Tobias Scheer
CNRS 6039, Université de Nice
scheer@unice.fr
this handout and more stuff at www.unice.fr/dsl/tobias.htm

Sounds of Silence
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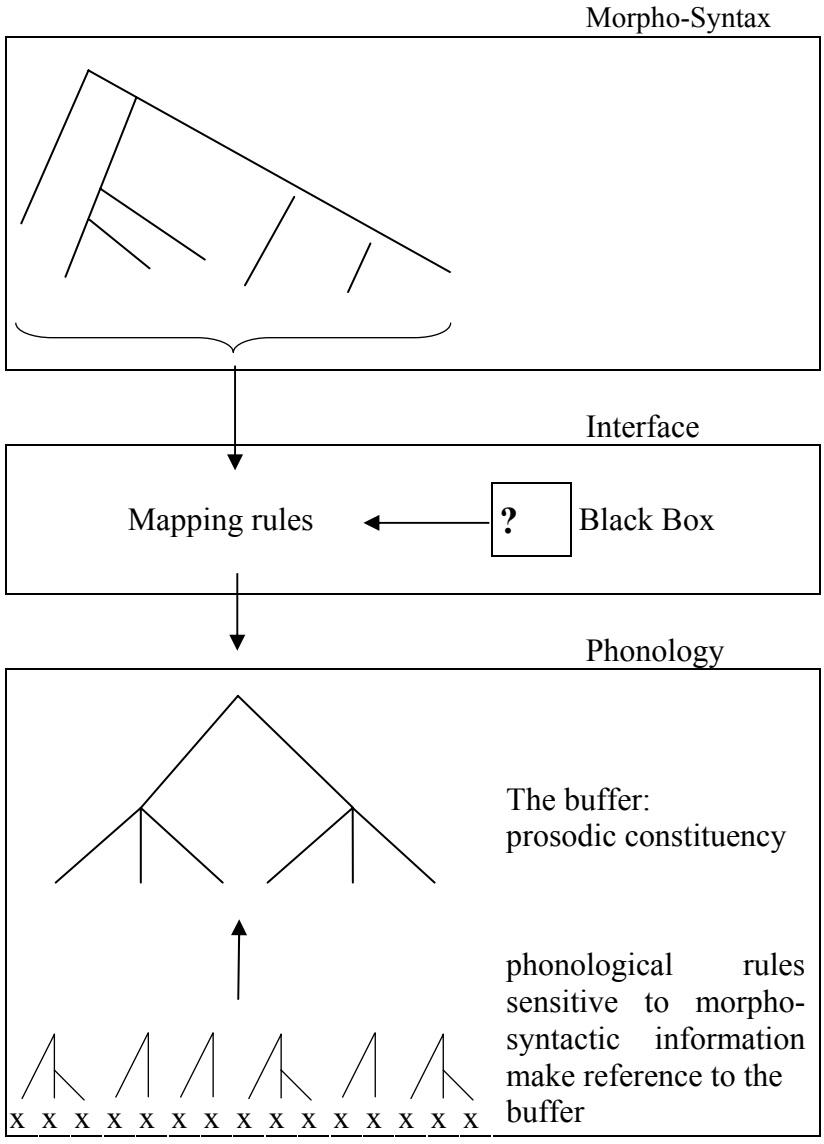
WHEN HIGHER MODULES TALK TO PHONOLOGY, THEY TALK TO EMPTY NUCLEI

I. Theory-unspecific part 1: Direct Interface, the buffer has to go

(1) The spine of the classical approach (SPE, Pros Phon): Indirect Reference
   a. since Selkirk (1981 [1978]), interface theory regarding the communication between phonology and the other modules of grammar is dominated by the central idea of Prosodic Phonology (PP): **Indirect Reference**..
   b. That is, phonological processes make only indirect reference to morpho-syntactic information. The latter is thus transformed into the Prosodic Hierarchy (which lies inside the phonology), to which phonological rules make reference.

(2) hence the central idea of PP: prosodic constituency, which I call **the buffer** (or the sponge) because its only function is to store morpho-syntactic information
   a. mapping rules are the **translator's office**: they transform morpho-syntactic information into prosodic constituency, which lies inside the phonology. They are the construction worker of the buffer.
   b. crucially (cf. non-isomorphism below), morpho-syntactic information is not conditioning mapping rules alone: boundary-grouping may also be a function of genuine and language-specific instructions.
   This is what I call the **Black Box**.
   c. the nature of the buffer is a secondary question: the grid (Selkirk 1984) or the regular arboreal constituency of PP.
   d. this general picture has not been modified by OT - it was only adapted to the new environment (tension between Wrap and Align, parametric variation of phrasing expressed by constraint interaction/ factorial typology, anti-cyclicity (OO, co-phonologies), etc.)

general architecture of Prosodic Phonology



(3) why the buffer exists

a. why should reference to morpho-syntactic structure be indirect? Why should phonology be burdened with several extra layers of arboreal structure and an extra mapping mechanism? Isn't this redundant?

b. direct-syntax approach: Kaisse (1985), Chen (1990), Odden (1987,1990).

c. basic argument against direct-syntax which has been repeated over and over again: **non-isomorphism**.
[Selkirk 1981 [1978], Nespor & Vogel 1986: all through the book:4f,34ff,124ff etc., Vogel & Kenesei 1990, Nespor et al. 1996 etc.]

d. non-isomorphism is the claim that some phonological rules make reference to information that is not contained in the morpho-syntactic structure. That is, to domains that do not represent any single node on the morpho-syntactic side.

e. let us examine two examples:

1. mismatch of phonological and morpho-syntactic domains
[this is the one originating in SPE p.371 that runs all through the literature]
This is [the cat that caught [the rat that stole [the cheese]]]
[This is the cat] [that caught the rat] [that stole the cheese]

2. reference to the domain of two sentences: there is no morpho-syntactic node that dominates two sentences. Nespor & Vogel's (1986) explanation here: the semantic relation between the two sentences of the second example is not tight enough.
   There's my mothe[r]. I've got to go.
   There's my mothe*[r]. I've got two cats.

f. both examples indeed show that phonological domains are non-isomorphic with morpho-syntactic structure. Therefore, goes the argument,
   1. the domains to which phonology makes reference must first be **created**: we need a parallel domain structure in phonology, **the buffer**, and its construction worker, **mapping rules**.
   2. the input to mapping rules is certainly morpho-syntactic structure, but not only: mapping rules take sovereign decisions how to build phonological domains that do not rely on the morpho-syntactic input.
      ==> this is what I call the **Black Box**.

g. **==> hence the existence of the buffer crucially hinges on non-isomorphism.**

(4) non-isomorphism evaporates when boundaries are used
   a. both examples above (and all others) have a straightforward explanation when boundaries are used instead of domains:
      1. every CP starts a new intonational unit.
      2. semantics/ pragmatics distribute boundaries that allow or block the linking of r.
   b. hence if phonological rules make reference to boundaries rather than to domains, there is no argument at all.
   c. in this case all the prosodic constituency and the mapping mechanism are redundant.

(5) therefore, the question arises why boundaries, the traditional interface currency (since the neogrammarians and unquestioned until PP), were replaced by domains
   a. Historical excursus: the real innovation of PP is the shift from boundaries to domains:

SPE (pp9s,371s)	PP
readjustment rules	mapping rules
phon rules make reference to the readjusted surface structure Σ', not to SS (=Σ) itself	indirect reference
Σ'	Prosodic Hierarchy
discrepancy between SS and the input to phonological structure: The cat that caught the rat that stole the cheese.	non-isomorphism
new: phonological rules make reference to boundaries	to domains
new: reference to Σ' only in case of non-isomorphism	always

   b. hence the motivation for replacing boundaries by domains is absolutely critical: domains are the only innovation of PP. PP hinges on non-isomorphism, which evaporates when boundaries are used instead of domains. Thus PP and indirect reference are immaterial if there is no good reason for replacing boundaries by domains.
      [note: SPE works with boundaries, but non-isomorphism was in issue then because the particular way that boundaries were defined and shipped off to phonology did not allow for capturing the cat-rat-cheese impairment.]

c. argumentation against boundaries is rare in the early PP literature, and absent since (and including) Nespor & Vogel (1986).

d. arguments raised:

1. the diacritic argument
   Rotenberg (1978:16ss, chapter "Against Boundaries"), Selkirk (1980a), Booij (1983,1985) and Szpyra (1989)
   nothing new: Pyle (1972) has provided the relevant arguments:
   - overgeneration: anything and its reverse can be described
   - diacritics are not linguistic objects (they are not just a peculiar kind of segments): p can become f, but not #.

   with the exception of the Selkirk's work (Selkirk 1978, 1980a,b, esp. 1984), the older juncture/ boundary/ SPE interface literature is almost completely absent from the PP literature.
   [e.g. Chomsky et al. (1956), Sag (1974), Basbøll (1975,1978a,b,1981a,b), McCawley (1968), Devine & Stephens (1976,1980), Stanley (1969,1973), Hyman (1978), Strauss (1979), Anderson (1974)]
2. domains have an independent motivation: stress, rhythm, music
   Selkirk (1980a:126ss,1984:8ss)
   - boundaries serve only interface purposes, while autosegmental structure can cover both domestic phonological properties (i.e. which exist independently of any interface issue) and interface information.
   - Selkirk (1986) (following Nespor & Vogel 1986 and the rest of the PP literature) abandons the ambition to melt all empirical properties at stake into one single set of representations: stress and rhythm are represented by the grid, and the grid is derived by a second mapping from prosodic constituency. This also follows Hayes' (1984:65,69) suggestion (which has become mainstream) that rhythm is only an accidentally linguistic property and lies outside of the grammar.
   - unifying stress/ rhythm and interface information has become a handicap as it was understood that both empirical events do not behave alike: see namely Inkelas (1990).

   ==> we are dealing with two independent empirical objects, so they must not be unified - everybody agrees on that today.

e. non-arguments:

> "in the theory of prosodic phonology, grammatical boundaries can be dispensed with in phonological representations." Booij (1983:268)

[also Selkirk (1981 [1978]:136ss)]
this is certainly true, but does not tell us why PP should be preferred in the first place.

f. the real reason why boundaries were replaced by domains:
PP is a child of autosegmentalism - in fact it is an autosegmentalised version of the SPE interface theory.
In the early 80s when phonology was progressively autosegmentalised in every area, Selkirk clearly identifies the motivation for abandoning boundaries in favour of domains:
if everything is autosegmental, so must the interface be, hence we must eliminate ugly linear boundaries and build some autosegmental, i.e. arboreal structure instead.

> "the syllables of phonological representation are arranged in some kind of hierarchical organization. […] By 'hierarchical organization' we mean, very roughly speaking, the organization of the units of phonological analysis into layers, vertically arranged on the same plane. […] This conception of phonological representation as having its own hierarchical structure(s) demands a radical rethinking of the relation between syntax and phonology. […] Thus the interpretation question - the question of the mapping between phonological representation and syntactic representation - takes on a much greater importance than in the standard theory, and has an entirely different quality to it. It must be viewed as a characterization of the relation between the syntactic hierarchy, on the one hand, and the phonological hierarchy (or hierarchies), on the other." Selkirk (1984:7f)

Therefore,

> "the junctural properties of sentences should be somehow represented 'suprasegmentally' rather than as the segmental boundaries of the standard theory. […] Thus the theory of phonological representation that we will advocate here eliminates segmental boundary elements altogether." Selkirk (1984:8)

d. already in Nespor & Vogel (1986), the transition with linear SPE plays no role anymore: domains are taken for granted. The later PP literature does not examine this question anymore.
For over 20 years PP stands unchallenged as the generative interface theory. The success may be appraised when considering that the units of PP - the phonological word, the phonological phrase etc. - have become descriptive categories in every-day conversation of phonologists.

(6) Thus what are we left with?

a. boundaries are diacritics and that is bad. Interface, as any other linguistic theory, must not rely on diacritics. We need a diacritic-free theory (without pink panthers: Scheer 2004:§§84,87).

b. does domain-based PP offer a non-diacritic alternative?
NO ! The Prosodic Hierarchy - the buffer - IS a diacritic, if an autosegmental one.
It serves no other purpose than storing extra-phonological information, its labels are perfectly arbitrary (prosodic word etc.) and correspond to nothing that is known from domestic phonology, morphology or syntax.

this is overtly admitted by Inkelas & Zec (1995):

> "An early version of p-structure was proposed in SPE and developed in subsequent work (Selkirk 1972,1974; Rotenberg 1978). According to this view, domains of phonological rules are expressed in terms of phonological boundary symbols, generated by rules. […] Far more constrained is the 'prosodic' view of p-structure. Under this view, p-structure occupies a level with its own hierarchical organization and a high degree of autonomy." Inkelas & Zec (1995:537s)

[also Vogel & Kenesei (1990:344)]
Hence domains are but the modern version of SPE-diacritics: the agents of morpho-syntax in phonology.

c. hence there is no reason to favour domains over boundaries: both are diacritic, both are bad and must be done away with.
[the question whether the PP-buffer is a diacritic is never asked by people who argue against SPE-type boundaries on the grounds of their diacritic character. Only Kaisse (1990:128) calls attention on the fact that the Prosodic Hierarchy is just as diacritic as SPE-type boundaries.]

d. finally, there is one property of boundaries that is never mentioned and which I believe is their real soul: boundaries are **LOCAL**.
   1. this is what really opposes them to domains: boundaries define the relation between two **adjacent** morphemes or words.
   2. by definition, domains are non-local. They span a number of elements of the linear string, thereby creating labelled clusters: an individual element of the linear string *belongs* to a domain, but it cannot *belong* to a boundary –one cannot even make sense of this expression. It does not make sense either to talk about domains that intervene, or are located between two elements of the linear string.
   3. it is the LOCAL character of boundaries that makes non-isomorphism evaporate.

e. hence "boundaries" have a good (local intervention) and a bad (diacritic) property. Eliminating them by just talking about the latter is throwing out the baby with the bath.

(7) So what should we do ?

a. eliminate all diacritics, i.e. the buffer.

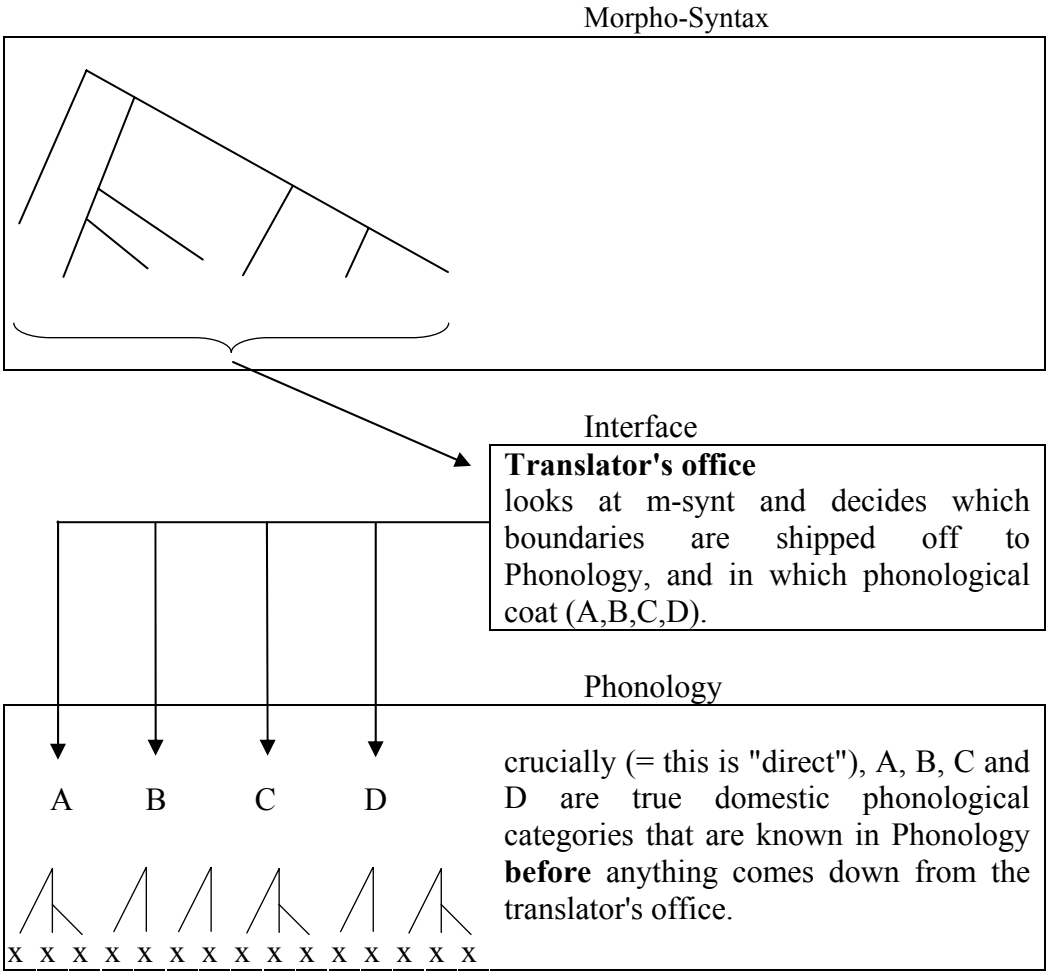
b. stick to **local** intervention of higher modules.

c. avoiding any layer of objects between the translator's office and domestic phonology means that the output of the translator's office must be truly phonological objects, i.e. which exist in domestic phonology anyway and independently of any issue related to inter-modular communication.
==> this is what I call **Direct Interface**.

d. obvious consequence: you can do that only of your domestic phonology has representations. The plug-ins that come down from the translator's office are things that are ADDED to the regular course of phonology. Hence these plug-ins are objects that materialise as representational units.

Some speculation:
these plug-ins couldn't be a constraint: the constraint set is invariable.
Could it be a reranking-order? Perhaps, but this would mean that there is reranking between the "regular domestic" course of phonology and any time higher modules intervene - probably not a workable option.

Direct Interface: general architecture



(8) If the buffer is redundant and non-isomorphism is not a problem anymore, why don't we make direct reference to morpho-syntax?
Why do we need a translator's office at all?
We still need a translator's office: not for the sake of non-isomorphism. But there are two good arguments:

a. modularity
the modular postulate disables different modules to see what is going on in each other. Selkirk (1984) uses this argument:

> "The syntax and the phonology are entirely autonomous components, the rules of syntax making no appeal to phonology and vice versa. Mediating between these components, however, are two others that define the relation between the syntactic and phonological representations of a sentence. The principles of these components have a mixed vocabulary." (Selkirk 1984:410f)

b. phonology and syntax do not speak the same language
[closely related to modularity]
- as far as I can see, this argument is entirely absent from the PP literature. It has been extensively used by Jackendoff (1992,1994,1997,2002) and Starke (who is not good friends with ink).
- number, person, verbs, nouns, quantification, aspect and so forth are categories that are understood and processed in syntax as well as in morphology and semantics. Phonology does not even know what quantification etc. is. On the other hand, the higher modules do not know what occlusion, palatality or an Onset is.
- this is what Jackendoff calls Representational Modularity

> "The overall idea is that the mind/ brain encodes information in some finite number of distinct representational formats or 'languages of the mind.' Each of these 'languages' is a formal system with its own proprietary set of primitives and principles of combination, so that it defines an infinite set of expressions along familiar generative lines. For each of these formats, there is a module of mind/ brain responsible for it. For example, phonological structure and syntactic structure are distinct representational formats, with distinct and only partly commensurate primitives and principles of combination. Representational Modularity therefore posits that the architecture of the mind/ brain devotes separate modules to these two encodings. Each of these modules is domain specific.
> […] The generative grammar for each 'language of the mind,' then, is a formal description of the repertoire of structures available to the corresponding representational module." Jackendoff (1997:41)

> "'Mixed' representation[s] should be impossible. Rather, phonological, syntactic and conceptual representations should be strictly segregated, but coordinated through correspondence rules that constitute the interfaces." Jackendoff (1997:87ss)

II. Theory-unspecific part 2: what the Interface looks like and what it can(not) do

(9) general picture

a. in absence of higher level intervention, phonology is subjected only to its own law. This situation is met
   1. morpheme-internally
      locality: higher levels have bearing only on objects that are adjacent to the boundary at hand. This is an obvious observational fact: nobody has ever seen any morpho-syntactic influence in the middle of a morpheme.
   2. at morpheme edges if higher levels do not send any postcard, i.e. decide not to intervene.

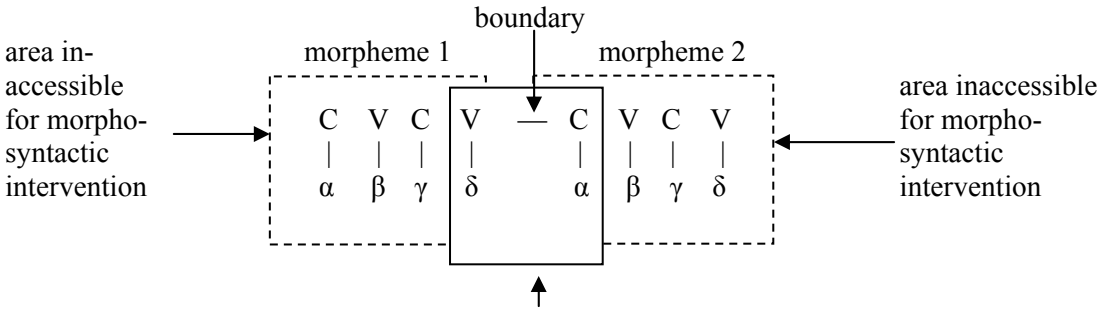
b. at morpheme edges (and only here), phonological law may be forced to cohabitate with alien law, i.e. whose origin are other modules. If higher levels decide to intervene, their law outranks the domestic phonological law.

c. another obvious restriction: higher levels do not have bearing on melodic units, i.e. on anything that is going on below the skeleton. Processes whereby a velar gets palatalised by the morpheme boundary X are unheard of. In these cases everybody supposes that the morpheme in question is a floating palatal agent.
   Hence higher levels may alter the course of an existing phonological process, but do not create new processes.

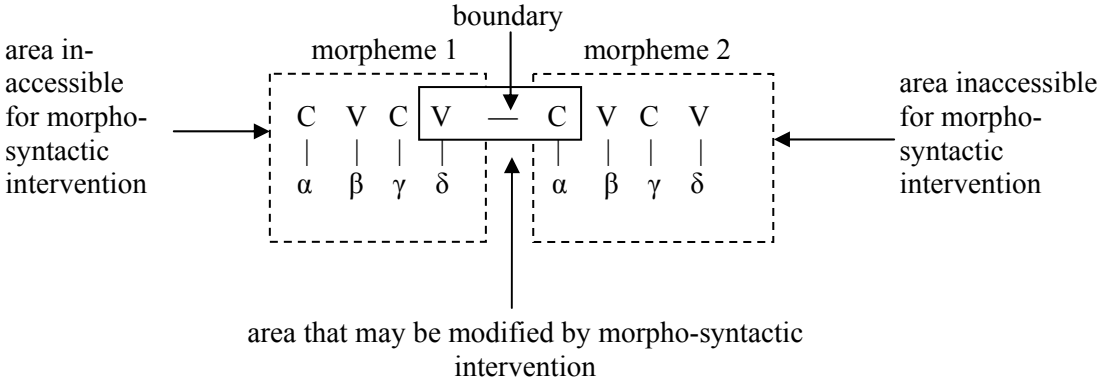
d. Privativity:
thus **nothing** happens, **nothing** is shipped off from higher levels and the interface does not work at all in case phonology follows its purely domestic rule: morphemes are concatenated, and phonology is done, period.
It is an empirical fact that phonology is heavily underfed with higher level information, of which only a vanishingly small subset has any effect in phonology.
Privativity is an important question that runs through the interface literature since the 50s (but there is no time here to go into this).

1. proponents of privativity (you project into phonology only what changes the course of phonology):
   Chomsky et al. (1956).
2. proponents of non-privativity (you project everything into phonology no matter whether it has any effect):
   - SPE: put everything into the phonology and erase it when phonology is done.
   - Prosodic Phonology: to a lesser extent; the prosodic constituency replicates most, but not all of the morpho-syntactic tree, whether or not it has any effect in phonology. Paradoxically, proponents of PP have used the privativity argument against the direct syntax approach (e.g. Bickmore 1990, Inkelas & Zec 1990:xv).

(10) locality: areas not adjacent to the boundary cannot be accessed by higher levels.



(11) locality and melodic restriction: areas not adjacent to the boundary cannot be accessed by higher levels, nor can melody.



(12) the translator's office and its outlet

a. strict modularity: morpho-syntax does not know that phonology exists, phonology does not know that syntax exists. Only the translator's office knows about the general picture. All decisions are taken in the translator's office:
   1. which morpho-syntactic boundaries are shipped off to phonology
   2. how they are grouped
   3. in which specific phonological coat (A-D) they are sent down.

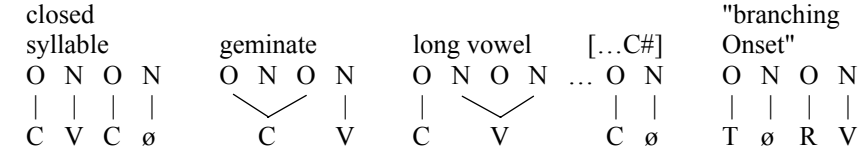
b. the outlet of the translator's office (A-D) are true phonological objects that exist in phonology independently of any interface issue. They are therefore **theory-specific**: every theory has its own vocabulary.

c. the direct effect:
   different phonological theories make different predictions as to what can be A-D, hence this has potentially an empirical content and may be used in order to run theories against reality, i.e. to evaluate them.
   PP can work with any phonological theory: the prosodic constituency will always be the same, and different theories below the PP tree will not make any contrasting predictions.
   ==> predictive advantage of Direct Interface.

d. some things are not possible anymore without the buffer: for example to adjoin extrasyllabic/ extrametrical objects to "some member of the Prosodic Hierarchy" in order to save its pronounciation. But being unable to do this is probably good anyway because unlike for syllabic constituents nobody has ever defined what kind of material, in which order and how many items a prosodic word etc. can accommodate. Hence there could be 3, 7 or 25 extrasyllabic consonants in a row, all attached to some node of the prosodic hierarchy. This is certainly not something a theory should be able to do.

III. Theory-specific part: Direct Interface in CVCV

(13) basic phonological categories in the version of CVCV that is exposed in Scheer (2004) [more on CVCV: Lowenstamm (1996,1999), Scheer (1999), Szigetvári (1999,2001), Szigetvári & Scheer (2005) etc.]



a. Onsets
b. Nuclei
c. Government
d. Licensing
e. all lateral relations are head-final (i.e. regressive)
f. minimal skeletal unit: Onset + Nucleus = CV

(14) the DIRECT effect: illustration

true phonological objects make predictions in phonology precisely because phonology reacts on them, and in any theory this reaction may be calculated beforehand.

a. diacritics do not make any prediction: "#" could trigger or block any phonological process and its reverse. A CV unit cannot.

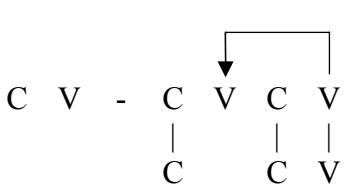
b. example

language A: ø → V / #C__C

language B: V → ø / #C__C

are both possible natural languages when using #: the object "#" does not rebel against language B, which of course is non-human. Because "#" does not make any prediction at all, it has no predictable effect on phonology: it could trigger any process and its reverse.

By contrast, CVCV and # = CV (Lowenstamm 1999) makes a clear prediction:



erasing the vowel is impossible because this leads to a situation where the initial V remains orphan: the structure is ill-formed.

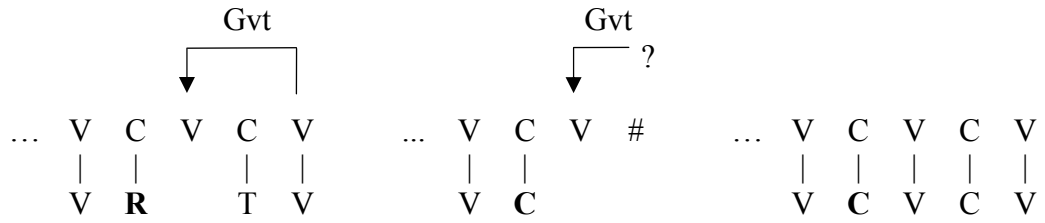
(15) **Lateralisation of Structure and Causality**

[the core of the research programme of Government Phonology]

a. **lateralisation of structure**

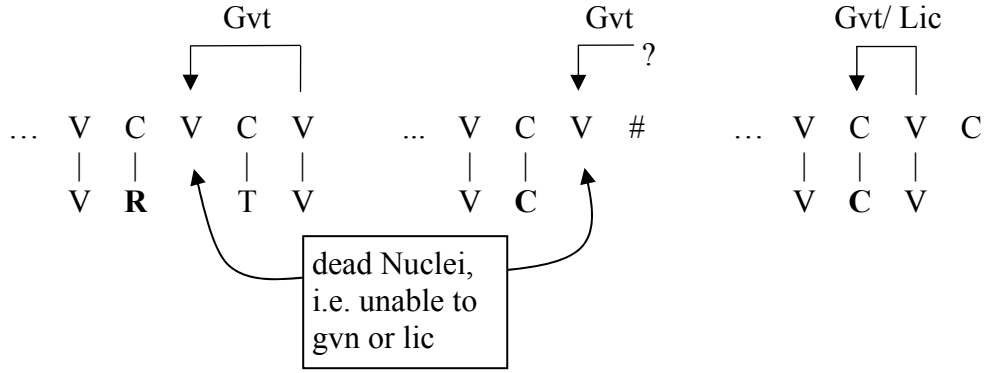
definition of the Coda: a Coda is a consonant that occurs before a governed empty Nucleus. Governed Nuclei are laterally disabled, i.e. cannot be the source of any lateral relation.

1. internal Coda 2. final Coda 3. Onset



b. **lateralisation of causality**: why the Coda is weak, rather than strong
the reason for the existence of syllable-related processes are lateral relations.
WHY are Codas weak? Because they are ungoverned and unlicensed (the Coda Mirror, Ségéral & Scheer 2001).
- a Coda is both ungoverned and unlicensed (because the following Nucleus is empty and hence laterally disabled = cannot dispense either Gvt or Lic).
- an Onset is both governed and licensed (because its Nucleus is laterally enabled).

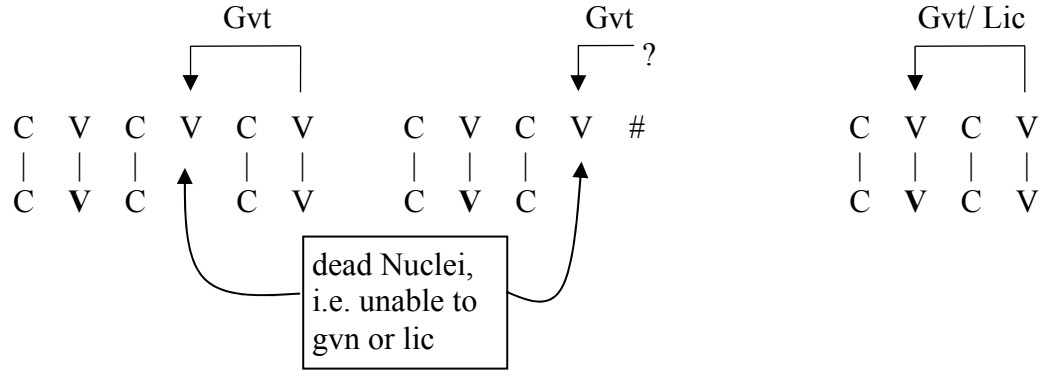
1. internal Coda 2. final Coda 3. Onset



c. **lateralisation of causality**: why vowels in closed syllables are weak, rather than strong
answer: they occur before a governed empty Nucleus, i.e. which cannot license or govern.
==> vowels are licensed and governed in open, but unlicensed and ungoverned in closed syllables.

closed syllable: the vowel is followed by a dead Nucleus, i.e. remains ungoverned and unlicensed

open syllable: vowel followed by a laterally enabled Nucleus



d. long vowels [Scheer 2004:§218]
the complement of long vowels must be licensed

a. non-alternating long vowel: right-headed, i.e. a self-licensor

b. alternating long vowel: left-headed, i.e. needs support from the right

in open syllable: complement licensed

in closed syllable: complement unlicensed

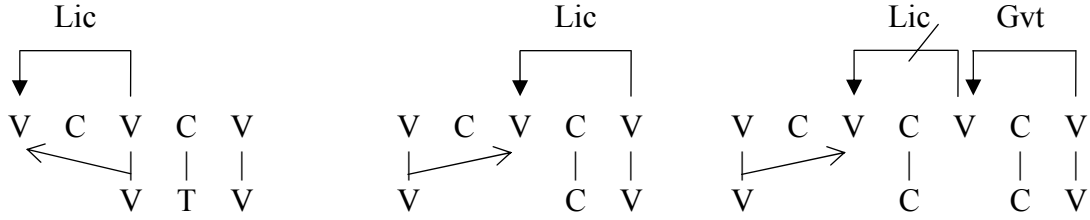


Illustration of Direct Interface in CVCV for one particular set of data: Coda effects

(16) Coda effects on
1) its own body
2) the preceding vowel (closed syllable effects)

a. empirical situation:
- internal Codas always behave like Codas.
- final Codas may or may not behave like Codas. In case they do not they are traditionally interpreted as extrasyllabic.

b. illustration: non-arbitrary impairment of final and internal Codas / closed syllables (data cf. appendix)

do consonants in Codas react ? Example: l-vocalisation

Brazilian Portuguese	+	+
French	+	—
trivial	—	—
does not exist	—	+

do vowels in closed syllables react ? Example: closed syllable shortening

Turkish	+	+
Icelandic, Palestinian Arabic	+	—
trivial	—	—
does not exist	—	+

c. hence
- there is variation at the end of the word, but not word-internally.
- any theory must be able to encode this fact. The inexistence of the 4th case then follows.

d. "once extrasyllabic, always extrasyllabic"
final consonants always behave the same wit respect to their own body and the preceding vowel: either in both cases they follow internal Codas, or in both cases they do not.

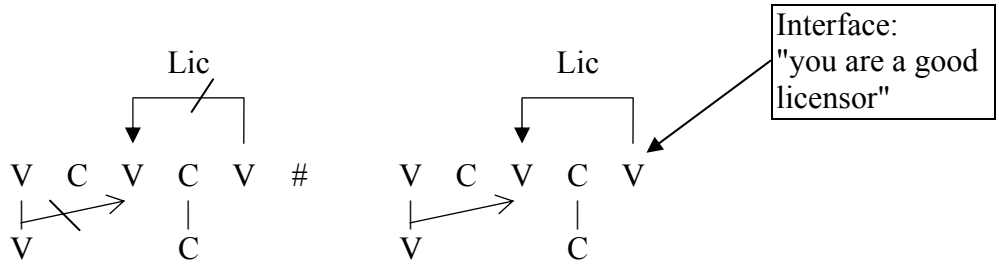
e. hence one single parameter setting must be able to achieve a double result.
- extrasyllabicity is able to do that
- how could this be done in CVCV?

(17) why a consonant shows Coda behaviour, and why vowels in closed syllables react
   a. effect on the Coda itself:
      a Coda consonant is neither governed nor licensed, cf. (15)b.
   b. effect on the vowel preceding the Coda:
      vowels in closed syllables are unlicensed and ungoverned, cf. (15)c.
      In case of Closed Syllables Shortening, they are short because they are unlicensed, cf. (15)d.
   c. ==> in both cases, the origin of the critical lateral relation is the same: the following Nucleus.
   d. how it works
      1. there is no variation morpheme-internally because the domestic phonological rule is always the same and higher modules can only intervene at morpheme boundaries.
      2. there is variation at the end of the word because here higher modules can intervene.
      3. hence paired vs. impaired behaviour of both Codas depends on whether the FEN can or cannot license. On domestic phonological grounds it cannot. It may be given this power only by the intervention of higher modules: "you are a good licensor".

(18) Closed Syllable Shortening
in the Turkish-type language final empty Nuclei cannot license, while they can in the Icelandic-type language.

*VVC# in **Turkish**: only domestic phonological rule, no higher intervention

VVC# in **Icelandic**: higher order: "FEN, you are a good licensor"



(19) The overall picture
the properties of CVCV make precise predictions regarding the possible outlet of the translator's office
a. recall that A-D can only be objects above the skeleton: "no melody"
b. recall that only objects adjacent to the boundary may be manipulated
c. the properties of CVCV together with these restrictions define exactly four ways how the Interface can influence phonology:
[the outlets A-D]
1. influence on the phonological properties of FEN
- FEN, you are governed
effect: the language does or does not have word-final consonants
- FEN, you are a good governor
effect: the language does or does not have word-final consonant clusters
- FEN, you are a good licensor
effect: cf. above.
2. modification of the syllabic space: insertion of a CV unit.
effect: variable. E.g. the language does or does not have word-initial restrictions on consonant clusters; the first consonant of a word is strong or weak (cf. Seigneur-Froli (2003, forth).

(20) non-events predicted by the properties of CVCV
a. FEN, you are licensed
there is no correspondent empirical effect: nothing depends on whether a FEN is licensed or not.
b. modification of empty Onsets
syllable structure is a function of lateral relations, and these originate only in Nuclei. Hence Onsets do neither govern nor license, thus nothing could be modified by the Interface.
c. consequence:
1. beginning vs. end of morpheme asymmetry
2. empty Onsets occur only at the beginning of morphemes
3. empty Nuclei occur only at the end of morphemes
==> this is the reason why the host of higher-level-conditioned phenomena occur at the right, not at the left edge of morphemes. 3 out of 4 outlets concern the end of morphemes.

(21) conclusion
a. we need a translator's office: modularity, different languages (of the mind).
b. we need an interface without any buffer.
c. we need a DIRECT Interface: its output must be true phonological objects.
d. the actual identity of the output is theory-dependent: different theories have different vocabulary, hence allow the output to be make different objects that have make different predictions in the phonology. This is an instrument for comparing the merits of different phonological theories: unlike in PP where the Interface was theory-neutral, you will have to talk about phonological theory before you can address the interface.

e. local vs. non-local interactions with higher modules
the impact of Direct Interface needs to be evaluated in several domains:
- there are non-local interactions with higher modules, and these boil down to what is classically called suprasegmental (hardly an accident): stress, intonation. Stress is a "counting phenomenon". These phenomena cannot be managed with local instruments.
  Revival of the old notion of Sandhi: this is what local intervention is about.
  Do we then need domains for stress? No: Szigetvári & Scheer (2005).
- serialism (= cyclicity): Direct Interface probably eliminates all serialism that may be associated with sandhi phenomena, but is probably toothless against stress-related serialism such as class 1 - class 2 affixes in English (párent, paréntal vs. párenthood).
  This is nothing new: no serialism inside the phonology, but the interaction of phonology with other modules is serial (Lexical Phonology, Kaye 1995, DOT, Stratal OT).

f. something new:
since the 19th century interface information has always been represented by diacritics in phonology: juncture phonemes, SPE-type #s, the Prosodic Hierarchy.
Direct Interface offers a different perspective, i.e. one without any buffer.
This forces different phonological theories make different predictions - hence we will be able to evaluate phonological theories not only with respect to their domestic merits, but also with respect to their interface behaviour.

g. why there is no recursion in phonology
the absence of recursion in phonology is a well-known empirical fact. Hence phonological theory must not be able to produce recursion. What is recursion? Recursion is the result of an arboreal structure whereby an object dominates an object of the same kind. Hence in an environment where there is no arboreal structure, there could not possibly be any recursion. In short, "no trees, hence no recursion without Merge".
Neeleman & Koot (ms) make the same point: there must not be any trees in phonology.
1. an effect (not a goal !) of Government Phonology in general and of CVCV in particular is the lateralisation of syllable structure, i.e. the replacement of syllabic trees by a flat structure.
2. Szigetvári & Scheer (2005) argue that it is advantageous to treat stress in a flat environment.
3. now the buffer = the prosodic tree goes.

==> there are no trees left in phonology (above the skeleton). Hence there could be no recursion.

Appendix

(1) 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		

(2) 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	sai̯̊lt	bú "estate", þak "roof", pukr "secretiveness", sælt "blessed neut."
t^{h}vɔɔ	hœ̆i:s	sœœt^{h}r	pœlv	tvo "two, acc.masc.", haus "head", sötr "slumping", bölv "cursing"
fa͡i:	k^{h}vœœl	snʏʏp^{h}r	k^{h}ʏmr	fæ "I get", kvöl "torment", snupr "rebuking", kumr "bleating"
	prjɛɛv			bréf "letter"

(3) 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 C__C-V	closed syllable final: __C-ø	closed syllable internal: C__C-CV	gloss
ža**a**ba	ža**a**b	ža**a**bka	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 C__C-V	closed syllable final: __C-ø	closed syllable internal: C__C-CV	gloss
mer**aa**k-ı	mer**a**k	mer**a**k-tan	curiosity NOMsg, NOMpl, poss.

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