

## On some consequences of dephoneticised Phonology

(1) Why Phonology has to be non-phonetic

a. the acoustic nature of speech is accidental:

1. phonetically or auditively disabled humans possess a perfectly well-formed grammar
2. altered properties of the brain-structure do cause trouble in the grammar
3. the mouth was not designed for speech. It was fertilised when language emerged for social reasons after the homo had spent more than 2 Mio years on Earth. This colonisation of a pre-existing physical device for communication was possible only because of a lucky combination of physical and biological parameters:
  - the mouth pre-existed. If the homo absorbed food and breathed through some other organic device, there would have been no mouth to be colonised.
  - there is an atmosphere that allows to transmit sounds. If the homo were a submarine species, or lived on a planet without atmosphere, there would be no acoustic communication.

it is reasonable to assume that if acoustic communication using the mouth had not been possible because of physical and/ or biological properties, mankind would still have developed language.

4. at least one non-buccal and non-acoustic vehicle of natural language is attested: signs. In principle, any signal that may be produced and read by humans is a possible vehicle for natural language: tactile, olfactive etc. communication.

**consequences:**

1. UG must not make any reference whatsoever to phonetic, biological or physical properties of language, cf. Carr (1998), Carvalho&Klein (1996).
2. Phonology is the interface between the grammar and the biological/ physical world, between neuronal and extra-neuronal structure. The word "**Phonology**" carries a century-old misunderstanding: its output is **phon**, but its input, structure and identity is not.

b. two options for UG:

1. there are independent phonological, syntactic, morphological and semantic UGs whose content is non-related, cf. Bromberger&Halle (1989).
2. there is one single UG containing a limited set of principles, of which we observe phonological, syntactic, morphological and semantic manifestations.

if the latter is correct, only non-phonetic objects may enter UG since there are no phonetics in syntax, morphology and semantics, nor is there any biology and environmental physics.

There is an explicit tradition in Government Phonology to favour views that allow to account for syntactic and phonological data with identical tools: ECP, PG, Projection Principle, c-command.



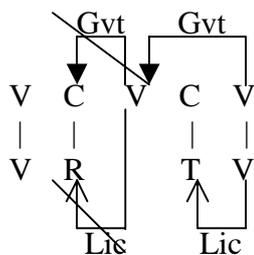
- (3) status of final empty Nuclei (FEN)  
 classically, there are two independent problems:  
 a. why are FEN phonetically unexpressed?  
 b. how come they are able to govern?  
 in /par $\emptyset_1$ c $\emptyset_2$ /, the only way to satisfy  $\emptyset_1$  is PG coming from the FEN.
- (4) Locality has nothing to say about (3)a, but solves (3)b: there is nothing wrong anymore with phonetically unexpressed Nuclei that govern.
- (5) as before, a special case has to be made for FEN  
 FEN can govern Nuclei that are lexically empty, i.e. /par $\emptyset_1$ c $\emptyset_2$ /, but are unable to trigger vowel-zero alternations, i.e. to govern lexically filled Nuclei that are specified for vowel-zero alternations.

Hence,

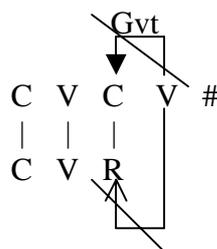
(6) before and now	can govern a lexically filled Nucleus	can govern a lexically empty Nucleus
independent Nucleus (=phonetically realised or mute because of IG)	yes	yes
final dependent Nucleus (reason of muteness: being final)	no	yes
non-final dependent Nucleus (reason of muteness: PG)	no	no

- (7) what about final Codas?  
 Coda = ungoverned and unlicensed

a. internal Coda



b. final Coda



if FEN possess lateral actorship, why should they be unable to govern and license their Onset? They have to be unable to do so because otherwise the theory cannot refer to  $\_\{\#,C\}$  in a uniform fashion.

- (8) answer  
 a. we know that FEN cannot govern Nuclei that are lexically filled.  
 b. neither can they govern Onsets that are lexically filled.  
 c. the same holds for Licensing  
 ==> generalisation: FEN may not be the head of a lateral relation if its target is lexically filled.

Hence,

(9)

	may be the Head of a lateral relation (Gvt or Lic) with a constituent (Onset or Nucleus) that is lexically	
	filled	empty
independent Nucleus (=phonetically realised or mute because of IG)	yes	yes
final dependent Nucleus (reason of muteness: being final)	no	yes
non-final dependent Nucleus (reason of muteness: PG)	no	no

(10) **Lenition of branching Onsets:** Locality makes the correct prediction

TR in Coda Miroir position, i.e. {#,C}__	TR in intervocalic position
T is ungoverned but licensed R is governed and licensed	T is governed and licensed R is governed and licensed

predictions:

1. both members of a branching Onset behave as if the second member were not there.
2. both members of an intervocalic branching Onset are in intervocalic position.

Thus:

Coda Mirror

#TRV = #TV      VRTRV = VRTV  
 #TRV = #RV      VRTRV = VRRV

V\_\_V  
 VTRV = VTV  
 VTRV = VRV

TRUE for Latin > French  
 cf. Appendix



(14)	UP	DOWN
	a. content is candidate for UG	content is conditioned by the specific physical and biological environment
	b. content is candidate for unification with syntactic, semantic, morphological etc. devices	content is specific for the phonological/phonetic part of the grammar
	c. strictly regressive	progressive and regressive
	d. content is exclusively phonological without participation of any phonetic, physical or biological parameter	content is phonological and phonetic
	e. empty Nuclei are controlled by other Nuclei (via Gvt)	empty Nuclei are controlled by the relation contracted by the two flanking consonants
	f. the source of all lateral relations are Nuclei	the source of all lateral relations are Onsets
	g. lateral relations may trigger segmental changes of their targets	lateral relations never provoke segmental changes of their targets

VS.

(15) relations between UP and DOWN are one-way and hierarchical:

UP conditions DOWN

hence: DOWN is "invisible" for UP

DOWN never conditions UP

hence: UP is "visible" for DOWN

consequence:

- a. the empty Nucleus enclosed within a branching Onset TR is invisible for ABOVE=the Phonology, it does not "count" for UPPER matters since its ECP is satisfied by a LOWER procedure (IG)
- b. the empty Nucleus occurring within RT, on the other hand, is handled by an UPPER device, PG, and thus "counts" for UPPER matters.

(16) two consequences

a. the statement

"consonants are in a Coda iff they occur before an empty Nucleus"

is now correct, but wasn't before: As the fact of being a Coda or not is decided ABOVE ("syllable structure"), it is now self-evident that empty Nuclei handled BELOW do not count.

b. stress assignment follows

(17) questions left without an answer (or not even raised) by current theories of stress assignment

- a. why should non-segmental phonology be split into two closed domains and theories, one handling syllabic, the other driving prosodic phenomena (Halle 1998, Hayes 1995 etc)?

Wouldn't it be possible to have a theory where alternations pertaining to both empirical fields are the consequence of the same principles and representations?

- b. the fact that Onsets never possess weight is only noticed, and then mirrored by the formal system. Nobody knows why Onsets never contribute to weight, but Codas sometimes do, and why the reverse situation does not obtain.
- c. evidently, accent is a vocalic property. How come that some consonants sometimes may be relevant for its definition?

This mysterious access of some consonants to the vocalic world is phrased by Gussenhoven&Jacobs (1998:160): "significantly, a consonant in the rhyme is often counted as if it was a vowel."

(18) CVCV and UP vs. DOWN provide answers:

- a. the same representations and principle are responsible for syllabic and prosodic processes: CVCV, Gvt and Licensing.

Ex latin stress

penultimate if the penult is heavy (=long or closed)

antepenultimate if the penult is light

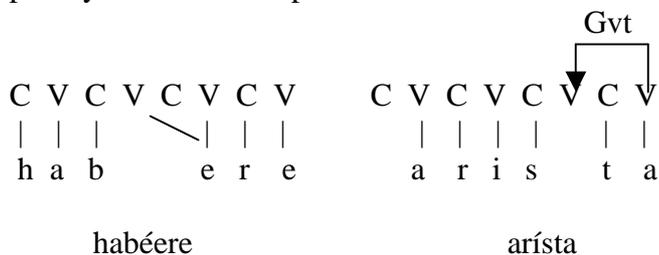
**Generalisation: stress the third Nucleus, counting from the right edge.**

the circled Nucleus, enclosed within a branching Onset, does not "count": stress assignment is an UPPER matter, thus LOWER Nuclei are invisible.

proparoxytons: monomoraic penult



paroxytons: bimoraic penult



- b. Onsets are never moraic because either no Nucleus is involved in their identity (simplex Onset), or it isn't visible from ABOVE (branching Onset).
- c. "significantly, a consonant in the rhyme is often counted as if it was a vowel." (Gussenhoven&Jacobs 1998:160).

Not "as if": those consonants that contribute weight ARE vowels: the Coda has a vocalic definition: before an empty Nucleus. It is not the consonants in Codas that are "counted" by stress-assignment, but the empty Nucleus to their right:  
 ==> optical illusion of assigning the effect of an invisible object to its visible neighbour.

(19) Weight-by-Position languages vs. others

observation		interpretation
a. counts as heavy CVV, CVC ex.: Latin	counts as light CV	the language does not discriminate between filled and empty Nuclei: any Nucleus counts
b. counts as heavy CVV ex. Khalka Mongolian	counts as light CVC, CV	the language counts only filled Nuclei.

(20) summary

Nuclei handled BELOW	Nuclei handled ABOVE		
	filled Nuclei	empty Nuclei	
		internal (reason: PG)	final (reason: right margin)
C V C V C V	C V C V	C V C V C V	C V C V #
C V T <== R V	C V C V	C V R T V	C V C

## Appendix: Lenition of Latin branching Onsets in French

(21) evolution of TR with T=dental

	#__	Coda__	Coda		V__V
			__C	__#	
tr	<b>tres</b> <b>trois</b>	alt(e)ru    autre			petra     pierre
	<b>tractare</b> <b>traiter</b>	capistru    chevêtre			it(e)rare    errer
dr	<b>drappu</b> <b>drap</b>	perd(e)re    perdre			quadratu    carré

(22) evolution of simple dentals

	#__	Coda__	Coda		V__V
			__C	__#	
t	<b>tela</b> <b>toile</b>	cantare    chanter			vita     vie
d	<b>dente</b> <b>dent</b>	ardore    ardeur			codā    queue

(23) evolution of TR with T=labial

	#__	Coda__	Coda		V__V
			__C	__#	
pr	<b>pruna</b> <b>prune</b>	rump(e)re    rompre			capra    chèvre
pl	<b>plenu</b> <b>plein</b>				duplu    double
br	<b>branca</b> <b>branche</b>	membrum    membre			labra    lèvres
bl	* <b>blastimare</b> <b>blâmer</b>				tab(u)la    table

(24) evolution of simple labials

	#__	Coda__	Coda		V__V
			__C	__#	
p	<b>porta</b> <b>porte</b>	talpa     taupe			ripa     rive
b	<b>bene</b> <b>bien</b>	herba    herbe			faba     fève

(25) evolution of TR with T=velar

	#__	Coda__	V__V		
kr	<b>credere</b> <b>croire</b>	?	{i,e,a}__	lacrima	afr. lairme
kl	<b>clave</b> <b>clef</b>	circ(u)lu    cercle		mac(u)la	maille
			{u,o}__	genuc(u)lum	afr genoil <sup>1</sup>
gr	<b>grana</b> <b>graine</b>	?	{i,e,a}__	flagrare	flairer
gl	<b>glande</b> <b>gland</b>	ung(u)la    ongle		coag(u)lare	cailler
			{u,o}__	?	

<sup>1</sup> Les exemples d'Attaques branchantes précédées d'une voyelle non-palatale, *i.e.* [u,o], sont rares. Bourciez (1926) n'en donne pas du tout. Pope (1934:133) mentionne les candidats lat *genuc(u)lum* > afr *genoil* [dʒəɔʎ] et *oc(u)lum* > afr *ueil* [ueʎ]. Il est difficile, pourtant, de décider si la graphie de l'ancien français, dans le *i* de *genoil*, représente une trace palatale de l'ancienne vélaire, ou s'il s'agit simplement de la notation orthographique de la latérale palatale [ʎ], cf. Pope (1934:277). Il reste donc difficile de savoir si les occlusives vélaire se comportent de manière identique lorsqu'elles surviennent seules à l'intervocalique et en tant que premier membre d'une Attaque branchante. Si c'était le cas, la prédiction venant de la situation intervocalique,

(26) evolution of simple velars

	#__	Coda__	Coda __C   __#	V__V
k __{i,e}	centu cent	mercede merci		placere plaisir
__{u,o}	cubitu coude			securu afr. sèur
{u,o}__a	cor cœur	rancore rancœur		Sa(u)conna Saône
	carru char	arca arche		carruca charrue
				jocare jouer
{i,e,a}__a	id.	id.		pica pie
				necare noyer
				pacare payer
g __{i,e}	gelare geler	argentu argent		rege roi
{i,e,a}__a	gamba jambe	virga verge		regale royal
				paganu païen
{u,o}__a	id.	id.		ruga rue
__{u,o}	gula gueule	angustia angoisse		*agustu août

(27) SUM of the evolution of simple velars

	Coda Miroir résultat en français	V__V résultat en français
k __{i,e}	affrication $\widehat{ts} > s$	spitting [j] and affrication $\widehat{ts} > s$
__{u,o}	k	loss
{u,o}__a	affrication $\widehat{tʃ} > ʃ$	loss
{i,e,a}__a	affrication $\widehat{tʃ} > ʃ$	spitting [j] and loss
g __{i,e}	affrication $\widehat{dʒ} > ʒ$	spitting [j] and loss
{i,e,a}__a	affrication $\widehat{dʒ} > ʒ$	spitting [j] and loss
{u,o}__a	affrication $\widehat{dʒ} > ʒ$	loss
__{u,o}	g	loss

(28) generalisation about velars

- a. in Strong Position, velars latin appear as such in French (plus palatalisations).
- b. in intervocalic position, simple velars are lost if they are adjacent to [u,o]. In all other cases, they spit out a [j] and disappear.

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on le verra ci-dessous, voudrait que l'occlusive d'une Attaque branchante vélaire précédée par [u,o] tombe sans laisser aucune trace palatale.

(29) comparison T vs. TR with T=velar

T		Coda Mirror resultat of T in French		TR		Coda Mirror resultat of T in French	
k,g		inchangé		kr, kl gr, gl		inchangé	
		V__V result in French				V__V result in French	
		adjacent [u,o]	loss			adjacent [u,o]	?, cf. note 1
k,g		elsewhere	spits out a [j] and disappears	kr, kl gr, gl		elsewhere	spits out a [j] and disappears

(30) general comparison T vs. TR

T		Coda Mirror resultat of T in French		TR		Coda Mirror resultat of T in French	
p,b		unchanged		pr, pl br, bl		unchanged	
t,d		unchanged		tr, dr		unchanged	
k,g		unchanged		kr, kl gr, gl		unchanged	
		V__V resultat of T in French				V__V resultat of T in French	
p,b		spirantisation		pr, br pl, bl		spirantisation voicing	
t,d		loss		tr, dr		loss	
		adjacent [u,o]	loss			adjacent [u,o]	?, cf. note 1
k,g		elsewhere	spits out a [j] and disappears	kr, kl gr, gl		elsewhere	spits out a [j] and disappears

(31) evolution of simple Liquids

	#__		Coda__		Coda		V__V	
	rege	roi	cin(e)re	endre	__C	__#	pira	poire
r								
l	levare	lever	mer(u)lu	merle			dolore	douleur

(32) evolution of Liquids when preceded by an Obstruent

	#__	Coda__	Coda _C_#	V__V
pr	<b>pruna</b>	<b>prune</b>	rump(e)re rompre	capra chèvre
pl	<b>plenu</b>	<b>plein</b>		duplu double
br	<b>branca</b>	<b>branche</b>	membrum membre	labra lèvre
bl	* <b>blastimare</b>	<b>blâmer</b>		tab(u)la table
tr	<b>tres</b>	<b>trois</b>	alt(e)ru autre	petra pierre
	<b>tractare</b>	<b>traiter</b>	capistru chevêtre	it(e)rare errer
dr	<b>drappu</b>	<b>drap</b>	perd(e)re perdre	quadratu carré
kr	<b>credere</b>	<b>croire</b>	?	lacrima afr. lairme
kl	<b>clave</b>	<b>clef</b>	circ(u)lu cercle	mac(u)la maille
gr	<b>grana</b>	<b>graine</b>	?	flagrare flairer
gl	<b>glande</b>	<b>gland</b>	ung(u)la ongle	coag(u)lare cailler

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