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DOMAINS IN PHONOLOGY:
WHY PHONOLOGISTS BELIEVE THEY EXIST, HOW THEY REPRESENT THEM AND WHAT THEY ARE GOOD FOR

(1) in a nutshell
  a. phonology is full of domains. Domains fall into two categories
    1. those that are defined by phonology alone. Example: a branching Rhyme, a governing domain etc.
    2. those that are defined by higher levels of grammar. Their existence is theory-independent, but their representation is not.
       ==> how is higher level information (morphology, syntax, semantics) represented in phonology ?
  b. I address the latter kind. After a review how this issue has been treated (or non-treated) in phonological theory over the past 50 years, I establish a catalogue of desiderata, and finally make a proposal.

(2) domains that depend only on phonology
  a. co-occurrence restrictions define domains: a certain portion of the linear string is given a specific status.
     …VC_1C_2V… may come out as

     …V.TRV… or …VR.TV…
     that is, C_1 may "belong" to the preceding or the following vowel.
     This partition can be argued to identify a domain - a syllabic domain.

     …x x x x [x x x] x x x x…

     This is exactly parallel to syntax, where co-occurrence restrictions are also the basic factor for the identification of specific portions of the linear string - the constituents.
  b. the representation of these portions in the linear string is theory-specific
    1. classical: arboreal structure
    2. Government Phonology: lateral relations
  c. on the empirical side, there are countless reasons why a given portion of the linear string may be granted a specific status:
    1. the most obvious one are the co-occurrence restrictions mentioned - this is common to all theories.
       But there are other reasons:
    2. domains of vowel harmony depend on morphology, but in addition may also be defined phonologically: opaque segments, i.e. which prevent harmony from spreading
    3. domains of palatalisation, nasality etc.

On the empirical side: how higher levels impact phonology

(3) Examples: how higher levels can influence phonology
morphology is the master
English level 1 vs. level 2 affixes
párent - parént-al vs. párent-hood
-al is stress-shifting, -hood is not.

in- is homorganising its nasal: im-possible, i[ŋ]-credible etc.
un- is not: u[n]-predictable, u[n]-critical etc.

level 1 *-in, -ity, -ic, -ian, -ory, -ary, -ion, -ate*, the adjectival *-al* and the noun-forming *-y*
level 2 *un-, -ness, -less, -hood, -like, -dom, -ful, -ship*, the adjectival *-ed* and the noun-forming *-ing*

(4) Examples: how higher levels can influence phonology
morphology is the master
French gliding (Dell 1976:109, Selkirk 1972:385ss)

a. the stem does not contain any glide: inflected forms with zero endings

je lie	[li]	I relate
je loue	[lu]	I rent
je sue	[sy]	I sweat

b. vowel- initial suffixes do not contain any glide: C-final stems (*chant-* "to sing")

chant-er	[ʃãt-e]	-e infinitive	chant-ons	[ʃãt-ɔ̃]	-ɔ̃ 1sg pres
chant-ez	[ʃãt-e]	-e 2pl pres	chant-a	[ʃãt-a]	-a 3sg pasé simple
chant-ais	[ʃãt-ɛ]	-ɛ 1,2sg pret	chant-e-ra	[ʃãt-ə-ʁa]	-ə future, conditional

c. concatenation of a V-final stem and a V-initial suffix

	-er inf. -ez 2pl pres	-ais 1,2sg pret	-ons 1sg pres	-a 3sg pasé simple	-e- future, cond.
li-er	[li-j-e]	[li-j-ɛ]	[li-j-ɔ̃]	[li-j-a]	[li-j-əʁa]
lou-er	[lu-w-e]	[lu-w-ɛ]	[lu-w-ɔ̃]	[lu-w-a]	[lu-w-əʁa]
su-er	[sy-ɥ-e]	[sy-ɥ-ɛ]	[sy-ɥ-ɔ̃]	[sy-ɥ-a]	[sy-ɥ-əʁa]

d. concatenation of a V-final prefix and a V-initial stem

bi-annuel	[bi-anyɛl]	*[bi-j-anyɛl]	"bi-annuel"
anti-existentiel	[ãti-ɛksistãsjɛl]	*[ãti-j-ɛksistãsjɛl]	"anti-existential"
anti-alcoolique	[ãti-alkoolik]	*[ãti-j-alkoolik]	"anti-alcoholic"
archi-ondulé	[aχʃi-ɔ̃dyle]	*[aχʃi-j-ɔ̃dyle]	"very undulated"
archi-ennuyeux	[aχʃi-ãnyɥijø]	*[aχʃi-j-ãnyɥijø]	"very boring"

(5) Examples: how higher levels can influence phonology
syntax is the master
classical example from French: liaison (Dell 1973:43, Encrevé 1988 etc.)
allez vous [z] écouter "go and listen to yourself", vous is the object of écouter
*allez-vous [z] écouter "will you listen to X ?", vous is the subject of écouter

un savant [t] anglais "an erudite englishman", savant is an adjective
*un savant [t] anglais "an English scholar", savant is a noun

(6) Examples: how higher levels can influence phonology
semantics is the master
classical templatic morphology in Semitic (and elsewhere):
a semantically defined class of words appears in a specific phonological coat
e.g. Classical Arabic:

I unmarked	$C_1VC_2VC_3$-	katab-uu "they have written"
II causative	C_1VC_2 C_2VC_3-	kattab-uu "they have caused to write"
III reciprocal	$C_1VVC_2VC_3$-	kaatab-uu "they have written to each other"

etc.

The representation of higher level information in phonology - a short history

(7) possible effects of higher level information in phonology
- a. Morphological structure is "invisible" to the phonology
  given two morphemes M_1 and M_2, their concatenation may have no effect at all: phonology works as if there were no morpho-syntactic division, i.e. as if the sequence of sounds were monomorphemic.
  ex.: parén-tal, li[j]a
- b. Morphological structure is "visible" to the phonology
  given two morphemes M_1 and M_2, their concatenation may
  1. block a process that would apply if the morpho-syntactic division were not there.
     ex.: párent-hood, bi-annuel
  2. be a condition on the application of a process that would not take place if the morpho-syntactic division were not there. These cases are known as derived environment effects.
     so-called derived environment effects (Kiparsky 1982), examples to come

(8) derived environment effects
English [gN] – [N] and [mn] – [m] alternations (Mohanan 1986:21ss)
g/ n-deletion occurs only before level II suffixes

	__#	__-V	
		level II suffixes	level I suffixes
a. [gN] – [N]	[N]	[N]	[gN]
	sign	sign-ing	sign-ature, sign-al, sign-ify
	resign	resign-ed	resign-ation
	assign	assign-ment	assign-ation
	design	design-ed, design-s	design-ate
	malign	malign-ing, malign-ed	malign-ant, malign-ity
	benign	—	benign-ity, benign-ant
	paradigm	—	paradigm-atic
b. [mn] – [m]	[m]	[m]	[mn]
	solemn	—	solemn-ity
	damn	damn-ing	damn-ation
	condemn	condemn-ing	condemn-ation
	hymn	hymn-ing, hymn-ed	hymn-al, hymn-ology, hymn-ary, hymn-ic
	column	column-s, column-ed	column-al
	autumn	—	autumn-al

(9) American Structuralism

a. level independence
"One of the essential characteristics of the American descriptivists' phonemic level, a consequence of their theory of discovery procedures, was its autonomy from syntax, semantics, and morphology. One was supposed to be able to do a phonemic transcription which did not refer to higher levels of analysis. Indeed, according to the theoreticians, one was supposed to be able to do a phonemic analysis without having a clue as to the higher structure of an utterance. In the case of juncture, the phonemic transcription could not refer to the fact that *night rate* is a compound consisting of two words, while *nitrate* is one single morphological unit. One could not account for phonetic distribution in terms of morphology and syntax." Aronoff (1980:30)

b. example of structuralist embarrassment I:
is aspiration distinctive in German? (Moulton 1947)
"minimal pair":
ich antworte: Terrasse [ʔɪçˌʔantvoʁtətʰɛˈʁasə] "I answer 'terrace'"
vs.
ich antwortete: Rasse [ʔɪçˌʔantvoʁtətɛˈʁasə] "I answered 'race'"
example of structuralist embarrassment II:
is the glottal stop distinctive in German?
den Bauer kennen [deenˈbauʁˌkɛnən] "(to) know the farmer"
vs.
den Bau erkennen [deenˈbauʔʁˌkɛnən] "(to) recognize the building"

c. example of structuralist embarrassment III:
"minimal pairs" with [χ] and [ç] and the diminutive morpheme -chen:
tauchen [χ] "to dive" vs. Tau-chen "little rope"
Kuchen [χ] "pie" vs. Kuh-chen "little cow"

d. Moulton's conclusion: juncture phoneme
argument: economy. Instead of three phonemes
/ç/, /ʔ/ and /aspiration/
he gets away with just one: /+/, a juncture phoneme: /Kuchen/ vs. /Kuh+chen/.
Crucially, the juncture phoneme /+/ is a phoneme, not a morpheme, even though its identity is morphological.
As many other segmental phonemes, /+/ produces allophonic variation: "at the beginning or end of an utterance it appears as a pause of brief duration or, in free variation with this, as zero" (Moulton 1947:220)

e. consequence: boundary abuse (structuralist): no morpho-syntactic control
as all other phonemes, the occurrence of /+/ is unpredictable. Hence it does not need to coincide with morpho-syntactic divisions.
Examples: Harris (1951:87s)
German has final devoicing. Hence /D/ is realised [t] before #. This enables us to reduce the phonemic inventory: /T/ may be eliminated altogether, economy strikes again: any [t] is in fact /D#/. The identity of *Teil* is /D#eil/ etc.
Trager (1962) for example is explicit on the fact that juncture phonemes are completely estranged from any morphological or syntactic correlate. Hill (1954:440) is another case of heavy boundary abuse.

f. summary
   1. structuralists were forced into juncture hocus-pokus by level independence.
   2. my take: they were right - by accident
   3. they have **translated** morpho-syntactic information into a truly phonological object, the juncture phoneme - nobody has ever done that before, and (almost) nobody has done it after them. But this is the only way to go.
      Hence structuralists were right for the wrong reason, and had a wrong implementation.

(10) Chomsky, Halle & Lakoff (1956): economy produces privativity and the dephonologisation of juncture

a. Chomsky et al. (1956) tried to introduce what later on will become orthodox ideas of SPE (significantly, in a Festschrift for Roman Jakobson). Since the environment was by and large hostile, they attempted to clothe their work on boundaries in the structuralist strive for economy.

b. Chomsky et al. (1956) propose to replace the four different stress phonemes that were commonly recognized for English (and numbered 1 to 4) by one single opposition, that is "accented" vs. "unaccented". All the rest of the labour, they submit, can be done by juncture ("internal" "-" and "external" "=").
light house keeper possesses four stressable vowels

analysis with four stress phonemes	Chomsky et al.'s analysis
[2134] = "a housekeeper who is light in weight"	/light = house - keeper/
[1324] = "a person who keeps a light house"	/light - house - keeper/
[3134] = "a person who does light housekeeping"	/light house keeper/

c. generative ideas undercover
   1. there is no level independence
   2. since juncture necessarily coincides with morpho-syntactic divisions
   3. and represents them directly
   4. there does not need to be any phonetic correlate of juncture
   5. hence juncture is only diacritic: SPE #,+,=

d. dephonologisation of juncture:
   the generative position on boundaries emerges: it explicitly undoes the fundamental structuralist insight according to which higher level information must enjoy a true phonological identity: junctures are phonemes and as such have a phonetic correlate.
   Juncture is a pure diacritic that is controlled by morpho-syntax alone.

e. a consequence of economy: privativity
   is it true that *all* morphological and syntactic boundaries will necessarily be projected onto phonology? The answer of Chomsky et al. (1956:68) is no: "since junctures are introduced for the purpose of reducing the number of physical features that must be recognized as phonemic, we do not require that every morpheme boundary be marked by a juncture. […] Only those morpheme boundaries are marked by a juncture where actual simplifications in the transcription are achieved. In other words, junctures are postulated only where phonetic effects can be correlated with a morpheme boundary".

(11) SPE and early generative times: the relevant questions are hardly ever asked

a. the feature [±segment]
Chomsky & Halle (1968:66s) use the feature [±segment] in order to distinguish regular segments that are phonetically present ([+segment]) from boundary segments that do not possess any phonetic correlate ([-segment]). They are explicit on the absence of any stable phonetic correlate of [-segment] segments: "boundary features do not have universal phonetic correlates, except perhaps for the fact that word boundaries may optionally be actualised as pauses" (Chomsky & Halle 1968:364).

b. SPE recognises three different boundaries, i.e. "#", "+" and "="
As for all other segments, the internal contrast among boundaries has to be achieved by some features, and a three-way distinction requires two binary features: [±word boundary (WB)] and [±formative boundary (FB)]. The object "#", then, is specified as [+WB, -FB], while "+" comes along as [-WB, +FB], and "=" identifies as [-WB, -FB] (Chomsky & Halle 1968:66s).

c. #-clusters
a # is inserted at the beginning and at the end of each major category, i.e. noun, verb, adjective, and also on each side of higher constituents that dominate major categories, i.e. NPs, VPs, sentences etc. (Chomsky & Halle 1968:12s,366ss). This produces important clusters of #, which are reduced to maximally two consecutive #s by convention (see Selkirk 1972:12,1974:578).

d. Boundary mutation rules
as all other segments, boundaries can be modified by phonological rules (Chomsky & Halle 1968:366ss, further developed by Selkirk 1972,1974 and Sag 1974):
→ +
→ # (Selkirk derives liaison contexts by these means)
(including + → #, cf. Sag 1974:603s)

e. McCawley (1968): boundaries define domains of rule application
a development of Trubetzkoy's (1939) oft-quoted notion *Grenzsignale* "frontier signals": McCawley (1968:52ss) proposes to rank boundaries along a strength hierarchy.
Boundaries thereby acquire a "ranking function": each division has a hierarchical status and thereby ranks the rules in whose structural description it occurs. Boundaries define the domain of application of rules in that "the juncture gives the limits of the stretches of utterance to which certain rules apply" (McCawley 1968:55).

f. boundary zoo
Basbøll (1975) acknowledges five different boundaries, "###, ##, #, +, $" in general.
For the description of Japanese, McCawley (1968:57ss) recognizes "$, #, #i, :, &, *".
Stanley (1969) identifies seven different boundaries in Navaho, "#, =, *, !, ", +, -".

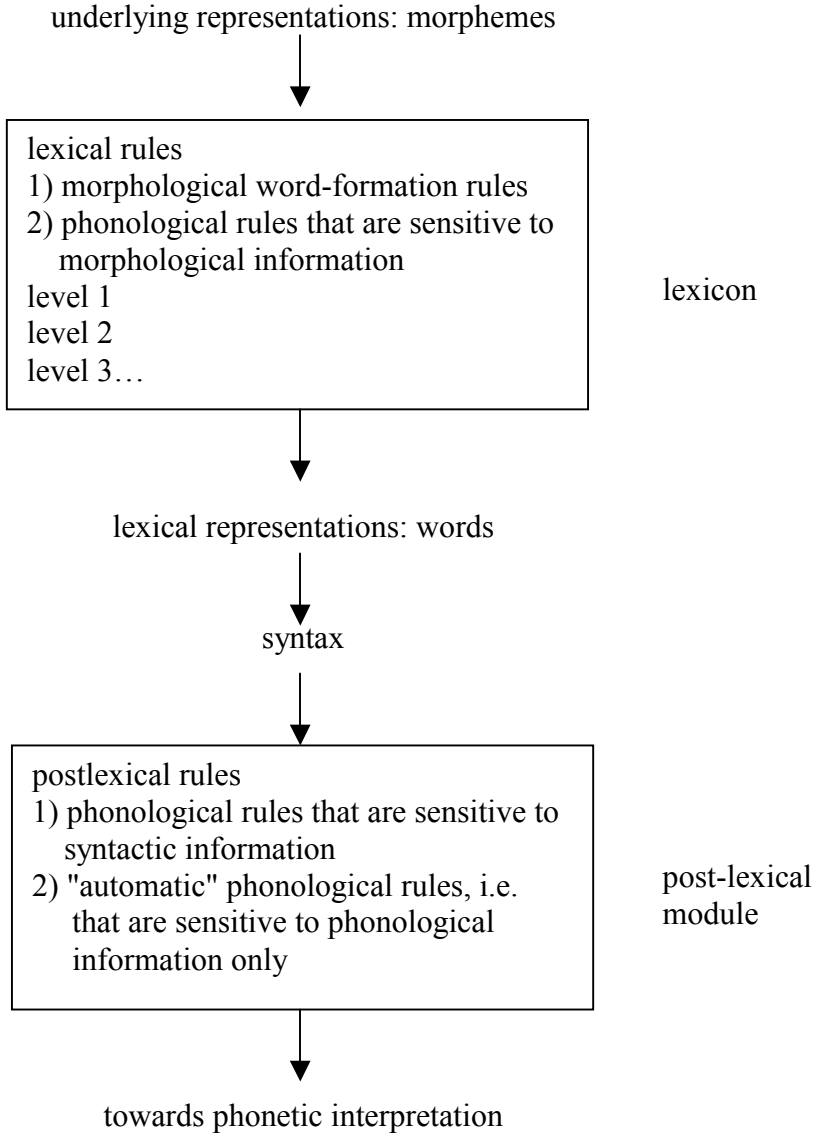
g. how do we recognise different boundaries? Minimal pairs:
long - long-er [ŋg] (comparative) vs. long-er [ŋ] (agentive) "sb who is longing"

h. Alas, there are no natural classes of boundaries
Trying to establish cross-linguistic classes of boundaries that are defined by specific kinds of rules seems desperate. A weaker ambition would be to predict the occurrence of phonologically relevant boundaries. Since boundaries root in morpho-syntactic divisions, linguists have tried to find out which particular morpho-syntactic or semantic configuration produces a phonological effect in form of a boundary. Kenstowicz & Kisseberth (1977:103ss) and Devine & Stephens (1976,1980) for example have inquired on the correlation between the class of morpho-syntactic boundaries that shows uniform behaviour in regard of phonological processes, and the class of phonological rules that shows a uniform behaviour with respect to morpho-syntactic divisions.
But here again, the result was only frustration: even within a given language, phonologically relevant boundaries may or may not correspond to a homogeneous morpho-syntactic situation.
In any event, this is not the job of phonologists: they must only accommodate the higher order in case it comes down to phonology. Our understanding of the internal organisation of higher levels is not advanced enough: when and why exactly syntactic information is shipped off to the interfaces (phase in Minimalist terminology) is mysterious.

(12) procedural vs. privative creation of the relevant morpho-syntactic information in the input string to phonology
   a. privative – Chomsky et al. (1956)
   only the subset of morpho-syntactic information that is phonologically relevant is projected onto phonology.
   b. procedural – Chomsky & Halle (1968)
   all morpho-syntactic information is projected onto phonology. The phonologically irrelevant part is somehow erased at a later derivational stage.

(13) Lexical Phonology: serialism cum brackets

a. general landscape



b. LP expresses domains procedurally: a domain is a lexical level = a derivational step.
-al = level I
-hood = level II

	párent	párenthood	parént-al
lexicon	parent	parent	parent
stratum I: affixation of class I suffixes			parent-al
stress placement	párent	párent	parént-al
stratum II: affixation of class II suffixes	—	párent-hood	—

c. rule-blocking boundaries (7)b1
- are eliminated by serialism, cf. párent - paréntal (stress-shift blocked)

d. rule-triggering boundaries = derived environment effects (7)b2, data (8)
English sign, sign-ing [n] vs. sign-ature [gn]
damn, damn-ing [m] vs. damn-ation [mn]

1. all morphemes come in with brackets:
[sign], [[sign][ing]], [[sign][ature]]

2. g deletion, domain: level 2
   g —> ø / __ [+nasal] **]**
   "delete g before a nasal which is followed by a bracket"
3. n deletion, domain: level 2
   n —> ø / [+nasal] __ **]**
   "delete n after a nasal which is followed by a bracket"
4. Bracket Erasure
   Erase the internal brackets at the end of each level
5. derivation

	sign	sign-ature	sign-ing
lexicon	[sign]		
stratum I: affixation of class I suffixes		[[sign][ature]]	
stratum II: affixation of class II suffixes		[sign ature]	[[sign][ing]]
g —> ø / __ [+nasal] **]**	[sin]	[sinature]	—

(14) Government Phonology: serialism cum domains, but rules are not ordered and cannot apply selectively

a. analytic vs. non-analytic domains
   possible domain structure created by two morphemes X and Y
   (Kaye 1995)

brackets	number of domains	name		
[X Y]	one: [X Y]	non-analytic	higher level divisions are invisible	
[[X] Y]	two: [X] and [X Y]	analytic	higher level divisions are visible	
[X [Y]]	two: [Y] and [X Y]	analytic		
[[X] [Y]]	three: [X], [Y] and [X Y]	analytic		

b. how domains are processed
   1. "do phonology !" on every domain identified.
   2. embedded domains are processed first.
   3. a phonological change effected on an earlier cycle cannot be undone on a later cycle.
c. how to do rule-blocking boundaries:
   [párent] = trivial
   [parent-al] = non-analytic domain, i.e. stress applies to the entire string
   [[parent] [hood]] = analytic domain
   1. stress applies to both inner domains, producing [párent] and [hóod]
   2. compounds are stress-initial in English, hence [párent] will bear main stress, and [hóod] secondary stress.
d. comparison with Lexical Phonology
   1. exactly the same mechanism: first consider this morpheme in isolation, on which you do phonology, then consider the whole string, on which you do phonology.
   2. hence: the concatenation of morphemes and the application of phonological processes are intertwined.
   3. but: Kaye (1992,1995) refuses
      - the ordering of phonological rules (within the same level)
      - the selective application of phonological rules: if you apply some phonological rule to a string, ALL phonological rules of the grammar are applied: "do phonology !".

(15) Optimality Theory: specific constraints for every class of affixes
analyses of level 1 vs. level 2 affixes are offered for example in Kager (1999,2000). Kager (2000) discusses the Dutch equivalent of the párent - parént-al vs. párent-hood opposition. He calls the -al class "stress-shifting", and the -hood class "stress-neutral". The basic constraint set, then, is designed in order to account for the stress-neutral suffixes, while a particular constraint is introduced in order to handle stress-shifting suffixes (Kager 2000:139):

SFX-TO-PK
Align ({-ig, -elijk}, L, stress peak, R).
"The left edge of affixes {-ig, -elijk} coincides with the right edge of the stress peak"

(16) diacritics do not qualify
a. pink panthers in scientific theories
scientists discover the unknown - that's their job. So they give names to the objects they find. But then set out to discover the real nature of these objects. Phonologists have found boundaries, have given them names #,+ etc., but do not seem to be eager to discover their real identity. Humans walk around with segments, syllables, Onsets, DPs, nouns etc. in their brain, but not with # and the like.
b. diacritics are arbitrary in number, nature and effect
c. phonology does not speak the same language as morphology, syntax and semantics: *Representational Modularity* (Jackendoff 1987,1992,1997,2002)
higher levels all know what a person, a number, a case etc. is, but they ignore what [labial] or an Onset is. There is no event such as "move the noun only if it begins with a labial". Hence, higher levels do not "see" phonology.
The relationship is one way: phonology receives commands, but does not give any. But the commands are cast in a foreign language. They can only be understood by the phonology is they are **translated** into phonological vocabulary.

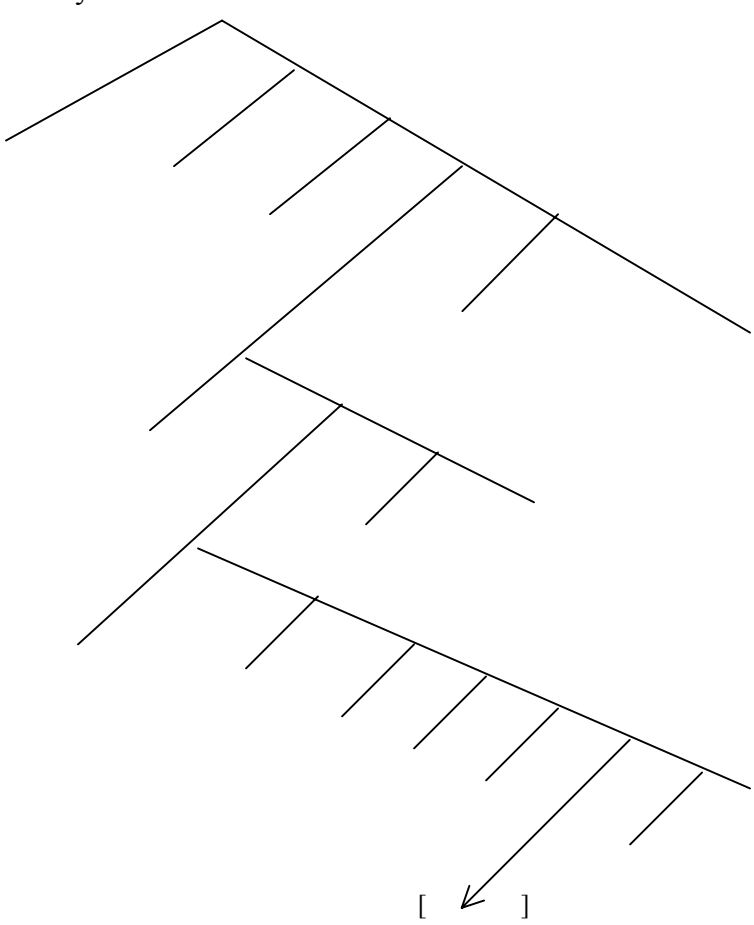
> "'Mixed' representation[s] should be impossible. Rather, phonological, syntactic and conceptual representations should be strictly segregated, but coordinated through correspondence rules that constitute the interfaces." Jackendoff (1997:87ss)

(17) privativity
a. the underfeeding of phonology with morpho-syntactic information is a hard fact.
It is a trivial observation that only a small subset of the morpho-syntactic information available is actually relevant for phonology. Therefore, all irrelevant morpho-syntactic information must not be represented in phonology. Or, in other words, only those morpho-syntactic divisions that afford a phonological effect are shipped off to phonology.
b. diacritic treatments cannot be privative
diacritics are always present: for example. if # represents "the beginning of the word", it will be present in all instances of "the beginning of the word", no matter whether it has an impact on phonology or not.
c. privative approaches: Chomsky et al. (1956), Kaye (1995)
non-privative approaches: SPE, structuralism (Moulton 1947)

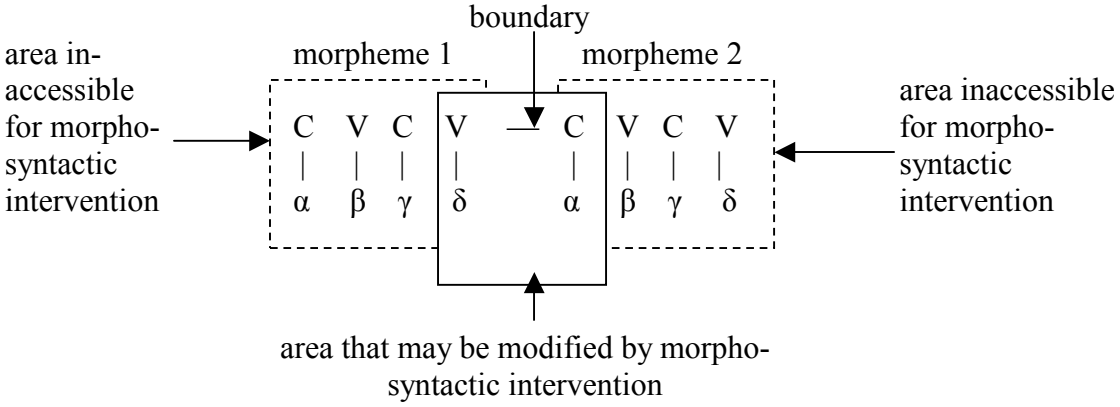
(18) summary and desiderata
   a. privativity: only relevant higher level divisions are shipped off to phonology
   b. no diacritics: higher level information in phonology must be represented in the phonological language
   c. hence there must be a **TRANSLATION** from the higher level language into the phonological language: Jackendoff's correspondence rules, vulgo sending a postcard, phase in Minimalistic vocabulary.

(19) how it works: parallel worlds that exchange postcards
treatment of morpho-syntactic information in phonology
   a. syntax, semantics and morphology share a module where all components speak the same language. Phonology belongs to a different module where another language is spoken.
   b. morpho-syntactic operations are carried out without any regard to phonology (there is no bottom-up conditioning).
   c. some parts of the morpho-syntactic structure are projected onto phonology, others are not.
   d. in the actual state of our knowledge, the projection is unpredictable: there is no way to know when a particular piece of higher information is shipped off to phonology, nor which part that will be. In any event, the decisions are language-specific. They are an exclusive privilege of the morpho-syntactic module. The key to the system, if any, must be sought on the morpho-syntactic side. Phonology is entirely passive: it receives orders without participating in their elaboration.
   e. orders are issued by the morpho-syntactic module. In order to be understood by phonology, they need to be translated into the phonological language. This is done by a lexical access (on which more below): a non-phonological input is matched with a phonological object, which is inserted into the phonological representation.
   f. once the phonological object of morpho-syntactic origin exists in phonological representation, it is treated exactly as any other phonological object.
   g. phonology operates only once all pieces of information are assembled. That is, all morphemes must be concatenated, lexical insertion must have taken place, and morpho-syntax must have sent boundary information.

(20) how it does not work:
ordinary picture (e.g. Selkirk 1984): phonology is some remote terminal structure of the syntactic tree

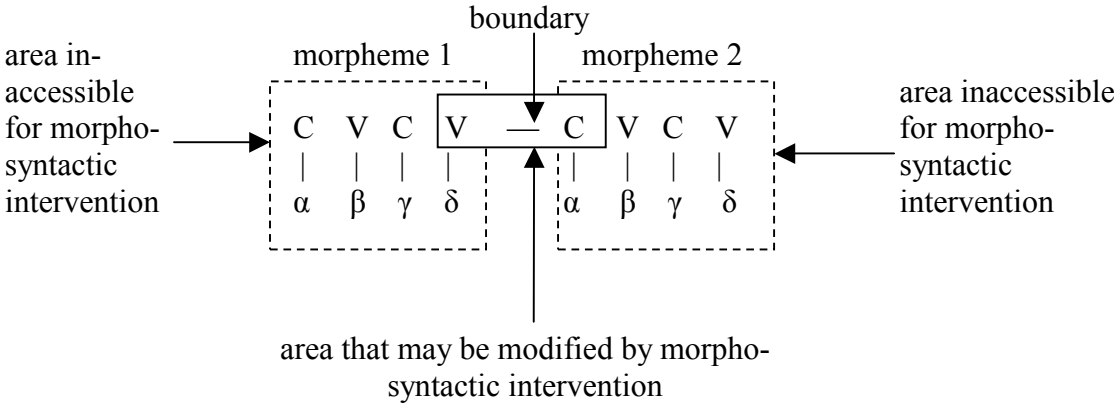


(21) hypothesis I: locality
morpho-syntactic orders can only bear on the local environment of boundaries
areas not adjacent to the seam cannot be accessed by higher levels.



(22) hypothesis II: melody is invisible for higher levels
morpho-syntax can bear only on the area above the skeleton: melody cannot be accessed (there is no boundary effect such as "turn b into j before boundary X")

areas not adjacent to the seam cannot be accessed by higher levels, nor can melody.



(23) whatever the theory favoured, then, only the properties of the syllabic (or prosodic) constituents that are adjacent to the boundary can be modified by higher level orders. I don't know what kind of prediction this makes in various theories. In CVCV, the situation is as follows:
there are two ways in which higher levels can bear on phonology
a. they modify the properties of an existing constituent:
   a. in every language and for every boundary, morpho-syntax decides whether
   1. the adjacent Nucleus is governed or not.
   2. the adjacent Nucleus is able to govern or not.
   3. the adjacent Nucleus is able to license or not.
b. they insert a new object into the linear string of constituents

(24) benefits
a. we now know why final empty Nuclei are special, but their internal peers are not: final empty Nuclei are adjacent to a boundary, and their regular phonological properties (ECP, lateral actorship) may be modified by higher levels.
b. we now know why we always hear "domain final", but never "domain initial": the final object adjacent to a boundary is a Nucleus, while the initial object adjacent to a boundary is an Onset. But only Nuclei have lateral actorship, hence this is where higher level information comes in..

(25) conclusion

a. if higher levels don't intervene, phonology lives its regular life, i.e. rules alone. If higher levels intervene, the phonological rule is overridden/ modified by the higher rule at morpheme-edges (but remains the only master morpheme-internally).
translation of the three empirical situations:
   1. the boundary has no effect: phonology rules alone
   2. the boundary triggers an effect: the modification of the properties of the final Nucleus or the insertion of a syllabic unit provokes an effect. For example, the insertion of a syllabic unit provides space that may be exploited for gemination or vowel lengthening..
   3. the boundary triggers an effect: the modification of the properties of the final Nucleus or the insertion of a syllabic unit inhibit an effect. For example, the insertion of a syllabic unit provokes the non-adjacency of the final vowel of morpheme 1 and the first consonant of morpheme 2. If there is a spirantisation in intervocalic position, it will be inhibited.

b. much of what is referred to as a domain is a punctual intervention of higher levels, rather than a portion of the linear string.

c. it only makes sense to talk about domains, i.e. about something that has a beginning and an end, when phonology applies serially: first to individual morphemes, then to morpheme-clusters. Cf. Lexical Phonology, Kaye (1995).

d. all other effects that are usually ascribed to the existence of domains are boundary effects: higher levels do not see or create domains - they see boundaries and target the objects that are adjacent to them.

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