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CNRS 6039

9th Phonology Meeting
Vienna 1-4 November 2002

What final empty Nuclei are good for

(1) the core identity, ambition and difference of GP (first page of Kaye et al. 1990):
to build a syntax of phonology.

(2) what are Final Empty Nuclei (FEN) ?
   a. the founding statement of Government Phonology:
   Kaye (1990): it is not true that internal and final Codas behave alike. Final Codas are Onsets of empty Nuclei. __# ≠ __C is typical GP-evidence.
   FEN are a genuine and definitorial property of GP.
   The initial spark of the **lateralisation of structure**: there is no vertical = arboreal structure at the end of the word at all.
   b. the founding statement of a genuine and definitorial tradition of GP,
   i.e. the initial spark of the **lateralisation of causality**:
   expressing parametric variation by parametrised lateral relations [and NOT by parametrised vertical = arboreal structure]: "parametric Licensing of FEN" covers the parameter "presence vs. absence of consonant-final words".
   Of course, this parameter cannot be expressed in this way if there are no FEN.
   This tradition has been continuously developed:
   parametrised lateral power of FEN, i.e. direct/ indirect Government Licensing (Charette 1991,1992), and has even been extended to internal empty Nuclei (Charette 1992). Parametrised lateral actorship is the central device of ongoing work by Cyran (2001, forth).
   c. source of trouble and charges against GP
      1. why are they mute? "Licensing of FEN" is not an answer, it is equivalent to "we know that they exist and are mute, but we don't know why". Has always been mysterious.
      2. they are empty = unexpressed. How come they can dispense lateral relations (e.g. Government Licensing) ?

   everybody knows about 1) and 2), but usually they are not further discussed (GP-literature is almost virgin). However, there is some reaction against 1) for example, i.e. the inversion of directionality of lateral relations: Trochaic PG, Rowicka (1999).

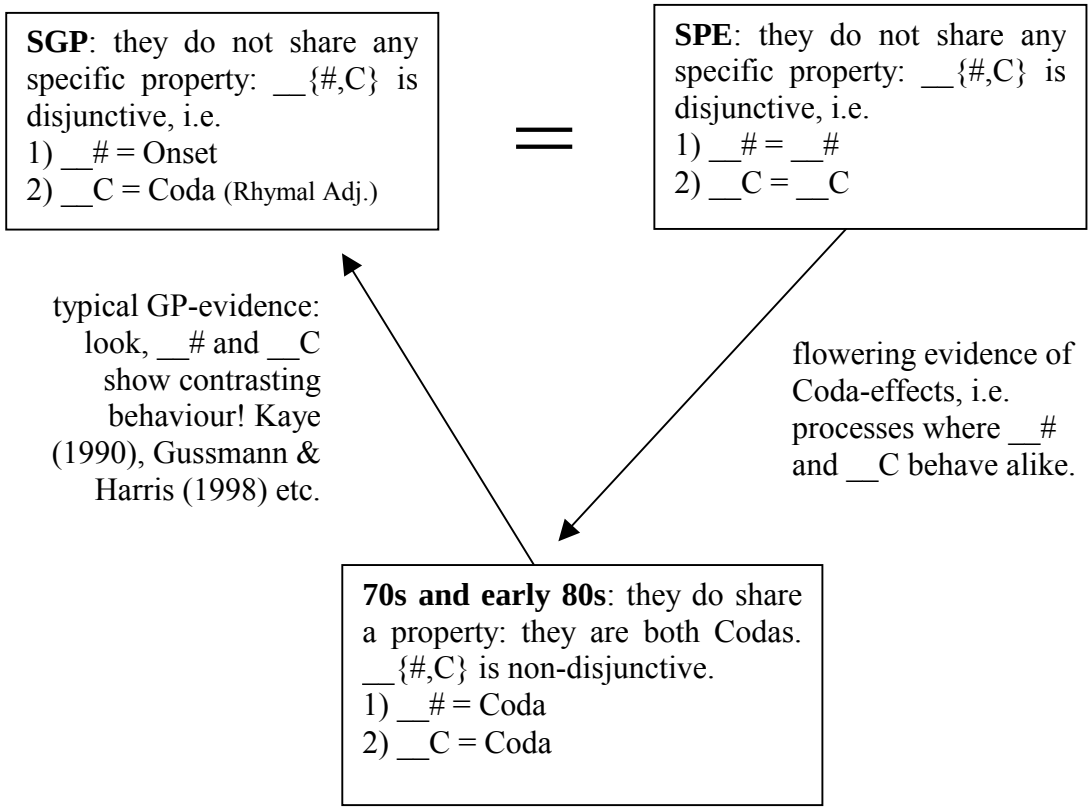
(3) purpose
   a. show that final empty Nuclei carry a crucial functional load. The "trouble" with FEN is not trouble, but a necessary condition on descriptive and explanatory adequacy. There is no syntax of phonology in absence of FEN. Calling them into question is GP-suicide.
   Proposals without (or with "little") FEN: Dienes & Szigetvári (1999), Szigetvári (1999) and Polgárdi (1988, in press).
   b. **reason 1**: inability of GP to reduce the Coda-context __{#,C} to a non-disjunctive statement ("in Rhymal Adjuncts and before FEN").
   This can only be overcome if
   1) the founding and definitorial research programme of GP is brought to its end: **to build a syntax of phonology** (first page of Kaye et al. 1990). Standard GP (SGP) has run out of breath half way, there are important islands of vertical = arborescent =

non-lateral = non-syntagmatic structure and causality. CVCV (Lowenstamm 1996) completes the missing steps: both structure AND causality are exclusively lateral. Project: to achieve the lateralisation of both phonological structure and causality.
2) Government and Licensing are clearly separated, viz. The Coda Mirror.
(and not constantly confused as in SGP).
3) the lateral capacity of FEN is parametrised (which it has always been in SGP, but for different reasons).
==> you need FEN if you want to parametrise its lateral power.

c. **reason 2**: SGP is unable to express the set of data known as (right-margin) "extrasyllabicity".
word-final consonants cannot be anything else than Onsets. Hence, they are not supposed to show any Coda-effect: Coda-effects are observed on Codas, and these occur only word-internally. Unfortunately, there ARE both consonantal and vocalic Coda-effects in __(C){#,C}. This is the bulk of evidence that is (among other things) at the origin of autosegmentalism.
If you believe that Coda-effects are due to the arboreal = vertical definition of the constituent "Coda", then Onsets may never ever participate in the phenomenology. Hence, the behaviour of word-final consonants cannot be parametrised.
If on the other hand you believe that both internal and final "Coda"-consonants are Onsets, which are opposed to Onset-consonants in terms of lateral relations, nothing prevents you from parametrising lateral relations.

Reason 1

(4) reason 1: consider the evolution of the theoretical status of
1) "a consonant before another (heterosyllabic) consonant" __C and
2) "a word-final consonant" __#



(5) a. back to where we started: SGP = SPE as far as the Coda-context is concerned.
Is anybody wrong? No, everybody is right (but SPE didn't now it was)
Is anybody right? No, everybody is wrong:
in some languages, both final and internal Codas behave alike, while in others, their behaviour contrasts. It is not because sometimes it contrasts (GP-evidence) that the other phenomenology stops to exist.

b. So: **how can we have our cake and eat it?**
70s+early 80s: how do you account for __# ≠ __C ? No answer.
SGP: how do you account for __# = __C ? No answer. [GPers usually don't talk about that, and if they do, they frankly deny the existence of __# = __C in natural language or try to discuss it away ("misanalysis")]
phonological theory is called to be able to both refer to __{#,C} in disjunctive **and** non-disjunctive fashion.

(6) Coda-effect on the Coda itself
illustration: l-vocalisation
a. French: in internal, but not in final Codas __# ≠ __C

Onset						Coda			
#__		C__		V__V		__#		__C	
lamina	lame	plaga	plaie	vela	voile	sal	sel	alba	aube
levare	lever	flore	fleur	mula	mule	mel	miel	talpa	taupe
luna	lune	fab(u)la	fable	dolore	douleur	caball(u)	cheval	sol(i)dare	souder
lepore	lièvre	C.__		valere	valoir	fil(u)	fil	poll(i)ce	pouce
		mer(u)lu	merle						
l > l		l > l		l > l		**l > l**		**l > w**	

b. Branzilian Portuguese: l-vocalisation in both Codas __# = __C

V__V			V__#			V__C		
Bras.	Europ.		Bras.	Europ.		Bras.	Europ.	
sa[ɬ]eiro	sa[ɬ]eiro	salt cellar	sa[w]	sa[ɬ]	salt (noun)	sa[w]-gar	sa[ɬ]-gar	to salt
ca[ɬ]adu	ca[ɬ]adu	who is silent	ca[w]	ca[ɬ]	lime	ca[w]sa	ca[ɬ]sa	trousers
ma[ɬ]a	ma[ɬ]a	suitcase	ma[w]	ma[ɬ]	badly	ma[w]-vado	ma[ɬ]-vado	nasty
mu[ɬ]a	mu[ɬ]a	mule	su[w]	su[ɬ]	South	su[w]co	su[ɬ]co	furrow
vi[ɬ]a	vi[ɬ]a	town	vi[w]	vi[ɬ]	mean	fi[w]tro	fi[ɬ]tro	filter
l > w			l > w			l > w		

(7) Coda-effect on the preceding vowel (= closed syllable shortening, tonic lengthening)
a. Icelandic (Gussmann 2002:157ss):
short vowel in internal, but not in final closed syllables __C# ≠ __C.C

long VV		short V	
a. CVVCV	b. CVVTRV	c. CVVRTV	
staara	nɛɛp^{h}ja	kampʏr	stara "stare", nepja "bad weather", kambur "comb"
luuða	pɛɛt^{h}rɪ	haulvʏr	lúða "halibut", betri "better", hálfur "half"
fai:rɪ	aap^{h}ril	ha̰rka	færi "opportunity", apríl "April", harka "severity"

long VV			short V	
a. CVV#	b. CVVT#	c. CVVTR#	d. CVRT#	
puu	θaak^{h}	p^{h}ʏʏk^{h}r	sai̯̥lt	bú "estate", þak "roof", pukr "secretiveness", sælt "blessed neut."
t^{h}vɔɔ	hœi̯:s	sœœt^{h}r	pœlv	tvo "two, acc.masc.", haus "head", sötr "slumping", bölv "cursing"
fai̯:	k^{h}vœœl	snʏʏp^{h}r	k^{h}ʏmr	fæ "I get", kvöl "torment", snupr "rebuking", kumr "bleating"
	prjɛɛv			bréf "letter"

(8) Coda-effect on the preceding vowel (= closed syllable shortening, tonic lengthening)
b. Czech, Turkish
short vowel in both internal and final closed syllables __C# = __C.C
Czech

open syllable	closed syllable		
C__C-V	final: __C-ø	internal: C__C-CV	gloss
ža**a**ba	ža**b**	ža**b**ka	frog NOMsg, dim. GENpl, GENpl, dim. NOMsg
kr**aa**va	kr**a**v	kr**a**vka	cow NOMsg, dim. GENpl, GENpl, dim. NOMsg
jm**ee**no	jm**e**n	jm**e**nní	name NOMsg, GENpl, adj.

Turkish

open syllable	closed syllable		
C__C-V	final: __C-ø	internal: C__C-CV	gloss
mer**aa**k-ɨ	mer**a**k	mer**a**k-tan	curiosity NOMsg, NOMpl, poss.

(9) therefore
a. whether both Codas behave alike or not is unpredictable. We are obviously facing a parameter across languages.
b. identical distribution of misbehaving Codas for both consonantal and vocalic effects: only final Codas show parametrised behaviour. Internal Codas always behave in the same way: if there is a Coda-effect, it will occur in the internal location. Cases where final Codas produce reaction, but internal ones do not, are not on record.

non-arbitrary impairment of final and internal Codas / closed syllables

	internal	final
1. do consonants react in Codas ?		
Brazilian Portuguese	+	+
French	+	—
trivial	—	—
does not exist	**—**	**+**
2. do vowels react in closed syllables ?		
Czech	+	+
Icelandic, Palestinian Arabic	+	—
trivial	—	—
does not exist	**—**	**+**

c. one single cause for both consonantal and vocalic Coda-effects: the status of the Coda-consonant.

d. ==> there is no solution **ever** if "__#" and "__C" are defined in vertical = arboreal terms:
70s+early 80s: they are the same because they both enjoy the same vertical = arboreal status: Codas.
SGP: they are not the same because they do not enjoy the same vertical = arboreal status: one is a Coda, the other is an Onset.
the syllabic status of word-final consonants cannot be parametrised in SGP (and elsewhere): they cannot be Onsets in some languages, but Codas in others.

e. structure:
the contrast Onset vs. Coda is one of the "vertical islands" of SGP: a structure that is not lateral, but arboreal.

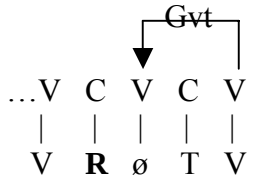
f. causality:
1. WHY are Codas weak? SGP: no answer other than "because Codas are weak".
2. WHY do vowels shorten in closed syllables? Two possible answers in SGP:
- because of the Binarity Theorem (depends on the wording and interpretation)
- because of Prosodic Government (Lowenstamm 1989): the head of the Rhyme must c-command all non-heads, i.e. *super-heavy Rhymes.

in any event, the reason is a "vertical island" of SGP: it appeals to vertical, not to lateral relations.

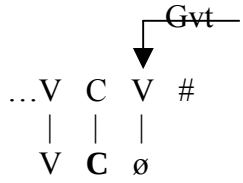
(10) ==> no hope unless we do away with vertical structure and causality

a. **lateralisation of structure**: CVCV. There is no vertical structure left AT ALL.
structure is exclusively defined in lateral terms:
1) Coda: a consonant sits in a Coda iff it occurs before a governed empty Nucleus.

internal Coda

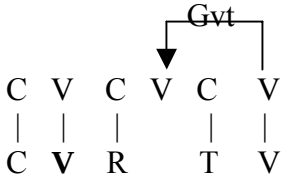


final Coda

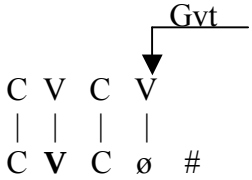


2) Closed syllable: a vowel stands in a closed syllable iff it occurs before a governed empty Nucleus.

internal closed syllable

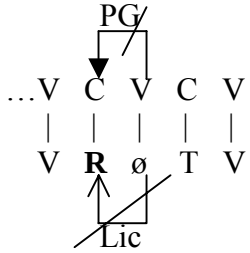


final closed syllable

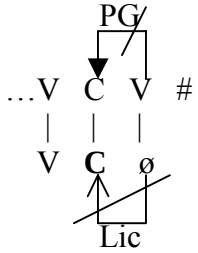


b. **lateralisation of causality**: the only reason for the occurrence of "syllable-sensitive" processes are lateral relations.
1) WHY are Codas weak? Because they are ungoverned and unlicensed, viz the Coda Mirror (Ségéral & Scheer 2001).

internal Coda __.C

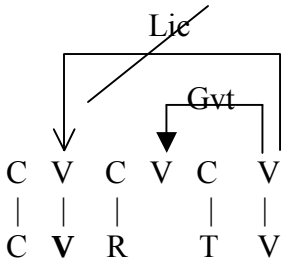


final Coda __#

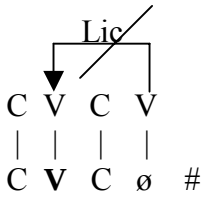


2) WHY do vowels shorten in closed syllables? Because they fail to be licensed, idea from Yoshida (1993), cf. Kaye (1990,1995), Scheer (1998), Rizzolo (forth).

internal closed syllable



final closed syllable



(11) hence, the wavering behaviour of the final Coda must be due to its lateral actorship:
   a. effects on Codas
      1. languages where final Codas do react (= behave like internal Codas):
         FEN cannot license
      2. languages where final Codas do not react (= do not behave like internal Codas):
         FEN can license
   b. effects on preceding vowels (= vowels in closed syllables)
      1. languages where vowels followed by final Codas do react (= behave like internal Codas):
         FEN cannot license
      2. languages where vowels followed by final Codas do not react (= do not behave like internal Codas):
         FEN can license
   c. hence, prediction:
      there is no difference between internuclear and vowel-to-consonant Licensing (same with Government). Therefore, if final Codas react themselves, the preceding vowel will as well. If they do not, the preceding vowel will not either. In other words, there is no language where there is an impairment of the reaction of final Codas and their preceding vowels.
      Looks like this is TRUE = "once extrasyllabic, extrasyllabic forever"

(12) summary: there are four basic nuclear objects

	lateral actorship parametrised	Licensing	empirical consequences
full vowels	NO	always license	
FEN	YES	+ licence	final Coda ≠ internal Coda i.e. neither final Codas nor the preceding vowel react
		- licence	final Coda = internal Coda i.e. both final Codas and the preceding vowel react
schwa	YES	another time, cf. Rizzolo (forth), Scheer (2001, forth)	
internal empty Nuclei	NO	never license	

Reason 2

(13) right-margin extrasyllabicity

a. what is extrasyllabicity?
the attempt to accommodate the strange behaviour of consonants at word-margins within a theory while weakening no theoretical device.

b. facts
consonants at the end of the word
1) are sometimes too numerous: germ Herbst, Haupt etc.
2) sometimes do not behave like Codas:
e.g. when final and internal Codas show impaired behaviour, cf. (6)a, (7)a

c. in presence of impaired behaviour, the principles
1) "Codas are weak positions, lenition occurs in ALL Codas"
2) "Closed Syllable Shortening occurs before ALL Codas"
are not abandoned. This is a good thing.

d. rather, all phonologists agree that word-final consonants under (6)a and (7)a do not belong to Codas. What is the alternative?
1. mainstream: they cannot be Onsets (there are no word-final Onsets); only alternative: they are neither Onset nor Coda, that is unsyllabified.
2. Government Phonology: they are Onsets.

(14) a. extrasyllabicity: how it works (e.g. Rubach & Booij (1990a,b)
extrasyllabicity is created by the parsing of a lexically unsyllabified string by a syllabification algorithm. Those segments that cannot be accommodated are left astray, i.e. extrasyllabic. Then phonological rules apply, and at some later derivational stage, the extrasyllabic consonant is reintegrated into the Prosodic Hierarchy, i.e. it is "adjoined" to some constituent (Onset, Coda, foot, prosodic word etc.). Parsing- and/ or sonority restrictions hold at "some deep level". Surface structure supports all violations thereof. Hence, the string [# rptkfxmlrt…] bears 9 extrasyllabic consonants after parsing, but is ok on the surface.

b. extrasyllabicity is illegal in Government Phonology for
1. it supposes a syllabification algorithm. But syllable structure is lexical in GP.
2. it supposes serialism. There is no such thing in GP.

(15) how does SGP express the parameter
Extrasyllabicity ON vs.
Extrasyllabicity OFF ?
It does not. It is unable to express this cross-linguistic variation. The parameter is ON for ALL languages in the world because word-final consonants NEVER share the syllabic analysis with internal Codas: the former are Onsets, the latter are Codas.

a. there is no way out since syllable structure is not parametrisable: it is wired in, no resyllabification or any other modification of constituency in GP !
b. the reason for the incapacity of encoding extrasyllabicity and reducing the disjunction __{#,C} is the same: __# and __C have contrasting syllabic identities, and this may be amended by no means.
c. now recall that GP is commonly challenged because of the existence of empty Nuclei: they are predicted by the theory, cause problems but do not serve any purpose.

(16) ==> everything is in place in order to
1) reduce the disjunction __{#,C}
2) express the parameter related to "extrasyllabicity"
the tool are Final Empty Nuclei.
if structure (CVCV) and causality (the Coda Mirror) are lateralised, the following parameter can be set.
Constituent structure cannot be parametrised, but lateral relations can.

		CVCV: FEN can license	mainstream: extrasyllabicity
Closed Syllable Shortening occurs	before both internal and final Codas	NO	OFF
	only before internal Codas	YES	ON
lenition occurs	in both internal and final Codas	NO	OFF
	only in internal Codas	YES	ON

(17) conclusion

a. FEN are not a useless and problematic remnant of pioneering GP times.
b. they are a necessary part of the grammar that carries an important functional load:
1. the disjunction __{#,C} remains forever unreduced without FEN.
2. no parameter covering extrasyllabicity can be set without FEN.
c. the parametrisation of their lateral actorship continues a core and identitary property of Government Phonology: to express parameters by the presence vs. the absence of lateral relations rather than by contrasting constituent structure.

doing away with FEN is GP-suicide.

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