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WHAT SONORANTS DO IN POSITIONAL PLIGHT

(1) Purpose

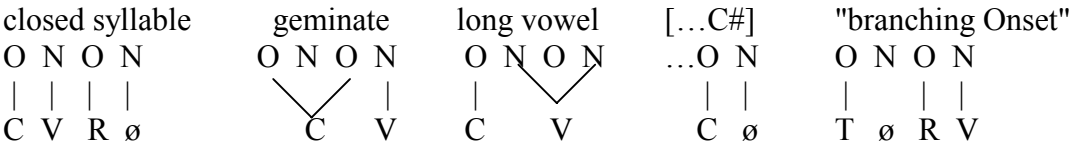
a. what I want to show is theory-independent:
an unforeseen variety of otherwise unrelated processes turn out to be the response to one single cause. That is,

1. (all ?) processes involving sonorants in Coda position are triggered by the positional pressure that characterizes this position (= weakness).
2. Coda-consonants are reputed to be passive. The reverse is true: they are active.
3. their goal is to remedy their positional plight.
4. in order to do that, they try to achieve a branching status:
- branching on a neighbour's melody (homorganic NCs)
- branching on a neighbour's skeletal position (syllabic consonants)

b. but I will bore you with a theory-specific introduction in order to show that the particular theory I am working in invites to go the way mentioned. This is because it cannot cope with the general master-and-servant view according to which nasals in Coda position are passive and obey the rule of following obstuents.

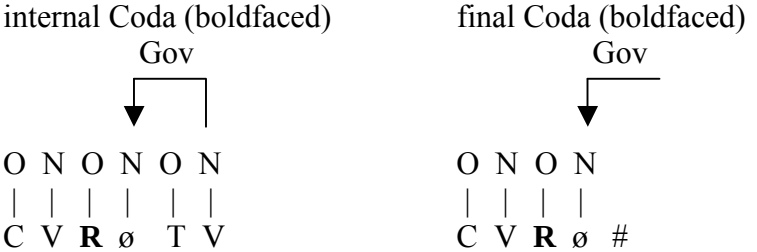
(2) hence, the boring part:
over the seven mountains, the seven valleys, the seven seas… there are phonologists who do not play the game of rewording observations as constraints.
What you need to know about CVCV (Lowenstamm 1996, Scheer 1999, forth, Szigetvári 1999), an outgrowth of Government Phonology (Kaye et al. 1990, Harris 1994 etc.), is:

a. syllabic constituency boils down to a strict consecution of non-branching Onsets and non-branching Nuclei



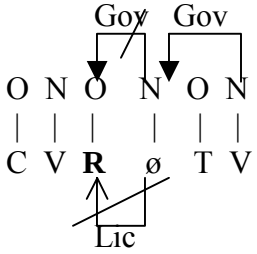
b. the Empty Category Principle
CVCV multiplies empty categories, and namely empty Nuclei. An empty Nucleus may exist only if it is governed (there is more to it, but that's enough for now).

c. instead of being translated into the familiar arborescence, syllabic generalisations are described by two lateral relations:
1. Government (destructive)
2. Licensing (supporting)
example: a consonant occurs in a Coda iff it is follwed by a governed empty Nucleus (R = any sonorant, T = any obstruent)

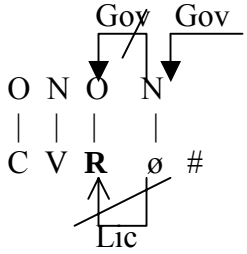


d. The Coda Mirror (Ségéral & Scheer 2001)
there is a **reason** why consonants are weak in Codas (and strong in the Coda Mirror = {#,C}__): goverend Nuclei are laterally disabled, i.e. can neither govern nor license. Therefore, Coda-consonants are neither supported (by Licensing) nor damaged (by Government).

internal Coda (boldfaced)



final Coda (boldfaced)



e. ok, that's it, you will be relieved of empty ghosts and all the other strange lateral things that are done over the seven mountains. The only thing you need to keep in mind is the following:
==> a Coda consonant does not contract ANY kind of relation with the following consonant.

1. hence, the problem: CVCV has got nothing to say about homorganic NC clusters

(3) a. the Master-Servant analysis:
probably all current theories assume that the active role in the homorganizing process is played by the obstruent, while the nasal is the patient of the process.

b. in Standard Government Phonology (i.e. non-CVCV, Kaye et al. 1990), this view on the matter was particularly welcome since all Codas were necessarily (interconstituent-) governed by the following Onset, and all homorganic NC clusters instantiate Coda-Onset sequences. Therefore, the regressive character of nasal assimilation in this case was predicted (see Harris 1990, 1994:69).

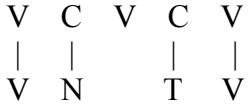
c. in CVCV, this option is not available.

d. in terms of the Coda Mirror, the nasal stands in a weak position (Coda), while the obstruent occurs in a strong position (Coda Mirror). Why should the nasal assimilate its place of articulation to the obstruent in this configuration?
==> The only possible answer appeals to its weakness, which creates instability.

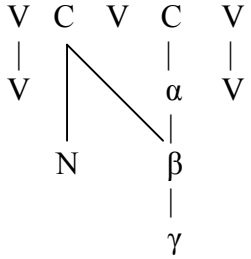
2. what to do in CVCV

(4) NC clusters

a. input before homorganisation



b. output after homorganisation: a "partial" or "nasal geminate", see for example Harris (1994:69,174s)



(5) a. is there reason to believe that the structure under (4b) is more stable than the one under (4a)? In other words, is the sharing of place features any salvation to the plight that the nasal experiences due to its weak position?
The answer is YES: it is well known that geminates are the most stable consonantal structure of all: geminate integrity (Kenstowicz & Pyle 1973, Hayes 1986, Schein & Steriade 1986).
More recently, the fact of sharing melody (place, voicing) has also been identified as conferring stability/ inalterability: Honeybone (2002).

b. **what homorganic NCs are:**
the segmental effect is a reaction on the weakness that strikes the nasal in Coda position. In order to escape this positional calamity, the nasal "pirates" some melodic features its neighbour's structure.

c. **==> the Master-Servant analysis is wrong**
- the obstruent is NOT the master, it plays a passive role.
- the nasal plays the active role: it seeks branching support from its neighbour.

3. Usually unrelated evidence 1: the behaviour of nasals in final Codas

(6) what can you make believe in this scenario?
Maybe the predictions it makes because the Coda is a disjunctive context: if nasals react on their positional precariousness in internal Codas, they should do so in final Codas as well. This happens to be true.

(7) Somali (Cushitic)
surface observation: /m/ and /n/ are neutralised to [n] in Coda position.
However, nasals are always homorganic in internal Codas.
==> homorganisation in internal Codas vs. lenition /m/ —> [n] in final Codas.
N occurs in #__

a.		singular indef.	singular def	plural	
		maar	maarta	maaro	house
		naar	naatra	naaro	moskito
N occurs in		__#	__C	V__V	
		singular indef.	singular def	plural	
b.	/-m/	sun	sunta	sumo	poison
		laan	laanta	laamo	branch
		sin	sinta	simo	hip
c.	/-n/	dan	danta	dano	thing
		daan	daanta	daano	shore
		saan	saanta	saano	to hide
nasals before other elements					
d.	/-m/	nin		niman	man sg, pl
		nim-baa			man + focus element
		niŋ-ka			man + article

Southern French

(8) nasals in Southern French I
alternation final __# - preconsonantal __C

		V__V	__C	__#	French spelling	gloss
a.	/-mC/		ʃampɛtrə	ʃaŋ	champêtre, champ	of the field, field
			kampe	kaŋ	camper, camp	to camp, camp
			tamporɛrə	taŋ	temps	time
			plɔmbe	plɔŋ	plomber, plomb	to seal, lead (metal)
b.	/-nC/		rɔndə	rɔŋ	rond	round
			blɔndə	blɔŋ	blond	blond
			grandə	graŋ	grand	big
			brijantə	brijaŋ	brillant	brilliant
			kɔntantə	kɔntaŋ	content	happy
c.	"-ŋC"		lɔŋgə	lɔŋ	long	long
			saŋgɛŋ	saŋ	sanguin, sang	of the blood, blood

(9) nasals in Southern French II
alternation final __# - intervocalic V__V

		V__V	__C	__#	French spelling	gloss
a.	/-m/	faminə		fɛŋ	faim, famine	hunger, famine
		nome		nɔŋ	nom	name
		ɛseme		ɛsɛŋ	essaim	swarm
		parfyme		parfœŋ	parfum	perfume
b.	/-n/	katalanə		katalaŋ	catalan	catalan adj.
		finə		fɛŋ	fin	end
		plɛnə		plɛŋ	plein	full
		bɔnə		bɔŋ	bon	good
c.	/-ɲ/	beɲe		bɛŋ	bain, (se) baigner	bath, take a bath
		deɲe		dedɛŋ	daigner, dédain	to dare, disdain
		swaɲe		swɛŋ	soigner, soin	look after, care
		elwaɲe		lwɛŋ	éloigner, loin	to distance, far away
		aŋkwaɲyrə		kwɛŋ	encoignure, coin	angle, corner

(10) nasals in Southern French III
nasals before fricatives

		V__V	__C	__#	French spelling	gloss
a.	/-nF-/		danse		danser	to dance
			blanʃə	blaŋ	blanc	white
			franʃə	fraŋ	franc	open, direct
			brɔnze		bronzer	to get a tan
			defansœr		défenseur	defender
			gɔnfle		gonfler	to blow up
			anvi		envie	desire
	/-mF-/	no clear examples				

Polish

(11) contextual variation of nasal vowels in Polish

		a. __Stop	b. __Fricative	c. __#	spelling
ę	__lab	fstɛmp	—	muvjɛ̃w̃	wstęp, mówię
	__dent	kɔlɛnda	jɛ̃w̃ziɨk		kolęda, język
	__postalv	—	vɛ̃w̃ʃɨ͡tɕ		węszyć
	__vel	lɛŋk	pɛ̃w̃xɛʃ		lęk, pęcherz
ą	__lab	kɔmpa͡tɕ	vɔ̃w̃vus	muvjɔ̃w̃	kąpać, wąwóz, mówią
	__dent	kɔnt	kɔ̃w̃sa͡tɕ		kąt, kąsać
	__postalv	—	mɔ̃w̃ʃ		mąż
	__vel	t͡ɕɔŋgnɔnt͡ɕ	vɔ̃w̃xa͡tɕ		ciągnąć, wąchać

(12) conclusion

in all systems reviewed, the weakness of nasals in Codas produces a contrast between the word-internal and the word-final position: in the former situation where a following consonant (stop) is available, the nasal "pirates" its place features. In word-final situation, there is no possible source for consonantal place features, and hence the nasal is depleted of its own place: depending on the system, it appears as the unmarked dental or velar. In Polish, the nasal is even more undressed since it has lost its occlusion in addition of its place: a Polish nasal in plight and without salvaging consonant in sight surfaces as a nasalized velar glide.

4. Usually unrelated evidence 2: the birth of nasal vowels (French, Portuguese, Slavic)

(13) genesis of nasal vowels in French

	V__V		__C		__#		French spelling
a. Vm	amare	ɛme	rumpere	rɔ̃prə	rem	rjɛ̃	aimer, rompre, rien
	amaru	amɛr	gamba	ʒãb	m(e)um	mɔ̃	amer, jambe, mon
	clamore	klamœr	rum(i)ce	rɔ̃s	fame	fɛ̃	clameur, ronce, faim
b. Vn	plana	plɛn	ventu	vã	non	nɔ̃	plaine, vent, non
	panariu	paɲe	sentire	sãtir	vin(u)	vɛ̃	panier, sentir, vin
	luna	lyn	man(i)ca	mãʃ	ann(u)	ã	lune, manche, an

(14) genesis of nasal vowels in Slavic

a. VNC sequences (nasals in internal Coda)

	other IE languages	Slavic	
		OCS	pol
1. Vm	ind māmsa, got mimz	męso	mięso
	gr gomfos, engl comb, lit žambas	zǫbъ	ząb
	lat tremo, lit tremti	tręstь	trząść
2. Vn	lat de-fendo, lit geneti	žętь	żąć
	lat pons, gr pontos	pǫtь	pątnik
	lat anser, germ Gans, lit ankštas	gǫsь	gęś

b. VN# sequences (nasals in final Coda)

	other IE languages	Slavic	
		OCS	pol
Vm	ACCsg IE *-ām, e.g. ind sut-ām, gr k^{h}or-ān, lat mens-am 1st sg e.g. gr, lat fer-ō, got bair-a, Slavic *-ōN with secondary -N	-ǫ e.g. glav-ǫ - ǫ ber-ǫ	-ę głow-ę -ę ber-ę

5. General summary so far

(15) possible reactions of a nasal in Coda position

a. it docks on a preceding vowel Result: nasal vowels		b. it docks on a following consonant Result: homorganic NC cluster
in internal Coda	in final Coda	in internal Coda
V C V C V | | | | V N T V	V C V # | | V N	V C V C V | | | V N T V

6. Something that should not happen: German homorganic CN clusters

(16) German homorganic CN clusters:
nasals react twice: they become homorganic AND syllabic

		a. infinitive -en		b. -n plural			
		schwa present	schwa absent	singular	schwa present	schwa absent	spelling
lab__	b	haabən	haabm̩	ʁaabə	ʁaabən	ʁaabm̩	haben, Rabe
	m	ʁajmən	ʁajmm̩	flamə	flamən	flamm̩	reimen, Flamme
	f	hɛlfən	hɛlfŋ̍	ʔafə	ʔafən	ʔafŋ̍	helfen, Affe
dent__	t	vɛtən	vɛtn̩	bootə	bootən	bootn̩	wetten, Bote
	s	hasən	hasn̩	ʃtχaasə	ʃtχaasən	ʃtχaasn̩	hassen, Straße
	l	falən	faln̩	hallə	hallən	halln̩	fallen, Halle
	n	ʁɪnən	ʁɪnn̩	biinə	biinən	biinn̩	rinnen, Biene
vel__	g	zaagən	zaagŋ̍	t͡sɔjgə	t͡sɔjgən	t͡sɔjgŋ̍	sagen, Zeuge
	ŋ	zɪŋən	zɪŋŋ̍	jʊŋə	jʊŋən	jʊŋŋ̍	singen, Junge
uvul__	χ	laχən	laχN̩	ʁaχə	ʁaχən	ʁaχN̩	lachen, Rache
	r	faaʁən	faaʁN̩	vaaʁə	vaaʁən	vaaʁN̩	fahren, Ware

(17) a. under any of the standard analyses, this is either entirely unexpected or even predicted not to exist. Homorganic NC clusters are so massively found across languages that most phonologists would grant a universal status to the direction of assimilation. On the cross-linguistic scene, the German case is utmost exotic.

b. the typical analysis in Standard Government Phonology, represented by Harris (1990,1994), is incompatible with the existence of homorganic CN clusters.

c. there is nothing wrong with homorganic CN clusters in CVCV: nasals are in positional plight as before, only is there nobody they can rip off to their right, so they turn left.

d. why are homorganic CN clusters so rare, as compared to their NC peers? Because it is not easy to make a N stand in Coda position after a consonant. The only way that this can be achieved is preceisely through syncopy: VCøN#.

7. Schwa is killed by the stabilizing action of the nasal

(18) the nasal branches twice: on a foreign melody and on a foreign skeletal position

a. the nasal is driven to lateral action because of its positional discomfort. Since there is nothing it could dock on to its right, it must spread leftwards. The object that schwa encounters first is schwa.

b. in order to dock on the preceding consonant, the nasal must kill schwa. This is done by occupying its skeletal position.
==> result: syllabicity of the nasal.

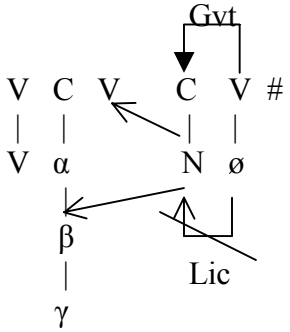
c. what is a syllabic consonant? Traditional 19th century view: "vowels weaken in certain positions and at some point die of senility; the neighbouring sonorant then takes over the syllabic function".
This causality is inverted here: schwa does not fade away, but is killed.

d. why does this only happen after schwa? Because schwa is weak; full vowels cannot be evacuated. [traditional scenario: schwa is weak and therefore fades away; here: schwa in weak and therefore falls prey to the aggression of the nasal. On both accounts, the weakness of schwa is the critical condition]

e. schwa being off the way, the nasal can also branch on the preceding consonant.
result: homorganicity.

f. homorganicity: the usual causality is also inverted: the homorganisation of nasals is the cause, rather than the consequence of the absence of schwa.

(19) schwa is killed by the colonising action of the nasal in positional plight



1. the nasal pirates schwa's skeletal position
==> syllabicity
2. the nasal pirates the melody of the preceding obstruent
==> homorganicity

(20) all other sonorants behave like nasals (e.g. Hall 1992:34s, Wiese 1996:243ss):

a. the lateral becomes syllabic (but of course not homorganic)
/CəL#/ --> [CL̩#]

Segel [zeegl̩]	Handel [handl̩]	Löffel [lœfl̩]	Henkel [hɛŋkl̩]
sail	commerce	spoon	handle

b. the r-sound also reacts, but in a different way: it vocalizes.[1]

[1] The third candidate, "r" = [ʁ,χ], is out of business here: it implodes in the same conditions. The Lenition of "r" in Codas is called r-vocalization in the German literature (see for example Hall 1992:56ss, Wiese 1996:252ss). The segmental result of the lateral pressure on "r" is some of low schwa which is crucially distinct from the regular schwa that is discussed here. It is usually transcribed as [ɐ] or [ʌ]. Some examples are *lehren, sparen* [leeʁən, ʃtʊdiiʁən] "teach inf., study inf." vs. *ich lehre, ich studiere* [leeɐ, ʃtʊdiiɐ] "I teach, I study" (familiar speech where the 1st person sg marker -e [-ə] is unpronounced), *er lehrt, et studiert* [leeɐt, ʃtʊdiiɐt] "he teaches, he studies". In the frame of the present analysis, r-vocalization is certainly due to its position in a Coda. But this is only a necessary, not the sufficient condition. It is only because it does not qualify as a syllabic consonant that the consonant "r" is sacrificed as such, experiences depletion and ends up colouring the preceding schwa. And in turn, the inability of "r" to act as a syllabic consonant must surely be related to its status as a "fake" sonorant: only sonorants can be syllabic (at least in German), but the German "r" is actually a uvular fricative [ʁ,χ] with an apcical history (it was [r] in MHG) and a synchronically ambiguous behaviour (it still counts as a sonorant for the matter of syllabification: [tχ,bʁ] etc are good branching Onsets; and it provokes [ç], not [χ], to its right as all other sonorants: *durch, manch, Dolch* [dʊɐç, manç, dɔlç] "through, some, dagger").

8. Homorganicity has got nothing to do with adjacency

(21) another case of CN-adjacency: when a V-initial suffix is added to a Cən-final root[2]

	root	without suffix		with vowel-initial suffix			
		schwa present	schwa absent	infinitive -en, -ern	agentive -er	nominali-zing -ung	other
g__	Segen	zeegən	zeegŋ	zeekn-ən	zeekn-ɐ	seekn-ʊŋ	—
	eigen	ʔajgən	ʔajgŋ	ajkn-ən	ajkn-ɐ	ajkn-ʊŋ	—
	lügen	lyygən	lyygŋ	—	lyykn-ɐ	—	lyykn-əʁɪʃ
	Wagen	vaagən	vaagŋ		vaakn-ɐ	—	—
	wagen	vaagən	vaagŋ	—	—	—	vaakn-ɪs
	Regen	ʁeegən	ʁeegŋ	ʁeekn-ən	—	—	ʁeekn-əʁɪʃ
	gegen	geegən	geegŋ	bəgeekn-ən	geekn-ɐ	bəgeekn-ʊŋ	geekn-əʁɪʃ
k__	trocken	tχɔkən	tχɔkŋ	tχɔkn-ən	tχɔkn-ɐ	tχɔkn-ʊŋ	—
t__	Garten	gaatən	gaatn̩	gɛɐtn-ɐn	gɛɐtn-ɐ	—	—
	Kasten	kastən	kastn̩	—	kɛstn-ɐ	—	—
b__	loben	loobən	loobm̩	—	(løøpn-ɐ)	—	gəløøpn-ɪs
	erleben	ɛɐleebən	ɛɐleebm̩	—	—	—	ɛɐleepn-ɪs
f__	offen	ʔɔfən	ʔɔfŋ	œfn-ən	œfn-ɐ	œfn-ʊŋ	—
	schaffen	ʃafən	ʃafŋ	—	ʃafn-ɐ	—	—

(22) three crucial observations

a. there is a CN cluster, but the nasal must not be homorganic.

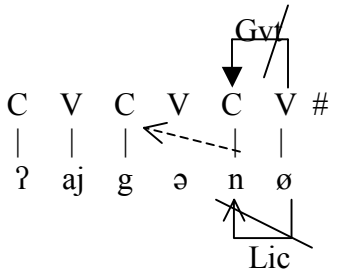
b. /-CəN#/ may appear with or without schwa: Regen [ʁeegən] and [ʁeegŋ]
the absence of schwa is mandatory in /-CəN-V/: regnen [ʁeeknən], *[ʁeekənən]

c. the obstruent preceding the nasal is devoiced: regnen [ʁee**k**nən]. [no devoicing in Southern dialects]
it is not in Regen [ʁeegŋ]

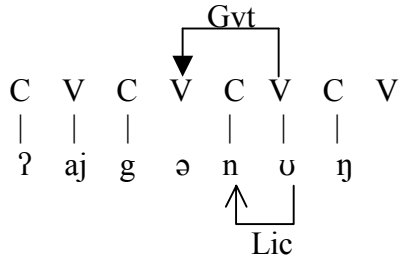
[2] Other roots that have the required structure but produce no derivatives are Magen "stomach", Kragen "collar", Faden "thread", Boden "floor, bottom", Lappen "washcloth". Glosses for table (21): column of roots *Segen* "blessing (the fact)", eigen "own", lügen "to lie", Wagen "carriage", wagen "to dare", Regen "rain", gegen "against", trocken "dry", Garten "garden", Kasten "box", loben "to praise", erleben "to experience", offen "open", schaffen "to create"; column of infinitives *segnen* "to bless", eignen "to own", regnen "to rain", begegnen "to meet", trocknen "to dry", gärtnern "to do gardenwork", öffnen "to open"; column of agentives *Segner* "person who blesses", Eigner "owner", Lügner "liar", Wagner "man who builds and entertains carriages", Gegner "opponent", Trockner "drier (machine)", Gärtner "gardener", Kästner is a family name, there is a known writer who is called like that (Erich Kästner), Löbner family name, Öffner "opener", Schaffner "conductor"; -ung column *Segnung* "blessing (the action)", Eignung "suitability", Begegnung "meeting", Trocknung "the process of drying", Öffnung "the opening", lügnerisch "untrue"; column of other derivatives Wagnis "hazardous enterprise", regnerisch "rainy", gegnerisch "from the opponent", Gelöbnis "promise", Erlebnis "experience". The items where [t] precedes schwa are mentioned only for the sake of completeness: obviously, neither the assimilation of the nasal nor their own devoicing is an issue here.

(23) **observation 1**: the nasal must not be homorganic
It is commonly believed that homorganicity is produced by adjacency.
The real reason for homorganicity is positional: being in positional plight or not.

a. homorganic CN
German *eigen* [ʔajgŋ]
reason: the nasal is in Coda position and pirates the melody of the preceding obstruent.



b. non-homorganic CN
German Eignung [ʔajknʊŋ]
the nasal is not in Coda position (but in the strong Coda Mirror position). Therefore, there is no reason for it to go pirating anything.



(24) **observation 2**: schwa must not be present
two different reasons for the phonetic absence of schwa
a. the absence of schwa is optional in case it is due to the spreading of a syllabic consonant.
b. the absence of schwa is obligatory in case it is due to Government.

(25) observation 3: obstruents devoice before the nasal
a. this is the proof that the nasal is not in Coda, but in post-Coda position.
b. in German, obstruents devoice in both final and internal Codas (e.g. Brockhaus (1995):
Freund-e [fχɔjnd-ə] "friends"
vs.
Freund [fχɔjnt] "friend" *freund-lich* [fχɔjnt-lɪç] "friendly"
c. 1. recall that in CVCV, a consonant in a Coda identifies as occurring before a governed empty Nucleus.
2. hence, the Nucleus preceding the nasal in *regnen* /regønən/ must be governed.
3. by contrast, it cannot be governed in *Regen* [ʁeegŋ] because the final Nulcues is empty.
d. hence confirmation of the structures under (23).

9. Usually unrelated evidence III: consequences for the genesis and identity of syllabic consonants

(26) syllabicity again
a. already mentioned: syllabic and trapped (= the mysterious non-counting "syllabic" consonants in Polish, e.g. trwać "to last") consonants are not the result of the loss of a vowel, but stem from the positional plight of the sonorant in Coda position, which drives it to kill the preceding schwa.

10. General summary

(27) events that can be the consequence of the positional plight of sonorants (nasals)

event		position of the sonorant	result: laterals and rhotics	result: nasals	illustration
spreading onto foreign melody: place features shared	spreding to the right	VRCV	—	homorganicity	prefix /in-/ in English etc.
		VR#	impossible: nobody there		—
	spreading to the left	VRCV	—	nasal vowel	genesis of French and Slavic nasal vowels
		VR#			
		VCR#	—	homorganicity	German habm̩
spreading onto a foreign position: branching structure	spreding to the right	CRə#	trapped consonant CR#, CRC		Polish
		CRəC			
	spreading to the left	VəR#	syllabic consonant CR̩#, CR̩C		German, English, Czech
		CəRC			Czech, Serbo-Croatian
Lenition		VR# and/ or VRC	depletion of manner l,r —> [j]	depletion of place m —> n	Somali
			ɬ —> [w]	l —> [ɬ] n —> ŋ	see Portuguese Southern French
			r —> [ɐ]		German "r-vocalization" (also English)
			r —> [ɾ]		e.g. Portuguese

(28) processes that fall under the scope of the theory

type of reaction		result
spreading (successful stabilization)	on another segment: shared place	only nasals 1. homorganic NC and CN clusters 2. genesis of nasal vowels
	on another position	nasals and liquids 1. genesis of syllabic consonants 2. genesis of trapped consonants
Lenition (unsuccessful stabilization)		nasals and liquids 1. liquids: depletion of manner primes l,r —> [j], ɬ —> [w]. r —> [ɐ] 2. nasals: depletion of place primes /m/ —>[n], /n/ —> [ŋ]

(29) definition of major classes according to their behaviour under position pressure

	can become homorganic	can spread onto another syllabic position (i.e. become syllabic)	can experience Lenition
nasals	yes	yes	yes
liquids	no	yes	yes
obstruents	no	not really	yes

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