'fig'	igm[z]	'cap'	ti[sgg^{w}]in	'side'
ak[s]ar	'slope'			ra[ds]un	'they drink'

(3) The constraints in Lombardi (1999):

a. IDENTONSET(VOICE)

Consonants that are tautosyllabic with a following sonorant segment should be faithful to an underlying voice specification.

b. IDENT(VOICE)

Consonants should be faithful to an underlying voice specification.

c. *VO

Do not have voice features

d. AGREE

Obstruent clusters should agree in voicing

(4) Exemplification

/taz+las+dad/	AGREE	IDONSVO	*VO	IDVO
☞ tas+laz+dat			**	***
tas+las+tat		*!		***
taz+laz+dad			***!*	*
tas+las+dat	*!		*	**

(5) Typology with ranked constraints

a. AGREE, IDONSVO » *VO » IDVO. Assimilation, σ-final devoicing (Dutch)

b. IDONSVO, IDVO » *VO, AGREE. No assimilation, voice faithfulness (Eng.)

c. IDONSVO » *VO » IDVO, AGREE. σ-Final devoicing, no assimilation (German)

d. *VO » IDONSVO, IDVO, AGREE. Only voiceless obstruents (Hawaiian)

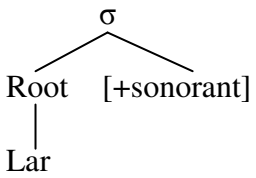
e. IDONSVO, AGREE » IDVO » *VO. Assimilation, no devoicing (Yiddish)

f. AGREE (»), IDVO » *VO » IDONSVO. Bi-directional assimilation of voicelessness (Swedish).

(6) Wetzels and Mascaro ask the following question. Are there languages that devoice obstruents in word-internal codas but maintain a [voice] contrast word-finally? According to Lombardi (1991), Yiddish, Rumanian and Serbo-Croatian are such languages. According to Wetzels and Mascaro this interpretation is not correct. These authors claim that languages of this type have word-internal [-voice] assimilation that cannot be analyzed as cluster devoicing or as syllable-final devoicing.

(7) To account for languages that have *word-internal* devoicing in coda position (so only word-internal σ-Final devoicing) Lombardi (1991) postulates Final Exceptionality. It entails that, in word-final position a laryngeal feature IS licensed. At this stage, then, Lombardi had the following theory:

Voice Constraint



Final Exceptionality

$Lar]_w$

(8) Yiddish does not have word-final devoicing

[kop]	'head'	[ʃraib]	'I write'
[vajt]	'far'	[red]	'I speak'
[bak]	'cheek'	[vog]	'weight'
[af]	'(up)on'	[briv]	'letter'
[zis]	'sweet'	[ajz]	'ice'
[raʃ]	'noise'	[ʃantaʒ]	'blackmail'

(9) Regressive voice assimilation in Yiddish

Devoicing

/ʃraib+st/	→	[ʃraipst]	'you write'
/briv+tregər/	→	[briftregər]	'mailman'
/ʃantaʒ+ʃtik/	→	[ʃantaʃʃtik]	'blackmailing tactics'
/ajz+kastn/	→	[ajskastn]	'ice box'
/vog+ʃol/	→	[vokʃol]	'scale'

Voicing

/kop+vejtik/	→	[kobvejtik]	'headache'
/bak+bejn/	→	[bagbejn]	'cheekbone'
/vajt+zeəvdik/	→	[vaidzeəvdik]	'farsighted'
/zis+varg/	→	[zizvarg]	'candy'

(10) no devoicing before sonorants in Yiddish

[nud+nik]	'boring person'
[tɔjb+leχ]	'somewhat deaf'
[nɪd+nik]	'the (male) bore'
[nɪd+nitsi]	'the (female) bore'

[mɔʃl']	'ruler-SG'
[mɔʃl+im]	'ruler-PL'
[kegn']	'against'
[kegn+ər]	'opponent'
[redn']	'speak'
[redn+ər]	'speaker'

(11) For Wetzels and Mascaro the fact that there is no devoicing before sonorants (and that there is a voicing contrast before sonorants) is a problem for Lombardi. The answer is this question: a problem for which Lombardi? It surely IS a problem for the Licensing theory as formulated in (7). But is it also a problem for the OT-theory, as formulated in (5)? We do not think so.

(12) Serbo-Croatian repeats Yiddish

glu[p]	'stupid'	golu[b]	'dove'
sa[t]	'hour'	ra[d]	'work'
preta[k]	'Friday'	razlo[g]	'reason'
pa[s]	'dog'	vo[z]	'train'
jo[ʃ]	'still'	mu[ʒ]	'husband'

(13) Regressive devoicing

sla/d/ak	'sweet'	sla[tk]a	'sweet-FEM'
dolo/z/ak	'arrival'	dola[sk]a	'arrival-GEN'
te/ʒ/ak	'heavy'	te[ʃk]a	'heavy-FEM'

(14) Regressive voicing

ne/k/ad	'or'	ne[gd]a	'sometimes'
to/p/	'cannon'	to[bdʒ]ija	'artillery man'
sva/t/	'wedding attendant'	sva[db]a	'wedding'

(15) Contrast before sonorants

pa[ʒ+n^{j}]a	'attention'
drža[v+n]ik	'statesman'
dana[ʃ+n^{j}]I	'pertaining to today'
lje[tʃ+n]ik	'doctor'

(16)According to Wetzels and Mascaro there is independent evidence for [-voice]. Crucial data come from Bakairi.

(17) Distribution of [voice] in Bakairi

+ - +	+ - +	- +	+ -
/t ɔ z e k a d ɔ/	/ə d ə p i g ɨ/	/p e k ɔ d ɔ/	/p a ʒ i k a/
'bench'	'heat'	'woman'	'ant eater'

(18)

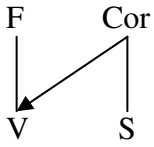
Unattested	Grammatical
i. - + -	- + +
ii. + + -	+ + +
iii. + - -	+ - +
iv. - -	+ + or + -

(19) 'The general pattern of voicing is the following: word-initially, only voiceless obstruents can appear; in other positions, i.e. intervocalically, only voiced obstruents occur, except for one single position, where obstruents may appear as voiceless. This position can be the first or the second intervocalic position in root initial words …, or the first or second position counting from the left edge of the root'.

III Prevoicing (based on Operstein to appear)

This section of the course presents a typology of prevocalization triggered by coronal consonants.

My claim is that prevocalization is an instance of Licensing. In a certain position it can happen that Cor is not licensed. If that is the case it can spread to a position where it IS licensed. The general scheme of prevocalization is as follows:



A Palatalized consonants

(1) Djabugay; the prevowel is triggered by the palatal nasal;

dunyu	[duʲɲu]	'husband'
burrany	[burraʲɲ]	'fly-PAST'
guniny	[guniʲɲ]	'cut-PAST'

(2) Quiavini Zapotec; prevowel before /ɲj/ in coda

telebisyoony	[telebisjoˀoʲnj]	'television'
x-telebisyoony-a	[ʃtelebisjoˀonja]	'my television'

(3) Maxakalí

a) Prevocalized allophones before nonhomorganic consonants or utterance-finally

/p/	/nɯʔcip/	[nɯʔʃiɤ̯p]	'full of'
/m/	/mĩhĩm/	[mĩhĩɤ̯m]	'wood'
/t/	/tapet/	[tapɛə̯t]	'paper'
/n/	/tõmãn/	[tõmãə̯n]	'tomato'
/c/	/-cecka/	[ʃɛjʃka]	'big'
/ɲ/	/mãʔãɲ/	[mãʔãj	'alligator'
/k/	/tihik/	[tihiɯ̯k]	'man'
/ŋ/	/ɲĩmãŋ toc/	[ɲĩmãɯ̃ŋktojc]	'long handle'

b) Vocalic allophones before homorganic consonants

/p/	/-keppa/	[kæʏpa]	'before'
/m/	/mĩm pe/	[mĩɤ̯pe]	'bed'
/t/	/mattɯk/	[mbaətɯx]	'toad'
/n/	/kõmãn nõʔõm/	[kõmãə̯n̥ nõʔõm]	'another co-godmother'
/c/	/coc cecka/	[ʃoiʃæjʃkaʔ]	'big tooth'
/ɲ/	/mãʔãɲ cecka/	[mãʔãĩʃɛjka]	'large alligator'
/k/	/kɯcakkɯk/	[kɯʃaɯkɯx]	'capybara'
/ŋ/	/pɯtɯcnãŋ kɯtɯt/	[pɯtɯʏiçnãtɯ̃ k-]	'old bird'

(4) Krajna Polish; prepalatalization in nasal-stop sequence

hańba	/xaŋba/	[xãjmba]	‘shame’
bańka	/baŋka/	[bãjŋka]	‘jar’
słońce	/swoŋtse/	[swõjntse]	‘sun’

(5) Developments in Balkan Romance

*ˈscupio > scuip

ˈhabeat > *abja > aibă

diˈffamiam > defaimă

ˈcoefeam > coif

(6) Daco-Romanian

ɨj	câine	‘dog’
	pâine	‘bread’
	mâini	‘hands’
aj	căraire	‘road’
	căntaire	‘singing’
	grainiță	‘border’
ej	ureikʲe (= ureche)	‘ear’
oj	oikʲ (=ochi)	‘eyes’
uj	minuine	‘marvel’
	păduire	‘woods’
	genuiche	‘knee’

(7) Developments in French

a) coronals and consonant groups ending in coronals before a palatal glide

potionem > poison	‘poison’
palatium > palais	‘palace’
mansionem > maison	‘house’
*grassiam > graisse	‘fat’
medietatem > moitié	‘half’
corium > cuir	‘leather’
*coprium > cuivre	‘copper’
ebriu > *ieivre > ivre	‘drunk’
ostream > uistre > huître	‘oyster’

b) palatal /ɲ,ʎ/ generally prepalatalize when word-final or preconsonantal

consilium > conseil	‘advice’
balneum > bain	‘bath’
nuntium > noinz	‘messenger’

(7ˡ) From Old French to Modern French

lj > jl	apostolje > apostoile	‘apostle’
	oleum > huile	‘oil’
nj > jn	Antoniu > Antoine	a man’s name
rj > jr	memorje > memoire	‘memory’
fj > jf	graphiu > graife	‘graft’

(8) Occitan

bāsiāre > baisa	‘kiss’
*ecclesiam > glèiso	‘church’
*bassiare > baissar	‘lower’
*angustian > angoissa	??

(9) Eastern Provençal; palatalized consonants are optionally prepalatalized

[punʲ]	~	[puʲnʲ]	‘fist’
[seriˈeʲdʲɔ]	~	[seriˈeʲdʲɔ]	‘cherry’

(10) Archaic Ligurian

riparia > rivaira	‘torrent’
basiu > baiʒu	‘kiss’
ceresea > çereiʒa	‘cherry’
Ambrosiu > Ambröiʒu	(a man’s name)
palatiu > paraiʒu	‘palace’
pretiu > preiʒu	‘price’
ad quasi > ascaiʒi	‘almost’
basilikón > baiʒaricò	‘church’
heri > *eiri > iéiri	‘yesterday’ (initial *i-* through the influence of Italian)
pacem > paiʒe	‘peace’
dece > deiʒe	‘ten’
vocem > vuʒe ~ vuiʒe	‘voice’
cruce > cruʒe ~ cruiʒe	‘cross’

(11) Developments from Vulgar Latin to Portuguese

primarium > primeiro	‘first’
sapiam > saiba	‘that I know’
rubeum > ruivo	‘red-haired’
calumniam > coima	‘fine’
pluviam > chuiva	‘rain’
cuphiam > coifa	‘cap’

(12) Popular and dialectal Portuguese

daemoniu > demónio > demoino	‘devil’
memoria > memória > memoira	‘memory’
historia > história > histoira	‘history’
Timotheu > Timóteo > Temóito	a man’s name

(13) Welsh
*brani > brein
*aliˍos > eil
Ambrosius > Emreis

*mabiˍon > meibion
*odiˍon > eidion
*pencerđiˍeid > pencerđiˍeid

(14) Breton
*aliˍos > eil ‘other’
*taliˍo > teil ‘dung’
*sasiˍo > heiz ‘barley’

(15) Old Avestan
**aniti > *əniʲti > ə̄nəʲti ‘immobility (?)’
**āskti > *āskᵊʲti > āskəʲti ‘escort’
**dbi > *dəbi > *dabi > daib

(16) Athens-Piraeus

κουταλάκι	[kutaˈlaʲci]	‘tea-spoon’
Τάκης	[ˈtaʲcis]	‘Takes’ (proper name)
θέλω να κοιμηθω	[ˈθelo naʲcimiˈθo]	‘I want to go to bed’
σοκάκι	[soˈkaʲci]	‘alley’ (<Turkish *sokak* ‘street’)
φαλάγγι	[faˈlaʲɟi]	‘tarantula’

(17) Guelavía Zapotec; word final glides /j/ and /w/ cause prepalatalization and prelabialization (this will be the only case of labial prevocalization we will consider).

/dzɨnj/	[dzɨ:inj]	‘honey’
/bekw/	[bɛˀɛukwˬ]	‘dog’

(18) Sorowahá; prepalatalized pronunciations of consonants before rising diphthongs.

/adiei/	[áaʲdʲéʲ]	a woman’s name
/ania/	[áaʲnʲá]	a man’s name
/uniaua/	[úuʲnʲawá]	a woman’s name

(19) Uradhi

/akjun/	[æʲkjun]	‘camp’
/akwaɳumu	[aʷkwaɳumuŋ]	‘dingo’

(20) Germanic ‘Umlaut’ (!)

**sattjan > *sættjan > OE settan	‘set’
**fulljan > *fylljan > OE fyllan	‘fill’
** dohtri > *dœhtri > OE dehter	‘daughter’

B Palatals

Palatals proper: [ç], [ʝ]
Palatoalveolars: [tʃ], [dʒ], [ʃ], [ʒ]
Alveopalatals: [c], [ɟ], [ɲ], [ʎ], [tɕ], [dʑ], [ɕ], [ʑ]

(21) Catalan

/tronc/	[ˈtroɲc]	‘log’	→	[ˈtroʲns]	‘logs’
				[ˌtrojm pəˈtit]	‘small log’
/aɲ/	[ˈaɲ]	‘year’	→	[ˈaʲns]	‘years’

(22) European Portuguese

malha	[ˈmaʎə]	~ [ˈmaʲʎə]	‘mesh’
caixa	[ˈkaɕə]	~ [ˈkaʲɕə]	‘box’
loja	[ˈlɔʑə]	~ [ˈlɔʲʑə]	‘boutique’
unha	[ˈuɲə]	~ [ˈuʲɲə]	‘(finger)nail’
longe	[lõʒə]	~ [lõʲʒə]	‘far’

(23) English borrowings in Welsh

orange	orains
cabbage	cabaitsch
cage	caets
branch	braens
brush	brwiss
varnish	bernais

(24) Afrikaans

groot	[xro:t]	‘large’	grootje	[xro:ʲci]
voet	[fut]	‘foot’	voetje	[fuʲci]
munt	[mœnt]	‘coin’	muntje	[mœʲnci]

(25) Ngeq

/luas/	‘to release’	[luəʲɕ]
/buaɲ/	‘to heap up’	[bueʲɲ]
/biac/	‘to be poor’	[bieʲc]

(26) Texmelucan Zapotec

/lac/	[laʲcʰ]	‘flat’
/laɟ/	[laʲˑc]	‘liver’
/naɲ/	[naʲˑɲ]	‘inside’
/mbaʎã/	[mbaʲˑʎã]	‘my compadre’

(27) Ngalkbun

/bojeɲ/	[bɔjɛʲɲ]	‘big’
/macun/	[maʲcun]	‘carpet snake’
/kocno/	[kɔʲcno]	‘his head’
/nakomtuc/	[nʌkɔmtuʲc]	‘little boy’

B Alveolars

(28) Sardinian /l/-prevocalization

/ˈkulpa/	[ˈkuʲlpa]	‘fault’
/ˈalva/	[ˈaʲlva]	‘beard’
/ˈmaltʃu/	[ˈmaʲltʃu]	‘male’

(29) Swiss German /r/-prevocalization

wehren	[vɛʲrə]	‘forbid’
sperren	[ʃpɛʲrə]	‘obstruct’

(30) /s/-prevocalization in Ngeq

/luas/	[lueʲh]	‘to release’

(31) Standard vs Kedah Malay

balas	balajh	‘finish’
bagos	bagojh	‘good’
habes	habejh	‘to finish’

IV Length (Mainly based on Kraehenman 2003)

In this section we will discuss the issue of consonantal length (geminates); its distribution and its representation.

(1) Representations of geminate consonants

(2) It is generally agreed on that geminates have a relatively restricted distribution. This is explained by both representations above. But the two theories make different predictions as to exactly where geminates can possibly occur. Here we will study a particularly difficult case, the geminates of Thurgovian.

(3) Where do geminates occur in Thurgovian? Where do they contrast with singletons?

Initial stops in σ́ σ

ϕ[__	/pp/omfrit	'French fries'	/p/ohne	'bean'
__ V	/tt/urte	'layer cake'	/t/otter	'egg yolk'
__ V:	--		/p/ohne	'bean'
__ S	/tt/rube	'grape'	/t/raschee	'dragée'

Medial stops in σ́ σ

V __	Su/pp/e	'soup'	Stu/p/e	'living room'
V:__	huu/pp/ä	'to honk'	Huu/p/e	'hood'
S __	Tol/kk/e	'smudge'	fol/k/ä	'to obey'
C __	Hoo/kk/e	'hook'	Ves/p/er	'vespers'
__ V			Bo/k/e	'bow'
__ S	ra/ss/le	'to rattle'	Ha/s/li	'a place name

Final stops in σ́

V __	schla/pp/	'limp'	--	
V: __	Taa/tt/	'deed'	Raa/t/	'wheel'
S __	al/tt/	'old'	Wal/t/	'forest'
C __	--		Ab/t/	'abbot'
__]ϕ	schla/pp/		Raa/p/	'raven'

(4) Following Kraehenmann:
Medial stops
Intersonorant contexts: contrast maintenance, not only after a non-branching nucleus, but also after a branching nucleus.

Final stops
Word-final consonants at the phrase boundary maintain the length contrast after a non-branching nucleus, as well as after a branching nucleus.

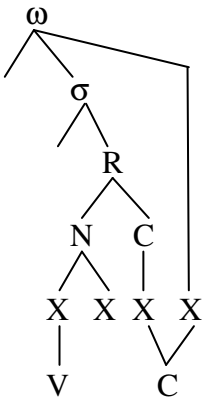
Initial stops
Word-initial stops main the quantity contrast at phrase boundary.

(5) In Kraehenmann's approach this distributions is explained in a theory of the syllable that does not recognize moras.
- It recognizes N, O, R, C, σ;
- It states that R cannot branch at both levels;
- It postulates an 'appendix' at phrase level;
- It states that obstruents are not allowed in nuclear position; only sonorants are allowed in that position.

(6) A geminate consonant after a short vowel (a non-branching nucleus):

]ω]ϕ

(7) A geminate consonant after a long vowel (a branching nucleus):



]ω]ϕ

(8) Stress in Thurgovian is QS.
a. Stress in trissyllabic words:

[á na nas]	‘pineapple’
[pí ʃa ma]	‘pyjamas’
[és x̂i mo]	‘Eskimo’
[ha lóó tri]	‘rogue’
[a róó ma]	‘aroma’
[a tóó nis]	‘handsome man’
[x̂o mán to]	‘command’
[fe rán ta]	‘veranda’
[a kén ta]	‘agenda’
[x̂á nap pe]	‘sofa’
[né kat tif]	‘negative’
[má rat ton]	‘marathon’
[mó nit tor]	‘monitor’
[x̂ó mit t e]	‘committee’
[x̂á rus sɛl]	‘merry-go-round’
[mó x̂as sin]	‘mocassin’
[hóp sass a]	‘up we go’

(9) We now really, really would like to know where the stress is in words in which the medial syllable is closed by an obstruent, followed by a non-homorganic obstruent (in the onset). Unfortunately, no forms of this structure are in Kraehenmann’s book!!