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STRUCTURE AND PROCESS: COMPUTATION IS NOT KING

(1) in a nutshell

Nature is made of objects and events. The former exist independently of the latter and experience their action. No grammar, and most probably no natural science at all, can be thought of as **only** structure or **only** process. The only structure that OT recognises is "emerging", i.e. the result of a process. Hence, OT negates the separation between structure and process: structure (i.e. representations) has no independent existence. OT is only process: computation is king. This is why OT must be wrong.

[disclaimer: when I say "OT" here, I only refer to features which I believe are shared by all versions of OT. The "dialectal variation" within OT is growing these days, and one cannot be so sure anymore that all proponents of OT agree on the founding statements of this theory such as its non-derivational character, Richness of the Base and the like. I hope that none of the OT-properties addressed below are contradicted by some North Coast variety.]

(2) purpose

a. to show that representations are demoted to a decorative status in OT. They are doomed to disappear.
b. this is the natural consequence of the very heart of OT: the **only** device that decides on (a)grammaticality are constraints and their interaction: computation is king.
   OT has nothing against representations as such. Their insignificance is a simple side-effect of "computation is king".
c. the irrelevance of representations in OT has a direct graphic translation: representations sometimes appear in the candidate column, but never in the head-line that features the constraints. In other words, constraints select representations, but not the reverse.
d. the arbitral award of representations is not sovereign anymore. A representation is not ill- or well-formed as it was before; it is, as everything else in OT, more or less ill- or well-formed: there is nothing that cannot be violated.
   In OT, computation does not operate ON representations as before, but WITH representations. Hence, OT has abolished the red line between structure and process: there is no structure left, computation (= process) decides alone.
e. point out the consequences of the demotion of representations:
   1. they had a function, i.e. fighting back overgeneration. Giving up on them sets phonology back to where it stood in post-SPE times.

2. another job of representations was to offer explanations for the facts we observe. Their absence has triggered a run on extra-phonological explanations for phonological events: "grounded" constraints.
   - is a "phonological" tool better or more plausible because it replicates an extra-phonological reality?
   - is it outlandish to believe that **there are** phonological events that have a phonological cause?
   - if we deplete phonology of phonology, what are we left with?
   - why not make the discipline "phonology" an appendix of phonetics, physics, functionalism etc.?
   - would physicists try to explain physical phenomena by extra-physical causes *before* having tried the physical ones?

   cf. Brandão de Carvalho's (2002) paper "Formally-grounded phonology: from constraint-based theories to theory-based constraints".
   [which means that theory ≠ constraints]
3. still another property of representations is to make absolute and discrete judgements: this is also lost. There are no hard predictions left in absence of representations: X is more or less probable than Y, but nothing is ever declared an impossible human structure or an impossible human event.

f. suggest that theory must somehow recognize and implement the polar difference between structure and process: **computation is not king, it needs to be counter-balanced**.
   Objects are stable. You can photograph them, hang them on your wall and shed light on them from different sides. They EXIST. They do not "emerge". Grammar is just another word for the tension between structure and process.

(3) the problem of overgeneration in SPE and post-SPE times

a. SPE: A --> B / K
   is able to describe all process that exist in nature, and all the others as well.
   1. anything can be turned into anything (no restriction on the relation between A and B: n --> ŋ / __k is as plausible as n --> m / __k).
   2. anything can provoke any change (no restriction on the relation between A --> B and K: n --> ŋ / __k is as plausible as n --> ŋ / __p).

b. what a student hears in the first class of his first year of generative linguistics: the theory is called "generative" because its goal is to "generate all and only those sentences that are grammatical". Applying this basic stance to phonology, SPE appears as a nightmare.

c. reactions on this in the 70s:

1. markedness

what is cross-linguistically frequent is theoretically more significant and should be encoded by the theory (in a more prominent place). This stance follows the 9th chapter of SPE. Its direct modern heir is OT, but also Government Phonology (what is a possible vocalic system?).[1]

- in the 70s, Natural (Generative) Phonology made this issue central: a "natural" phonological process is an unmarked process. Theory should only care for natural processes and relegate all the rest to the lexicon.
- restrictive power: marked structures and processes are not impossible, but relatively unexpected. Hence n --> m / __k is possible but not plausible.
- prediction (for some, not for all): if a language features a marked structure or process, it must also feature relatively less marked structures and processes.

2. abstractness

launched by Kiparsky in 1968, this debate underpinned the phonological discussion of the 70s and early 80s: how much dissimilarity between the phonetic reality and underlying representations should phonological theory allow for?

Responses:

- Natural Generative Phonology
  (similar Natural non-gen. Phonology, Stampe 1972)
  True Alternation Condition, No-Ordering Condition: rules may only make reference to objects that are contained in the phonetic signal. Everything that cannot be described with reference to the surface lies outside of phonology and is dealt with by morpho-phonemic suppletive activity and lexical marking ("via-rules").
  Restrictive power: radical, underlying and surface structure are almost identical.
  (e.g. Hooper 1976, Vennemann 1974a,b)
- Lexical Phonology
  attempts at constraining 1) underlying representations and 2) the possible computation that can be performed on them.
  The tools developed include (various versions of the) Alternation Condition (Kiparsky 1968,1973), the identification of a rule-class that may only target so-called derived environments, with restrictive effects on underlying representations (cf. Rubach 1984:7ss), the Strict Cyclicity Principle (Mascaró 1976), and foremost a layered derivational architecture: lexical (and cyclic vs. post-cyclic therein) vs. post-lexical levels.

[1] Views arguing that markedness is entirely irrelevant in linguistics: theory must define what *possible* structures and processes are, not whether a possible object is more or less frequent. See e.g. Lass (1984:278s), Hale & Reiss (2000a,b).

(4) but where are the representations in all that ?
Nowhere. They developed independently of the issues of overgeneration and abstractness. Two concording lines of thought:

a. disjunctive contexts, foremost the Coda context __{C,#}
Kahn (1976): the recurrence of the structural description __{C,#} in various genetically unrelated languages, against the complete absence of, say, __{V,#}, cannot be an accidental property of natural language. __{C,#}is 1) unnatural (what does a consonant and a word-boundary have in common?) and 2) falls foul of the principle "same cause, same effect". Hence phonological theory is called for being able to assign a 1) non-disjunctive and 2) unique identity to __{C,#}.
==> the Coda was born (or rather, resurrected). And thus multilinear structure: being a Coda or not cannot be read off the linear string in any way.

b. the study of tone
Williams (1976), Goldsmith (1976) (see Anderson 1985:347ss for a survey)

(5) result: autosegmental structures were born. Or, in other words, **representations** were born.

a. they have come into being for reasons that are independent of abstractness and overgeneration.

b. however, they proved to be an excellent tool for fighting back the plague of overgeneration: they restrict the generative power of the grammar in rather spectacular fashion. [since they exist for independent reasons, they are guaranteed against the charge of circularity]

c. why? because a representation may be well- or ill-formed. No such notion can be applied to a sequence of SPE-matrices.

d. an early and universal case in point is the fact that association lines may not cross. This rules out a fairly remarkable number of phonological processes that would have been well-formed in linear paradigms.

e. the potential of representations was well understood, and hence early spartan representations were continuously enriched throughout the 80s and led to rather complex structures. This evolution was parallel to the expansion of arboreal structures in syntax during the same period.

f. Feature Geometry for instance has built autosegmental structures that are self-restrictive in the sense that their arboreal properties exclude quite a number of processes and structures.

g. in sum:
enriched representations were the specific answer to the problem of abstractness and overgeneration that united phonological research throughout the 80s.
The fact that representations cannot be "a little ill- or well-formed" was entirely consensual: ill-formedness results in agrammaticality, and cannot be "salvaged" by any operation of the computational component.
For example, a representation where association lines cross can result in a grammatical object under no circumstance: there is no such thing as "ok, line-crossing is bad, but X is worse, so line-crossing will 'win' ".

h. representations have an **intrinsic** power on grammaticality. Their rule is an absolute instance; it is **independent** of any computational event and cannot be "outranked".

(6) what OT says: representations, if any, are a form of constraint, i.e. decoration.
   a. the **only** instance that decides on the "winner", i.e. on (a)grammaticality, is the universal set of constraints and the language-specific ranking thereof.
   b. hence, representations cannot possibly play an autonomous role in the refereeing process. They may exist, but are necessarily subordinated/ incorporated in the constraint interaction. Hence, "this representation features line-crossing. However, it is the winner because line-crossing is less fatal than X in this particular grammar" is a statement which is not counter-indicated in OT.

(7) consequences of what OT says I:
   - back to SPE-type overgeneration
   - representations restrict the computational vigour in the 80s. If you switch them off, computation can do anything. This is indeed the situation in OT: computation (i.e. constraint interaction) is the unchallenged king with no limitation of power. It can do anything and its reverse.
   a. if representations are not the highest instance, they are depleted of the function that they had in the 80s, i.e. restricting overgeneration.
   b. if you plug out the overgeneration-killer, you are back to SPE: your theory will be able to describe all structures and processes that exist, and all the others as well.
      This is what April McMahon, with British understatement, called "the embarrassment of the riches" in her talk.
   c. as far as I can see, this is indeed where OT stands
      1. in "early" OT, overgeneration was an issue: people tried to keep the number of constraints in reasonable dimensions. This was part of the research programme, and a target number would have been something between 50 and 100.
      2. in more recent developments of the theory, this issue was severely demoted on the list of priorities. Recall the fundamental generative stance: "all and only…".
      3. the basic OT-scenario holds that
         - the set of constraints is universal, and all the child has to do in the acquisitional process is to figure out the correct ranking of the target language.
         - there is no such thing as universal constraint ranking. Constraints are only ranked on language-specific grounds. Hence, all logically possible rankings describe a possible human grammar.
      4. let's calculate: on an extremely conservative count, let us explore the situation of a grammar with 100 constraints in regard of overgeneration.
         The prediction is that there are 100 ! (= factorial hundred) different grammars in nature. How many screens does your computer need in order to spell out this number?
         Of course, you can count out all the rankings that are logically impossible once constraint X is ranked before constraint Y. This, however, depends on the content of the particular constraints assumed.
         Has anybody tried to calculate the result? There are still billions and billions of candidate systems left.
      5. [question: OT is sometimes argued to particularly suit dialectal variation: look, there are 50 dialects, and you just need to rerank these X constraints in order to get them all. No other theory can do that. True. But no other theory can produce the 5000 other systems that are not attested in the dialectal space. Is it any wonder that you are able to cover 50 different dialects if you generate billions of systems that may or may not exist?
         There are two approaches to parametric variation: either you generate everything and try to restrict your generative power afterwards (SPE and OT), or you have an (over-) restrictive theory in the first place and try to implement parameters in the face of variation.]

(8) OT-devices that try to fight back overgeneration

a. markedness

1. (almost?) all OT-constraints are formulated according to markedness. Why are there constraints such as NOCODA and ONSET, rather than CODA and NOONSET? Because the cross-linguistic count tells us that having an Onset is much more frequent than not having one, and not having a Coda is much more frequent than having one.
   [question: if you feed markedness into your machine, how could it produce anything else than the markedness pattern programmed? Is this any surprising? The only thing that "emerges" in TETU is what you have fed into the system beforehand: your cross-linguistic observation. E.g. NOCODA: why isn't it NOONSET or CODA? If you build a machine with NOCODA, will you be surprised to see that it declares languages without Codas unmarked?]
2. makedness is a private decision of the linguist, not a property of OT
   no property of the theory enforces to formulate constraints according to markedness. If (all?) constraints follow markedness, this is due to a free decision of the linguist. The same hols true for "grounded" constraints: no property of the theory enforces phonetic, functional, psycho-linguistic etc. grounding.
   ==> hence, markedness has no theoretical or formal status, it is just the result of a theory-independent practice.

b. restriction of the content of constraints: "grounded" constraints

1. is any constraint a good constraint? No. We don't want "crazy" constraints of the kind "velar nasals must be followed by a labial" or "delete a vowel every time you blink".
2. the problem is that there are no formal limitations on what a constraint can be.
3. we can tell nice from ugly constraints by looking at their "independent" motivation, where "independent" means extra-phonological.
   Hence the "West-Coast" constraints that replicate a non-phonological pattern: they are phonetically, functionally or psycho-linguistically "grounded", or effort-based etc.

c. no restriction on the possible ranking of constraints in sight (?)
   = no intrinsic constraint-ranking

(9) back to SPE and post-SPE times
everybody who has lived through the post-SPE period has probably made the following observations.

	post-SPE	OT
a.	crazy rules: is any rule a good rule?	crazy constraints: is any constraint a good constraint?
b.	markedness/ naturalness: 9th chapter of SPE, Natural (Generative) Phonology	constraints are markedness-driven
c.	extrinsic vs. intrinsic rule ordering	constraints may only be ranked on language-specific grounds
d.	Natural Phonology: the history of language is the eternal rebalancing of two opposite forces: 1) the urge to produce distinctive patterns and 2) the urge to make the least effort possible (laziness).	faithfulness- vs. well-formedness constraints
e.	Natural Generative Phonology: rules may only make reference to objects that are present in the phonetic signal.	output-output constraints

f. is the goal of the theory to "produce the correct surface form", or to explain why things are as they are and not any different?
If you can't get the correct surface result, you either write another rule or change the rule-ordering.

if you can't get the correct surface result, you either write another constraint or change the constraint ranking.

g. there are surely more of these…

(10) consequences of what OT says II:
- representations lose their function and become decorative
- hence they are redundant and exchangeable
- they should (and will) be done away with completely

a. in OT, representations are redundant
since constraint ranking is the **only** way to determine who is the "winner", there can be no independent place for any refereeing done by representations.

1. the representations that are still used in OT are ghost-ships of the 80s which exist only because people are familiar with them. They are vestiges of former times that have lost their function but are still used for the sake of inertness.
2. ==> hence, representations are progressively transformed into constraints: ONSET, NOCODA, *DORSAL, *LABIAL, *[+cont] etc.
3. Lombardi (2001:3) says that "much early work in OT paid little attention to representational questions, simply taking over assumptions from previous work in derivational autosegmental phonology. But representational arguments are theory-internal and need to be reexamined in light of fundamental theoretical changes; the choice of **correct representations to use in OT** analyses must be based on arguments couched in OT terms." (emphasis mine)
She contends that there is something like correct representations in OT, i.e. which are not interchangeable. This remains to be seen… in any event, the book at the outset of which this statement is made ranges over 300 pages, and on my count there are two or three representations all in all.

b. in OT,
representations have no meaning proper: they are arbitrary and exchangeable, decoration at best.

1. on the same page, Lombardi (2001:3) says
"The tenets of OT, regarding constraint violability and ranking, make no particular claims about phonological representations. We could, for example, do OT with any kind of feature theory: SPE feature bundles or feature geometric representations, privative or binary features, and so on."
2. Clements (2001:71) puts it in a polite way: "One less desirable consequence [of the rise of constraint-based phonological theories] has been an increasing uncertainty regarding such fundamental questions as: What is a lexical representation? What is a phonological representation? Of what features or feature specifications do they consist? How do these features combine? What is the trade-off between constraints and representations in understanding phonological regularities?"
==> Looking at *DORSAL, *LABIAL, *[+cont] etc., one foresees the answer: representations, if any, are decoration; they may be twisted and flipped around by constraints in any possible way.

3. Hall (2001:1) is polite as well: "A consequence of the shift away from representational questions […] is that there is at present much uncertainty concerning certain fundamental questions pertaining to […] phonological representations […]. With respect to features, the most obvious question […] is: What featural representations (e.g. feature geometry, underspecification) are necessary in a phonological theory?"
   ==> Looking at *DORSAL, *LABIAL, *[+cont] etc., the answer is probably that there are still features as before, but their label ("dorsal" etc.) does not matter much. However, their organisation into a feature geometric tree or the like, i.e. the representation proper, is superfluous (or decorative); nothing of the kind is needed.

c. in OT,
there is no theory of representations anymore.

1. in the best-case scenario (Lombardi), OT-computation selects this or that competing representation. In no event will a representation be given priority over another one for the sake of its representational properties. Hence, we are back to the role of representations as a dogsbody: There are some representations, and OT-computation decides.
   This best-case scenario is warranted by Lombardi (2001:3), but does not seem to be fleshed out.
2. nobody works on representations, on their properties etc., further develops the familiar structures from the 80s. Compare with the atmosphere when representations were the critical referee: having node X under node Y was a heatedly debated issue.
3. there is no competition among representations anymore. Any representation X or Y will do, no matter whether X and Y are incompatible. The only thing that counts is to have the attested form win. Whether this is done on the faith of representations X or Y is irrelevant.
   Example: there are various theories of syllable structure that make conflicting statements on the branching status of Codas:
   - Codas can branch as many times as they want to: English sixths [sɪksθs] and German Herbst "autumn" [hɛrpst] have four-member Codas. If a language has words with 20 word-final consonants, they will all belong to the same Coda. Early Kahnian syllabification algorithms.
   - Codas can branch only once: -rt is a good Coda, but -kt and -tr are not. There is some sonority sequencing constraining possible Codas. E.g. Rubach (1990,1999), Rubach & Booij (1990).
   - Codas cannot branch at all. Standard Government Phonology: Kaye et al. (1990).
   - there are no Codas at all. 'CVCV', Lowenstamm (1996).

   OT can produce the "correct" surface result in all languages by granting various ranks to NoCoda (or its family) in different languages with **any** of the syllabic theories quoted.
   ==> no representational theory is ever right or wrong. Whether the human syllabic system has Codas that branch 20 times, 2 times or not at all is not even an issue: the only thing that counts is the production of the "correct" winner.
   ==> what does this tell us about language?

(11) consequences of what OT says III:
the judgements that grammar performs on linguistic objects is never ever absolute and discrete.
This is an in-built property of OT anyway, but the disfunctionalisation of representations has this very result. The overall picture is thus consistent.

a. the judgement of representations is 1) discrete and 2) binary.
   1. a representation is ill-formed, or it is well-formed. There is no such thing as "a little ill-formed" or "a little well-formed" or "not really well-formed, but way more well-formed than X".
   2. the judgement of representations is the supreme rule. Nothing non-representational (such as computation) can turn an ill-formed object into a well-formed object, or undo, outrank, supersede etc. its ill-formedness.

b. computation is king: there is nothing of that kind in OT
well-formedness and ill-formedness are words that make no sense in OT
   1. (a)grammaticality is never absolute or discrete: candidates are not agrammatical per se, they are only worse than others. An OT grammar does not perform any judgement on a form X out of context. It is only when form X is in competition with form Y that one will be less evil than the other.
   2. graduality: another view on nature
      since representations cannot eliminate candidates for the sake of their representational properties, there is no object that couldn't be in nature. An example would be, say, a Coda that branches 25 times.
      question: is this an object that occurs in nature? - NO.
      question: is this an object that could occur in natural language?
      - correct answer: NO, this lies outside of the human possibilities.
      - answer OT: YES. This is a possible human object, and no principle of grammar rules it out per se. The reason why it is never encountered in natural language is that NoCoda happens never to be ranked low enough in order to let the Monster Coda through.

(12) consequences of what OT says IV (concomitant with consequence III)
predictions are only probabilistic [in which case they are rather "predictions"]

a. OT: X is likely to be found in nature, but Y is not.
if some linguist comes back from the jungle with Y, people will be surprised, sure. But their theory will not be falsified.

b. representations make predictions on a hit-or-miss basis: you are either ill- or well-formed, but nothing in between.
example
the cross-linguistic observation of the distribution of vowels and zeros in vowel-zero alternations: vowels occur in closed syllables, zeros in open syllables.

e.g. Polish	closed syllable		open syllable	
	GENpl	adj.	NOMsg	
	wojen	wojen-ny	wojøn-a	"war"

This may be encoded in representational theory in various ways. One way to look at it is this:
the vowel-less cluster can be syllabified without problem in open syllables (woj.na), but is unsyllabifyable in closed syllables (?wojn, ?wojnny). Syllabification, of course, is part of representational theory because it builds the actual syllabic representations.

==> if somebody comes back from the jungle with the reverse pattern, i.e. vowels occur in open syllables, against zeros in closed syllables, the syllabic theory at hand is properly falsified.
==> the hard and unamendable prediction is that this Monster-pattern is not human and could not possibly exist, however wild the jungle is.

(13) consequences of what OT says V
phonology is depleted of phonology
if you cut out representations, you cut out phonology from phonology, cf. (8)b3

a. OT-attempts at cutting down overgeneration: "grounded" constraints
since computation is not bounded by representations anymore, it must be bounded by something else.
Before, computation that resulted in ill-formed representations was aborted.
Now it is not anymore. Hence another referee is needed.

b. this referee lies outside of phonology:
we can tell nice from ugly constraints by looking at their "independent" motivation, where "independent" means extra-phonological.
"Good" or "plausible" constraints replicate non-phonological patterns: they are phonetically, functionally or psycho-linguistically "grounded", or effort-based etc.

c. hence, there is direct causal line between the demotion of representations to decoration and the fact that the basic motor that drives phonology is extra-phonological.
This is in accordance with the general OT-claim that OT is not a specifically phonological theory, nor even a specifically linguistic theory: chemistry and physics can also be described by a system of constraint ranking.

d. when you ask OT what is the ultimate cause of a phonological event, you will (really always?) end up with functionalism, phonetics, the least effort, psycho-linguistics etc.
==> could it be that phonological events have no phonological causes ever ?

e. phonological representations are phonological
they provide phonological explanations for phonological events.
example: Positional Faithfulness (Beckman 1997,1998)
one central claim is that "the beginning of X is strong (while the middle of X is not)" where X can be the word, the syllable, the morpheme, the root, the stem, the foot, the prosodic word or any other relevant phonological unit.

"Privileged positions […] are those positions which enjoy some perceptual advantage in the processing system, via either psycholinguistic or phonetic prominence, over the complement of non-privileged positions. […] Positions which are psycholinguistically prominent are those which bear the heaviest burden of lexical storage, lexical access and retrieval, and processing. […] Phonetic prominence may be instantiated by many different physical cues, including increased duration or amplitude, pitch extrema, release bursts." Beckman (1998:1)

This exclusively extra-phonological perspective dismisses the existence of phenomena whereby objects are strong not only in the beginning of X, but also word-internally in a specific syllabic position:
the context "word-initially and after a Coda" {#,C}__ protects consonants against lenition and provokes fortitions in many languages, cf. Ségéral & Scheer (2001).
==> does this have an extra-phonological cause? Or is it die to a genuinely phonological pattern, i.e. syllable structure?

(14) summary and outlook

a. the reduction of representations to a decorative existence, if any, is a straightforward consequence of the very essence of OT:
computation is king, **nothing else** determines the grammatical status of objects.

b. autosegmentalism has installed a counterweight to the computational module of grammar: representations. Among other things, there was good reason to do that: overgeneration.

c. OT undoes autosegmentalism (in fact, not (yet) in print), and faces some consequences such as
   1. we are back to SPE-type overgeneration
   2. the judgements that grammar performs on linguistic objects is not absolute and discrete, but relative (to other competitors) and gradual (no object is banned from nature per se, including Monster Codas).
   3. predictions are only probabilistic, never on a hit-or-miss basis.
   4. phonology is depleted of phonology: the ultimate causes of phonological events lie outside of phonology.

d. fortune-telling
my best guess, which only applies the in-built logic of OT:
representations will completely disappear (or have a decorative existence as a reminder of the good old days).
They will be replaced by constraints: ONSET, NOCODA, instead of supra-skeletal, *DORSAL, *LABIAL, *[+cont] etc. instead of infra-segmental representations.

e. I am not saying that this is bad in itself. I am describing a consequence of the very essence of OT, which is in-built and unalterable [really?]:
computation is king, all the rest is irrelevant.

f. the consequences of this stance that have been mentioned should be given a second thought: do we really want phonology to have that face?

g. alternative
   1. (a)grammaticality is the result of the tension between two modules that are necessarily different and autonomous:
   - structure (= representations)
   - computation (= ordered rules, constraint interaction, whatever)
   computation is NOT king. Its power is limited by representations.
   "Formally-grounded phonology: from constraint-based theories to theory-based constraints" (Brandão de Carvalho's 2002)
   2. representations are primary phonological objects. They are not the result of the computational module.
      - their arbitral award cannot be undone or outranked by the computational system.
      - grammaticality is not exclusively relative: natural objects do experience a grammatical judgement in complete absence of any other candidate. Among other things, grammar is about to define what are possible natural objects and events, and what are not. Monsters don't exist, not even a little bit, and they could not ever be produced by any human being.
   3. note that this does NOT mean that
      - there are no constraints
      - there is no constraint ranking
      - there is no competition in grammar
      - that there are no extra-phonological causes for phonological events
   it just means that there are representations, and that they are central, rather than decorative.

(15) conclusion

a. people who follow the research strategy of "grounded" constraints do not stand on Saussurian grounds. It was already mentioned that "grounded" constraints are not any more serious than phonologically based constraints. But on top of that, looking for causes that appeal to the Parole **before** investigating the Langue is the exact opposite of what Saussure claims to be the only possible research strategy: studying the Langue with no regard to the Parole at all. Trying to get a handle on language by doing Parole first is necessarily doomed to failure.

> "La Langue, distincte de la Parole, est un objet qu'on peut étudier séparément. […] Non seulement la science de la Langue peut se passer des autres éléments du langage, mais elle n'est possible que si ces autres éléments n'y sont pas mêlés." Saussure (1915:31)
>
> [The Language is distinct from the Parole. It is an object that can be studied in its own right. […] Not only can the science of Langue ignore the other elements that are constitutive of speech; the study of Language is indeed impossible in case these other elements are taken into account.]

b. in his reply to Jacques Durand's laudatio on the occasion of his Honorary Doctorate ceremony, John Anderson has warned us of collective amnesia: "we'll be a lot longer discovering the future if we don't recover the past". May he be heard, in phonology and elsewhere.

References

Anderson, Stephen 1985. Phonology in the Twentieth Century. Chicago: University of Chicago Press.

Beckman, Jill 1997. Positional Faithfulness, Positional Neutralisation and Shona Vowel Harmony. Phonology **14**, 1-46.

Beckman, Jill 1998. Positional Faithfulness. Ph.D. dissertation, University of Massachusetts at Amherst. Downloadable at ROA #234.

Brandão de Carvalho, Joaquim 2002. Formally-grounded phonology: from constraint-based theories to theory-based constraints. Studia Linguistica **56**, 227-263.

Clements, George 2001. Representational economy in constraint-based phonology. Distinctive Feature Theory, edited by Tracy Hall, 71-146. Berlin, New York: Mouton de Gruyter.

Goldsmith, John 1976. Autosegmental Phonology. Ph.D dissertation, MIT.

Hale, Mark & Charles Reiss 2000. Phonology as Cognition. Phonological Knowledge. Conceptual and Empirical Issues, edited by Noel Burton-Roberts, Philip Carr & Gerard Docherty, 161-184. Oxford: Oxford University Press.

Hale, Mark & Charles Reiss 2000. Substance Abuse and Dysfunctionalism: Current Trends in Phonology. Linguistic Inquiry **31**, 157-169.

Hall, Tracy 2001. Introduction: Phonological representations and phonetic implementation of distinctive features. Distinctive Feature Theory, edited by Tracy Hall, 1-40. Berlin, New York: 2001.

Hooper, Joan 1976. An Introduction to Natural Generative Phonology. New York: Academic Press.

Kahn, Daniel 1976. Syllable-based generalizations in English phonology. Ph.D dissertation, MIT.

Kaye, Jonathan, Jean Lowenstamm & Jean-Roger Vergnaud 1990. Constituent structure and government in phonology. Phonology Yearbook **7**, 193-231.

Kiparsky, Paul 1968. How abstract is phonology? Published 1973 in: Three Dimensions of Linguistic Theory, edited by O. Fujimura, 5-56. Tokyo: TEC.

Kiparsky, Paul 1973. Abstractness, Opacity and Global Rules. Three Dimensions in

Phonological Theory, edited by O. Fujimura, 57-86. Tokyo: TEC.

Lass, Roger 1984. Phonology. An introduction to basic concepts. Cambridge: Cambridge University Press.

Lombardi, Linda (ed) 2001. Segmental phonology in Optimality Theory. Constraints and Representations. Cambridge: Cambridge University Press.

Lowenstamm, Jean 1996. CV as the only syllable type. Current trends in Phonology. Models and Methods, edited by Jacques Durand & Bernard Laks, 419-441. Salford, Manchester: ESRI.

Mascaró, J. 1976. Catalan Phonology and the Phonological Cycle. Ph.D. dissertation,. MIT.

Rubach, Jerzy 1984. Cyclic and Lexical Phonology: The Structure of Polish. Dordrecht: Foris.

Rubach, Jerzy 1990. Final Devoicing and Cyclic Syllabification in German. Linguistic Inquiry **21**, 79-94.

Rubach, Jerzy 1999. The syllable in phonological analysis. Rivista di Linguistica **11**, 273-314.

Rubach, Jerzy & Geert Booij 1990. Syllable structure assignment in Polish. Phonology **7**, 121-158.

Saussure, Ferdinand de 1915. Cours de linguistique générale. Paris 1972: Payot.

Ségéral, Philippe & Tobias Scheer 2001. La Coda-Miroir. Bulletin de la Société de Linguistique de Paris **96**, 107-152. Older English version downloadable at http://www.unice.fr/dsl/tobias.htm.

Stampe, David 1972. How I Spent my Summer Vacation. Ph.D dissertation. University of Chicago.

Vennemann, Theo 1974. Phonological concreteness in natural generative grammar. Toward tomorrow's linguistics, edited by R. Shuy & C. Bailey, 202-219. Washington, DC: Georgetown University Press.

Vennemann, Theo 1974. Words and syllables in natural generative grammar. Papers from the parasession on Natural Phonology, edited by A.Bruck, R.Fox & M.La Galy, 346-374. Chicago: Chicago Linguistic Society.

Williams, Edwin 1976. Underlying tone in Margi and Igbo. Linguistic Inquiry **7**, 463-484.