

## Root Causes

Laura Benua in *Transderivational Identity: Phonological Relations Between Words* gives the following characterisation of theoretical constraints in terms of preserving identity<sup>1</sup>

When paradigmatically-related words differ in structure, such that a phonological process is conditioned in one word but not in the other, interactions of OO-Identity, IO-Faith and markedness can produce three different patterns. Two of these preserve identity: OVERAPPLICATION (application of the process where it is not conditioned) and UNDERAPPLICATION (failure of the process where it is conditioned). A third disrupts identity of related words: in NORMAL APPLICATION, the process applies just where it is conditioned, affecting one word in the subparadigm but not the other, and paradigmatic identity is not achieved. (*TI*, 42)

In what follows I talk about Benua's usage, with particular reference to recurring items: 'faith', 'paradigm', 'application' 'base' etc. I sketch a further context in which they occur. I add to that discussion of uses of 'representation' both in Benua and the related literature and then (in a sense I explain) narrowed uses of 'identity' intended to bring into focus proximate relations among differing but related items, as paradigmatically related.<sup>2</sup> My interest is in what reality if any is in relations described.

Paradigm in Benua is class, sometimes item subject to restriction referred to a class.<sup>3</sup> 'Paradigmatic identity' under 'normal application' above would have been achieved under class identity but for conditioned application of phonological process ('subparadigm' here is particularly qualified entry *as* entry with parts qualifiable under particularising process relating to describable differentiations). You could contrast paradigm with representation functionally if you think of a representation as just an open class item: the paradigm is referred to a collective reference with fingers on parts whereas the representation presents its own content under some presentational conventions. Paradigms supply standards for invariance for constituents labeled together, under the similarity relation of paradigm *x*; in this guise paradigmatic property, *p*, as definitional is affirmed in realisations under the similarity relation. While it's easy to define them in such a way that they represent conformities, it's also possible to have paradigms defined as set inclusion over some subset of (possibly discontinuous) property inclusions and in such a way that property inclusion is definitional in assignments as effected in paradigm entries. In which case paradigms share in or are instantiated by property inclusion aspects in their identified memberships (as a terminological nicety).

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1. *Transderivational Identity: Phonological Relations Between Words*, Laura Benua, University of Massachusetts Amherst, 1997. Garland publishing, 2000.

2. Whatever its merits that use of 'identity' is standard in the literature—probably (unstated) a variant of algebraic functional identity—intended to allow contrasting forms in realisations (lexical, sub-lexical, phonetic, metrical etc.).

3. The usual restriction is uniformity. In the below I think I'm paraphrasing Donca Steriade, see her introductory definitions in 'Paradigm Uniformity and the Phonetics-Phonology Boundary' at <https://linguistics.ucla.edu/people/steriade/papers/LabPhon98.pdf>

Items within a paradigm are subject to processes applying. Benua is interested in which processes are identified as affecting preservation of identity/similarity as they attach to items with different structure related as similar. Discontinuous phonological profilings create clashes associated with resolved phonology for a form alongside identity for that form where the identity function may be driven off a form in some clash. There is a tight weave in phonological, phonetic, identity requirements under paradigmatic characterisation, and as Benua identifies, items under a ‘sub’ characterisation can be in conflicts inside a paradigm in discretely informative ways where the paradigm functions to display competing effects of named interactions.

But then types of processes will ‘trigger’ identity. And they will do this in ways that are structurally coordinated. In one place Benua discusses identity in connection to base as morphologically triggered so

The identity relation triggered by morphological derivation holds between the derived word and an output base. The base is the independent word identified with the string that undergoes morphological derivation; in affixation, the base is the word identified with the string adjacent to the affix. A precise definition is difficult to formulate, because the relevant base can be identified only with respect to a specific derived word. . . . Often, the base is the word that is minimally less morphologically complex than the derived word, so that the base consists of a subset of the derived word’s morphemes. But this kind of subset relation does not always hold. An obligatorily-inflected word can serve as the base of another inflected word, and the base’s inflection is neither morphologically nor phonologically present in the derived word. [fn. omitted] Given these kinds of cases, there can be no formal requirement of a morphological subset relation between the derived word and its base. *TI*, 29

Benua requires that identity be a kind of connector for dependent identification across instances, as a kind of variably realised requirement for that, here supplying morphological derivation. Deploying in tableaux single line entries for variant phonological expansions contrasted in acceptability rankings according to ordering of interacting constraints, here involving separately recursion of secondary (as affixed) identities on bases, Benua clarifies an identity relation operating on a base as undergoer in the affixing relation.

Below, referring to tableaux (22,30) contrasting Madurese and Tagalog cases, she outlines a particularised breach (unusual phonology) associated with identity effect in BR strings

In Tagalog unexpected phonology appears in the base, while a formally similar ranking makes the reduplicant misbehave in Madurese. BR-Identity constraints can induce noncanonical phonology in either string, which ever better satisfies the constraints. In Tagalog and Madurese, the winner is more harmonic (markedness-satisfying) overapplication. Thus, reduplicative identity is a two-way street, and either string in a BR-Identity relation can influence the other. This fits with the null hypothesis about an identity relation: it should be symmetrical. *TI*, 50<sup>4\*</sup>

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4. ‘BR-Identity is ‘Base-Reduplicant Identity’ and refers to the copying of one element into a string where it appears (at least) twice. ‘Unexpected phonology’ is related to ‘markedness’; ‘harmonic’ refers to a broader notion of harmony as a general constraint on forms in correspondence, more on which later. \*See sample tableau shown on final page below.

Where constraints order in connection to base and reduplicant separately, and where identity is taken across a string, under competing rankings identity will take adjustment *in* reflecting (symmetrically) local identifications in competition as reflected. And constraints then, in the operation of sorting through rankings including of their own relative significance are relativised as responsive to information from script entries taken as competitively illustratively resourced in identifications.

At this point we could be thinking still of relativized applications associated to rankings (harmonic, markedness) on a word to word basis, not here as being set in terms of ‘paradigmatically-related’ entries. Paradigms will take information connected to these resources as formalised but will display in making that formalisation connections amongst materials read back from adjustments in acceptable individual forms accorded in applying hierarchies/rankings.<sup>5</sup> But as we’ve already seen rankings of constraints relate particularly to items or parts in decomposition particularly primed for a constraint applying as differentially qualified. How the, or this kind of differential is supported, if it is, is subject-matter of the literature. In mitigated sense I will explore, but suggested in OT quite generally, bases at least are residue as differently theoretically supportable as actual correspondents of a word or form that may be characterised in contrastive entailments (for instance, in rankings discussed; under the rule of IO correspondence but also, for reasons of derivational type continuity to be discussed, OO correspondence too). The mentioned discontinuity/discontinuities referred back to deferral involved in taking as actualised identifications operative in permeable connective and relational oscillations (involving bases under divisions, ‘Faith’, surface forms and representations commuted through purported surface-actual *identity limiting* (as for instance shown in breaching results)). I give some more background relating to OT later.

### **content, idiom**

‘... specifically, I hold that idioms are well formed, and that the rules of well-formedness are simple ‘parameterized’ rules.’ Edwin Williams, ‘Remarks on Lexical Knowledge’, 1994. (10)<sup>6</sup>

I discuss what I think is Edwin Williams’s suggestion that paradigms have something in common with idioms in terms of way of formatting related inclusion and exclusion. I try to show that they do. I then come back to OT to talk about how it’s set up in the literature to then talk about analogies for identities crossing (that *is* the way it works, see remarks on implementing visualisation) in the literature relating to initial interest in formation of identities.

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5. It will be contentious whether (as in Benua) priority is given to base in establishing paradigmatic relations, in which case the structuring mentioned above and in association with morphology operating on base structures as prioritised is significant, or, as in Luigi Burzio, a paradigm is conceived of as a loop for identities in interaction. The mitigation I come to mention takes something from the Burzio conception but thinks of that loop as a tool in qualified characterisation, a separate thing. See Burzio’s ‘Sources of Paradigm Uniformity’, reference in footnote 9.

6. *Lingua* 92 (1994) 7-34. North-Holland.

In previous work I wrote about materials in transition; ‘material’, ‘content’, as a restructuring transitioning associated with establishing content. There are philosophically useable situations in which a content is an overshoot in an argument (like a modal argument) old-fashionedly contrasting with situations in which arguments are derived from values realistically associated to contents. In order to illustrate the (slightly old-fashioned) idea I discussed a notion of semantic involvement as amalgam (borrowing from Scott Soames’ work on ‘Russellian content’, an established item in philosophy invoking actual contribution of objects in objectual references) identified as ‘composed of contributions of and reflexes to contents under a conception of propositional content which emphasises ascriptions of content.’ I thought that in that context—Russellian explicatory context—in establishing invariances across contexts as, by hypothesis, contents were already implied in establishing results in amalgamation which was content-recognition dependent, content in the relevant places had a seconding role in identifications (tantamount to drawing off identifications as identified). I went on to talk about criticisms in a processual sense, as exploitative of content identifications and in cases a role of criticisms was to make idiomatic as used content assignments based on referential incorporation. In a reversal of the ‘material, content’ relation above: one could give a slightly demeaning sense to referral in criticism in a range of cases identified as associating aspects of objectively incorporating identifications as in, as above, some restructuring or transitioning guise associated with material of criticism.<sup>7</sup>

If there’s an analogy it’s difficult to exploit, but in talking about a constraining relation in some way identificational/depositional one is talking about a relation in stating coordinate content (like reading out materials subject to rankings etc.) made significant. There is at least that in establishing connection beyond fact of coordination in for instance a relation of graphic visualisation assuming visualisations are relatable as coordinations to facts as things textually signed-off on sympathetically understood, as points in connective display identified with those facts as with materials coordinated in display. Pending resolution other than, say, as presumptively idiomatic (problematically) the displaying-as relation drives one backwards; the content of resolution is resolution, taking the visual analogy.<sup>8</sup>

But one doesn’t have to go this far in using related constituting differences in problematising detachments. In his ‘Paradigms (Optimal and otherwise): a case for skepticism’ Johnathan Bobaljik quotes Edwin Williams for a bit of undermining support for the negative reading Bobaljik gives—in

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7. *Contents, and Criticisms as Reflexes to Content*, University of London, 2009. Examples used there were from contemporary art criticism in which objects of criticism were largely determined as contentful only in the senses of criticism where such ‘senses’, I argued, were a directive of criticism. This is only interesting, I argue there, as a hard, if unpalatable, fact of criticism.

8. The reader is reminded that I was referring to graphic presentation of paradigms in OT as grids with slots for entries under headings associated with valuations (tableaux). Something like the question asked is in minimal form asked of ‘association lines’ or ‘slicing’ in John Goldsmith *Autosegmental Phonology*; MIT, 1972, 29 onwards.

the service of reestablishing cyclical attachments—of John McCarthy’s use of Optimal paradigms, where Bobaljik says: ‘. . . McCarthy’s proposals thus have the right form to constitute an argument that the paradigm is “a real object, and not the epiphenomenal product of various rules” (Williams 1994: 22).’ Bobaljik, ‘Paradigms’, 30.<sup>9</sup>

Something like the analogy in different narrowed form (it exists!) is made by Edwin Williams in ‘Remarks on Lexical Knowledge’. In that text Williams emphasises lexical knowledge as a further type of abstractive structuring knowledge (in line with claims made for syntactic knowledge) ‘not arrived at in terms of parameter setting ‘as such knowledge ‘must be learned from the data in a strong sense’ [the immediate setting is learning implications] 8. Two abstract structures are introduced: ‘abstract idiom’ and paradigm; his related definitions and in particular his screening of paradigms for contents are of special interest. There is as Williams points out that technical sense in which phrases ‘in the lexicon’ (here not quite flagged in the way of later work) are called ‘idioms’, taken by Williams as ‘any defined unit whose definition does not predict all of its properties.’ Significantly he contrasts as under that heading ‘*kick the bucket*, a phrase, whose idiomatic meaning is *die*, with *transmission*, which unpredictably means ‘such and such car part’, suggesting ‘We don’t think of *transmission* as an idiom, but it will be useful and I believe correct to include it.’ (8)—‘transmission’ in the quoted sense is added to emphasise complementary existence of a privileged meaning available recursive on ‘transmitting’, the process of passing something from one person or place to another. Idioms, as discussed by Williams, are significantly items subject to various (including syntactic) characterisations: formal, syntactic (in traditional ways well-formed as syntactically structured), semantic (see the remarks on ‘lower trunk wear’, 13), working in ways subject to traditional formal breakdown (laid out from 15 onwards) as they are broadly subject to phrasal analyses along traditional lines, or characterisable too in argument dependences (in Williams in terms of his preferred Theta structure) etc. Williams discusses ‘compounding’ as syntactically versus lexically, affixually (semantically) differently effected between French and English, French structuring in terms of syntactic orderings—VP has an instance of V, NP has an instance of V N, where English uses ‘the affixation system in the lexicon, which is right-headed. Ordinarily, Y is a suffix, forming the head of a word. English lets Y be a full noun, giving us compounds.’ (16) He continues:

Importantly, both languages have both resources—English has the same (left-headed) syntax as French, and French has the same right-headed affixation system as English; however, they each exploit a different one of these for their compound terms. I assume that this is ‘idiomatic’—that is, language-particular, but perhaps not ‘parametric’. RoLK, 16

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9. Bobaljik’s paper is in Asaf Bachrach and Andrew Nevins, *Inflectional Identity*, OUP, 2008. Bobaljik quotes Williams’s RoLK. John McCarthy’s ‘Optimal Paradigms’, 2005, is in L.J. Downing, T. Alan Hall, R. Raffelsiefen, *Paradigms in Phonological Theory*, OUP, 2005.

Williams continues and offers, as idioms, descriptions of generalisations over syntactic forms, for a case of embedded questions in English where

not only do matrix questions not necessarily undergo Wh-movement, but even a *wh*-word in an embedded question need not move, when, for example, another has moved, or the complementiser is already *wh*, like *whether*:

(16) Who wonders whether George saw who?

The correct generalisation is as stated: a Wh-word must appear at the beginning of an embedded Question. What sort of information is that? We might describe it as an idiom, in the sense developed herein:

(17) [wh-phrase] S←: embedded question (RoLK, 16)

and he continues

Idiom (17) is a good candidate for a ‘parameter’, in that there is a small number of ways that question words can be dealt with: (1) moved to front; (2) moved to verb (as in Hungarian); or (3) left in situ. However, I think there is good evidence that idioms just like (2) must be countenanced, ones that are not reducible to parameters of variation. (16)

and the reader is encouraged to follow his account starting with ‘amount relatives’ with form (in his notation) 18a, 18b, to 19 (double carat ‘has an instance of’)

- (18a) [wh-phrase S] > >  
[what N’ S]: Little (amount relatives)  
(18b) I gave him what food I had.  
(19) I give him what I had.

Still, noting superficial similarity of forms (17-18), form 18a, 18b, to form 19, involve (I summarise) contrasting implications particular and idiosyncratic (involving particularities of a ‘very particular’, ‘plausibly idiomatic’, semantics ((RoLK, 17)). Williams gives related cases, including referencing the ‘obligatory idiom’ (the listed categorically ‘lower trunk wear’ etc. mentioned) as effectively enforcing application of rulings. He explores other applications, for instance interestingly rules of inversion.

William’s summarises

we do not have [meaning yet] a wholesale theory of ‘constructions’, but still a broadly parametric model. This says that a construction say, passive—must conform to the typological pattern that is determined by some parameter settings, but leaves open the possibility that not all features of the passive construction will be determined by this conformation. (p.18)

and moves on to example various language specific idiomatic property embeddings, again, often conforming to traditional forms but involving lexically derived (as ‘delivered to the lexicon’) content in idiosyncratic placings and, otherwise than as particularised under terms described, unresolved restriction. Reverting in the account to his earlier target explanation in terms of a learning problem in recognition he takes the learner as facing the difficulty of generalising over examples, and ‘where the limits of the generalisation must follow in some way from the actual mechanism of

generalisation.’ (21) Williams now introduces the second of his abstract structures, paradigm, initially giving a Latin verbal conjugation as sample to contrast with a more abstract characterisation. ((RoLK, 22)

## **paradigm**

An idiom is a part or a stretch with parts in which, as conventionally understood, some parts are relatively unconventionally taken. The function of the idiom is to display those parts as part of a stretch, the stretch being conventionally constrained. Williams adds complexity in showing that the reliance in conventional presentation/unconventional content part can be effected in a kind of paralleling formal structuring in a stretch, as effected in that structure. The examples he gives associate particularised forms in hierarchical organisation interpreting dependent forms particularly. The issue of recognition, or Williams’s learning strategy, is the issue of making a determination of content dependencies invoking particularisation over stretches of some length that involve making determinations of which stretch applies. The problem of idioms—running the gamut of stretches from contexts for affixation on roots to whole grammars (I take it the argument implies)—then is in accessing some available structural key to unlocking as un-relativised lengths. The particular problem I think he addresses is how is what material relevant to what stretch in relation to usual conditions of grammatical interconnectedness anyway; where definitions relating to interconnectedness at a level are conventionally, recognisably the matter of some straightforward as well as not so straightforward grammatical hosting.

One of the problems in giving ‘idiom’ ‘defined’ in such a way is that according to how one understands ‘stretch’ (obviously I labour the point), related features become inter-defined, and that definitional contexts (for that) become listed (perhaps). The reader can check this for his or herself, I think ‘paradigm’ under broader characterisation invoking even abstraction, given by Williams still attaches realities as local and localised determinants in ‘slot’-fillings (RoLK, 22), realities that are Bobaljik’s mentioned interest too; again, I think. Paradigms in that kind of way are amenable to characterisation where idiom as above makes characterisation out of contexts problematic, there’s a templatic sense in which idioms (in this specialist context at least) don’t preserve functional characterisations out of applied contexts determined as applying. The templatic sense in which paradigms produce exactly correspondences available to characterisation in places of attachment (usefully) is described by Williams (24 onwards). Patterning (Williams’s expression) amongst slots even accommodates excess slotting (the pattern associated with ‘syncretism’); Williams describes a process so: ‘Hierarchalise the dimensions of the paradigm. Assign forms to nodes in the hierarchy’. Dependencies in Williams’s following English verb paradigm exemplifying tree are, in terminal nodes,

‘actual cells in the paradigm’ (24) and dependencies taken there cover for formal identities (even as, in the case of syncretism, some form is an assignment (starred in place of assignment in the tree for syncretisms described) just most economical in being made once). Illustrative possibility, one could see, is ‘constrained’ here in the sense of representing featural-phenomenal realities as structural in differentiating in hard sense positional representations across nodes.<sup>10</sup> There are repercussions here for how one thinks of Williams’s continuing interests in structured realities invoking featural realities separably accounting for distinct determinative encounters in units grammaticalised (across say lexical versus syntactical characterisation) involving positioning as representationally significant and how one is supposed to think of characterisations in OT as, in various sub-routines subject to various interpolative insertions involving sub-characterisation, effective in function driven comparison of sub-units positioned under paradigmatic characterisation.

## OT

Some might think of Optimality Theory as offering stricture on generalisations, not just on the kind of connectedness showing components in UG as reflected in procedures (and in part mimicked in the removals of items like rules undertaken in minimalism), but in taking out characterisations supporting idealisations at work in characterising idealisation. That is, making some kind of transfer to the use component as represented as available in contrastive technical uses in comparisons situated only in those uses (optimising information retrieval from those components). In OT output and output-output correspondence as OO correspondence is conceived as a mechanism which disciplines information retrieval as the mechanism models, in successful operation (it’s seen as), the forms in which inputs are to be taken as made available, with (controllable) affect on characterisations of forms related to the viability of their association in characterisation of outputs.

Introducing their book *Optimality Theory: Phonology, Syntax, and Acquisition* its editors discuss credentials of OT as an output-based modeling theory set plainly in a shift from an earlier ‘rule-based model’

The major shift OT brought about in phonology is that from a rule-based to an output-based model—a move that was also foreshadowed in several other publications (see Prince and Smolensky 1993: I). In Chomsky and Halle's (1968) influential *Sound Pattern of English* it was assumed that phonology consisted of sequentially ordered rules. In the decades that followed there was increasing attention to so-called phonological conspiracies—i.e. the phenomenon that several phonological rules together aim at the same representational goal. In an output-based approach, such as OT phonology, constraints on surface forms can express these conspiracies. <sup>11</sup>

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10. I don’t follow Williams in the discussion of identification of ‘basic’ paradigms here in terms of pattern recognition.

11. Paul Boersma, Joost Dekkers and Jeroen van de Weijer, *Optimality Theory: Phonology, Syntax, and Acquisition*, Oxford University Press, 2000.

they compound ‘aiming at’ representational goals; ‘constraints on surface forms’; emergence of representationally ordered output theorising, ‘so-called phonological conspiracies’ as distinctive of OT, then linking to conspiracies, as in phonological conspiracies’ invoking variant mappings as in period theorising more generally, OT’s use of processes of abstractive but actual content-reflexive conditioning as (as will be more concretely discussed) at levels responsive to minimal representations (subject to repair in conflicts as exposed by ‘conspiracies’) rather than derivational processings theorised building from steps.<sup>12</sup>

One should do more than make vivid analytic dither invoking representation taken as occurring, at local level—in terms of forms minimally expressive filling in top left hand grid structures etc.; in tokening necessary to contrastive entailments released across episodes in comparisons relating similarities—versus self-consciousness relating to use and status of episodic identities (as builder’s tool say). In the latter built up sense OT should not be representational, it subsumes identities in coordinations disciplined again in the ways described, and probably infinitely describable in involving doll/shell-like sectionings or containment and as, discussed later, conflicted perhaps in preserving content relations like entailments across removable moved items.

Again representation as associative occurs at minimum whenever anything like a contrastive form as output is considered or a continuation of content or material at an interface; there is content of idealisation in representations of phonotactic identity; that content could be prim or effusive or interesting in terms of where in what margins it’s effected. In OT representations can be, standardly as (underlying) forms, devices of containment realities of which register particularly in limitive uses of apparently associatively indicative constraints effecting (via some mechanisms to be discussed) almost sheerly transfer of materials—again, as in outputs associatively preserved *accessed* as ‘open to inspection’s in form associated to tautologous form.<sup>13</sup> The claim is nearly that inputs are immediately contained in those outputs that are subject to constraint interactions in the operations of those constraints—as a re-presentational goal in a (nearly) realisational theory directed at suppressing separable realisational (‘cyclical’, in contrast to variously interleaved; and again contrasted in being

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12. As operating across variants at levels as apparently mismatched or conflicting in licensing environs where ‘conflicts’ are adjusted theory-productive in the sense of signalling potential underlying representations across conflicts. Farida Cassimjee and Charles Kisseberth give a neat characterisation of the technical aspect—in terms of ‘repairs’—of the application in use in phonology: ‘The notion of a “conspiracy” can be summarised as follows: a *single* phonological principle may both (i) trigger one or more “repairs” (of some offensive structure) and (ii) block repairs that are designed to avoid some other offending structure. Introduction ‘A Conspiracy Argument for Optimality Theory: Emakhuwa Dialectology’, 1999. *University of Pennsylvania Working Papers in Linguistics*: Vol. 6 : Iss. 1.

13. ‘In the theory advocated here, where outputs are evaluated, we expect exactly this kind of interaction. The whole output is open to inspection; how we choose to inspect it, or how we are forced by UG to inspect it, is not determined by the course that would be taken in bottom-up construction.’ Alan Prince and Paul Smolensky, ‘Optimality Theory: Constraint Interaction in Generative Grammar’, 1993, ROA 2002 version, 22.

available across one singular transaction)<sup>14</sup> points as were in a derivationally provoked sub-structure where a totalised structuring is yet (maybe is) see-through to synchronically operative orderings of conflicting constraints tiered only in (in sense to be clarified) operational levels. Representations may be unproblematically (transparently) grounded in corpora whilst making transfer to actualising devices of representation constructed for comparison.

Connectedly, with emphasis on making stark just assumptive scales of theories, I look at a limiting reality of representations ordered in evaluations in phonology, morphology, syntax (a little) according to constraint hierarchies as constraints on ‘optimality’. In ringing materials in idealisations of constituents in communicative competition marking different types of uses made in according constraint hierarchies as constraints on ‘optimality’ one is ringing materials in idealisations of constituents in communicative competition marking different types of uses made in indexing, enforcing, and iterating dependencies of a grammar. I think of Laura Benua’s expression ‘There is nothing epiphenomenal about identity in paradigms; it is enforced by principles of grammar.’ (Benua, *TI*, 5) and I take that not sinister phrase to do with principled limited identities as harmlessly *in* theses in units confirmatory in relation to units<sup>15</sup> (again, operationally implicit in the transfers previously mentioned as also now assigned in ‘paradigm’, in fixed word identities individually constitutive of paradigms) in generalising then matched to awareness of uses of cycles, series, layers of productivity or projection criterial in a correlating. Where, in Benua’s ‘transderivational’ work, as others’, effects (pseudo cyclic effects) are seen by the OO mechanism in terms of match/mismatch non-procedurally in ‘constraint interaction’. In fact ‘units’ themselves, in a slightly different sense as heteronomously complicit, voided of underlying content may be negatively distinguished stated as baroquely as merely voided theoretical formatives, in support of a

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14. Present for instance in Prince and Smolensky (1993). Contrast Luigi Burzio ‘Sources of Paradigm Uniformity’, in L.J. Downing, T. Alan Hall, R. Raffelsiefen, *Paradigms in Phonological Theory*, Oxford University Press, 2005. 65-106, who discusses, in passing, ‘mental representations’ as though as actuals in the context of processing. Cemil Orhan Orgun describes “cyclicality” referring

. . . to the state of affairs in which a subpart of a linguistic form may be subject to phonological constraints on its own, in addition to constraints enforced on the whole form. There may be a number of such embedded phonological domains in morphologically complex forms. The number and location of such domains is determined by the morphological structure. There are two common ways in which cyclicality has been implemented in theories of phonology. These are summarized in (1) and (2). 1) Phonology applies to fully formed morphological structures. The most deeply embedded constituent undergoes phonology first, phonology then applies to successively larger constituents. (2) Inputs to some morphological constructions may be subject to phonology on their own (interleaving). [references omitted].

Cemil Orhan Orgun, ‘Sign-Based Morphology: a declarative theory of phonology-morphology interleaving’, University of California, Berkeley, 1996, unpaginated, 1.

15. Again by ‘identity’ is intended something limited only in being phonologically locally realised (a different example of that type of identity would be Burzio’s contrastive identities: ‘segmental identity and identity in stress’, ‘Sources of Paradigm Uniformity’, 68).

a broader theory of possible dependencies with only language specific structural surface analyses as

Because language-particular restrictions on inputs cannot be stated, OT distinguishes POSSIBLE INPUTS, which are drawn from the universal pool of possible linguistic structures, from the UNDERLYING REPRESENTATIONS of the morphemes of a particular language. The pool of possible inputs to a grammar is universally unrestricted or rich. The underlying forms of a particular language are derived from its surface representations, by examining the system of surface contrasts. Benua, *TI*, 14

Leading neatly to the structuring significant claim (slightly differently stated on her page 8) that morphological derivation is ‘mirrored’ as ‘phonological faithfulness relation between derived output and input base’, qualified as a co-representational or base-revisionary (the ‘possible’ above) relation. But identities/similarities associated with underlying forms will be problematic when and as the phonological similarity relation is compromised in violations (seen earlier). There is some problem in overriding systemically realised identifications in attending to specifics relating to even not organised dependents in productivities narrowing in not exceptionless criteria. In not wanting to miss the absolute underpinning nature of phonetic and phonotactic correspondence, in matching/alliance pairing in identifications Benua’s identity must apply in some adjusting sense of ‘analyses as’ as the expression covers for base/reduplicant pairs as also for correspondents determined in any order pairwise as analytical, not merely in the sense of say, substituting for phonologically identified pairs. *That* sense of identified truncates procedure to procurement. What I’m attempting attending to now is not any thesis directed at ordering of priorities other than particularly motivated ones, I’m asking about governance of priorities in *any* identificational types of interchange including representations. Specific in her early first characterisation, morphological and phonological pairing is a ‘sharing-in’ relation between underlying forms/representations. Benua gives the example *cat* and *cats*, related by plural affixation ‘phonologically identical (to the extent that they are) because both contain the root with the underlying representation /kæt/, and both are derived by the English grammar.’ But, as immediately discussed, similarities associated with underlying forms are problematic when ‘achieving identity’ (in a sense at that point to be explained) ‘entails violating regular phonotactic patterns of the language’ *TI*, 3. Here is an active sub-thesis relating to part-hood and identities confirmed in fundamental (I take it) parts sharing—in word pairs. There is reliance then on prescriptively narrowed pairings in the grammar paradigmatically narrowed at least in comparison to either ‘richness’s reported in contrasting materials as relating unconstrainedly (say in senses contrastively immediately unusable as not defined on representations) as source of (say, word/worlds) Benua’s ‘possible inputs’ analogy prior to selection one with another.

In that connection, devolved functional criteria, assessment in terms of implicational, entailing or covariant identifications is standard as more or less narrowed. In syntax and morphology, in prosody in relation to phonetics and phonology, in phonological theoretical self-awarenesses relating to

parameters involving some matches there will be comparative relations drawn on analogies as if for interactions of (as though) components (involving, in syntax and in morphology those aspects of interdependence regulating of course directedness in forms and strings and analogies of structuring with other components, in phonology and prosody the interaction of scaled units within an hierarchy of dependents, for instance say those relating to a ‘level hypothesis’—or like ‘compositional’ or directional/branching restrictions—additionally imposing on any unitary treatment (of, eg, clitic groups taken as operating as across levels, see footnote 16 below)). In relating syntax and morphology consider the ‘cartographic’ project in the generative tradition as a grammar of available functions reflected in headedness in shape and position flexed as under control in inflectional paradigms, in Pollock, Cinque etc; recent work on separable parallels among shapes of constituents—the ‘mirroring’ (the phrase stemming in Mark Baker’s work on syntactic and morphological derivational correlations) of syntactic constituents by prosodic ones.<sup>16</sup> Then, in context of OT and current theorising generally, the interactions of ranked constraints (involving morphological and prosodic constituencies) and availability of overrides and analogical structurings across components/architectures/dimension dependent on ranking constraints operating.<sup>17</sup>

### **grammar, structuring**

Familiarly then, at the outset theorists were particular about OT’s grammatical structuring in expressing its restrictedly—‘well-formedness’/constraints—limiting status. Alan Prince and Paul Smolensky in their 1993 paper described phonological theory as in two parts consisting of a ‘theory of substantive universals of phonological well-formedness and a theory of formal universals of constraint interaction’. They give further detail

To define grammars from hierarchies of well-formedness constraints, we need two distinct constructions: one that takes given constraints and defines their interactions, another that pertains to the constraints themselves. . . .

Construction of constraints amounts in many ways to a theory of contextual markedness [references omitted]. Linguistic phonetics gives a set of scales on phonetic dimensions; these are not well-formedness ratings, but simply the analyses of phonetic space that are primitive from the viewpoint of linguistic theory. (We use the term ‘scale’ in the loosest possible sense, to encompass everything from unary features to n-ary orderings.)

Issues of relative well-formedness, or markedness, arise principally when elements from the different dimensions are combined into interpretable representations. High sonority, for example, does not by itself entail high (or low) Harmony; but when a segment occurs in a structural position such as nucleus, onset, or

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16. See recent work of Lisa Lai-Shen Cheng, Laura J. Downing, ‘Recursion and the Definition of Universal Prosodic Categories’, *Languages*, July 2021).

17. See, in relation to adjustments of initially projected impermeability affecting prosodic units represented in the ‘Strict Layer Hypothesis’, Nespov and Vogels foreword to the 2nd edition of *Prosodic Phonology*, Mouton De Gruyter, 2007. On ranking constraints and correspondence see later references to John J. McCarthy.

coda, its intrinsic sonority in combination with the character of its position gives rise to markedness-evaluating constraints such as HNUC above.<sup>18</sup>

One theoretical charge must have been to retain that sense of qualitative particularity as affecting as constraining theory relevant to a proscribed field when clearly a motivation was to divine in circumscriptions operational consequences conceived on a deferred abstractive level. An attraction of the theory's embodying results of constraint interactions as responsive to theory-internal qualitative implementation, as being in fact supplementarily transparent to co-ordinations of variously language specific implementations, qualitative identifications, was apparent naturalistic coordination of defined features taken here—in OT—at one fell-swoop. Differently put, the uses of analyses of the relevant types of spaces ('primitive from the viewpoint of linguistic theories') will (latterly) involve a period of time-stretch or compression over a previously normal (I take it) process of embeddings in a new theorised and recursively enacted invocation/re-invocation of base as digestively present in results of corrected theories.<sup>19</sup> Or as Prince and Smolensky have it

What we have done, in essence, is to replace the iterative procedure (act/evaluate, act/evaluate, . . . ) with a recursive scheme: collect the results of all possible actions, then sort recursively. *OT*, 16

Formedness itself was now a matter of multiple sectioned interactions amongst admitted established units involving scalar relations to and among parameters (as recursively defined in connection to such); for instance, even the self-ascription of process above was actually circumspect in that it applied (in a 'producing and pruning') to the (again self-ascribed) arrival at the correct output, here 'harmonically' defined. So—and now referring to the ranking process previously sketched as an ordering among constraints in applications attached to values (phonetic inputs) where 'candidates' are those items showing marks of graded difference inside the relevant hierarchical scales

The correct output is the candidate whose complete structure best satisfies the constraint hierarchy. And 'best satisfies' can be recursively defined by descending the hierarchy, discarding all but the best possibilities according to each constraint before moving on to consider lower-ranked constraints. *OT*, 16

The theory, confirmatory as involved in the checking of materials only controllably resonant in results generalised from interactions standardly available in the base (a point I think Williams developed in bases nicely synthesised) as also *in its own* resourcing of that base is understood as a

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18. 'Optimality Theory: Constraint Interaction in Generative Grammar' (1993), quoting from the 17/73 ROA version. Single quotes around 'scale' register I understand openness to varying possible analytic scales in phonetic-particular gradient markings. 'HNUC' was a constraint on nucleus sonority in terms of 'harmony'.

19. The language here is not hyperbolic. Prince and Smolensky (1993) 16 had already discussed the 'parallel method of evaluation' and in discussing interactions in terms of individual constraints particularised to 'substructures' as 'generating a *set* of evaluations' in competition with a grammar anyway 'generating multiple sets of evaluations' in the context of multiple theoretical dimensions (to which there's theoretical commitment).

refinement on characterising, and characterises itself in relation to its constraining processes in terms of correctness of characterising (of outputs). The building on and around structural resonances is a core part of explanatory process stepping away—as here—from obviously resolved attaching linear process and sees as naturalistic a checking mechanism (which can be eased to incorporate derivations if required) active in discovery of its own materials. That discovery part of a relatively holistic process (regimen) of qualitative completion in terms of recovery, not just enriched in qualities of responsiveness to facts of distributions (phonetic, phonological) but, as it should seem, hearteningly responsive in the individuating sense of identificational (as I think briefly noted in Benua, but see later comments on Kiparsky too) to gradient evaluation of complex phenomena of interactions at relevant levels disposed to gradient characterisation ('scale', in my sense given earlier).

One residue of a paralleling claim or claims like the above should be some greyness in colouring in perception of the actual carrying out in detail of a programme involving multiple layers of activated responsiveness respecting inherent qualities of a subject-matter. Realities here are themselves subject to multiple types of effect at the level of degree of resolution or even availability of principled or common or garden description or delineation counted as such. An appropriate question would be, for instance, does the compression I mentioned in various places above clear the way of sub-dependencies existing in representing separably hierarchically organised units of interaction; is there an inline correlate of any type like a representation (say, underlying levels-of) which has an organisational impetus which is concrete and unrealised in the compressed focus in degree like differentiations amongst labelled materials? It's a technical matter and I don't have the background to consider whether material given over to circumscriptions as comprehended is properly available (not just as groomed) to differing regimes as embodied in systematisations (in driving different systematisations or applications of derivational as productive routines, in focusing applications (in, e.g., full uses of coordinating materials discussed in work by John J. McCarthy on harmonic serialism vs. parallelism)).<sup>20</sup> But at least such work depends to some extent on evaluating contributions of and connections among distributions drawn out of some interdependence of characterisations of contributing functions primed as ranked, taking (as in McCarthy amongst all others dealing in OT characterisations) input characterisations as linked to production of material that's to be evaluated, to some greater or lesser extent, cyclically (with some now changing senses of fundamental restrictions at levels, in McCarthy bringing some restriction on candidate restraints on inputs into effect actually affects values inside a serial derivation, so, for instance bringing it (re caveats about isolated stages) in ways closer to the contrasted, more generous, less input restricted, paralleled form (McCarthy, HSP, 16 onwards)).<sup>21</sup>

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20. John J. McCarthy, 'Harmonic Serialism and Parallelism' (2000). *NELS* 30. 98.

21. I don't know of discussion of cyclicity in which any problem in giving summations of cyclic effects given in summation is identified.

## paralleled conservational representations, complexity

In considering input/output constraints initially functioning in Optimality Theory in terms of issues of relations of representations (or of derivations) taken for the time being as productive in evaluations perhaps according to simplicity or flexibility or loss, I quote Hermans and Van Oostendorp's introductory comments about OT's allowing multiple representations in parallel

OT's initial assumptions about derivations, as presented in Prince and Smolensky (1993), McCarthy and Prince (1993a, 1993b) and related work, offered a revolutionary change. Taking the position that only two separate representations were involved in the evaluation of a phonological form—input and output, of which only the former was subject to independent wellformedness constraints—is a minimalist hypothesis, and in this respect it offered an interesting alternative to the convoluted derivational models of previous times. The empirical claim was fairly strong, and it was challenged almost immediately. The response to this has been to weaken the claim and allow Optimality Theory to consider more representations in parallel.<sup>2</sup>

Invoking potential identities as available to interiorised ranking analyses, gestured at in forms taken as alternating as actual properties in support of what supports what, I quote René Kager

Instead we will find it more fruitful to look at Hixkarayana length and stress as a system of *conflicting preferences*. We will find out how these conflicts are resolved by comparing the actual outputs with potential outputs [...] Ranking arguments will turn out to have a general form: for a pair of an actual form and a suboptimal form, a constraint violated by the suboptimal form (but satisfied in the actual form) dominates a constraint of which the violation pattern is the reverse. (A more complete and formal treatment of what constitutes a ranking argument in OT will be presented in chapter 7.)

In each step, we will proceed as follows. First an actual form will be juxtaposed with a potential form, one which might have been, but is not, realized. We will then identify two conflicting preferences, relating these to the cross-linguistically recurrent properties of stress systems of section 4.2. Preferences will then be translated into universal metrical constraints, which will be ranked one by one on the basis of the available empirical evidence. Finally, we will integrate the sub-ranking thus found into the (current) total ranking for the metrical pattern of Hixkaryana. (Kager 150)<sup>23</sup>

And, bear with me, another from Hermans and Van Oostendorp

... one could also wonder whether Optimality Theory provides us with a theory of derivations. It certainly is not a 'theory of rules' in the technical sense that is usually given to it, because it denies the existence of

phonological rules altogether. With this, many of the derivational tools of SPE-type phonology such as rule ordering and the cycle are abandoned by a lot of scholars working within the OT paradigm. For most of them, a minimal derivational residue persists however: there is a function mapping inputs to outputs.

'Classical OT', i.e. the model that Prince and Smolensky (1993) proposed, consists of a function Gen (Generator) mapping a given input onto an infinite set of output representations called candidates and a function H-Eval (Evaluator of relative Harmony) mapping the set of candidates onto a unique representation, the phonetically realized output. (*Derivational Residue*, 3)

Persistent then are some mechanisms, really barely sketched above, in respect of designed

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22. Ben Hermans, Marc Van Oostendorp, 'The Derivational Residue in Phonological Optimality Theory', John Benjamins, 1999.

23. René Kager, *Optimality Theory*, Cambridge University Press, 2004. The gesture is almost David Lewisian.

phonological (metrical and morphological) constraints, conceived as limitively effective over (phonetically constrained) outputs as, pointedly, only relatively restrictively constrained in terms of some mapping of inputs to outputs, as functionally separably ‘evaluated’ in the ‘Gen’/‘H-Eval’ mechanism, as mechanisms seemingly reflective of ‘minimal derivational residue’. Then in addition in various formation uniqueness (of representation) and realisation (of output) coordinately. It might seem too that conflict and conflict resolution (Kager) was means of embodying abstractness. That is abstractions authenticated in the move to comparing actual and potential outputs. Tableaux, in Kager as elsewhere, give forms convergent on a ranking of ranking desiderata accorded in OT. The forms—to restate the case—relate to restrictions among competing parts assigned in the theory where parts are subject to constraints. Saying ‘parts’ I mean bits, useably arrayed<sup>24</sup> as at least determined as manipulable and manipulated in the theory, in OT those parts subject to faithfulness or ‘IO’ constraints. Such constraints are standardly contrasted with rule-based theories’ directly linear systematisations (directly invoking patch like or temporal identity linked with the derivation), one could question whether the contrast was real or at least substantive as constraints may just be deferred regularisations in terms of ranking of rankings of systemic valuations then *with* addition.<sup>25</sup> These conjecturally significant in positing ‘potential’ forms (contrast with descriptive forms).

Of course hierarchy reflecting rankings as consolidated as determined in or determiner of acceptable interaction of parts involving (even if not invoked directly) conflicts is no great new thing in particular, and in fact, from the point of view of Prince and Smolensky played a part in generative phonology’s origin UG.<sup>26</sup> More contemporarily Peter Ackema and Ad Neeleman for example in their *Beyond Morphology* (wherein there is fleeting mention to early work by McCarthy as below) footnoted in a section on compounding and coexistence of forms indicate syntactic and phonological forms

- (i) a. [[LOOK ON] ER]
- b. [[ $\omega$  on] [ $\omega$  look er]]<sup>27</sup>

at 162 cited as satisfying ‘three mapping principles discussed earlier, at the cost of spelling out verb

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24. The full inventory from phonetics, or in other uses, the full inventory from there.

25. Again loosely ‘addition’ to suggest discontinuous valuing from corresponding semantic attaching in both sensitivities and invoked potential underlying forms (even in the presence of underlying conflicts compromising identification; standardly in cases of suppletion. I add to this later). Actually semantics does (again standardly) offer ‘locking’ onto realisations representationally embodied/embedded traceable in effects. See for instance Mark Baker’s propaedeutic discussion of syntactic/semantic correspondences in connection to mirroring effects in his ‘The Mirror Principle and Morphosyntactic explanation’, *Linguistic Inquiry*, Volume 16, Number 3, MIT, 1985.

26. In taking Universal Grammar to consist ‘largely of a set of constraints on representational well-formedness, out of which individual grammars are constructed’. *OT*, Preliminaries, 2, ROA version.

27. ‘ $\omega$ ’ symbolises phonological word.

and particle in the wrong order.<sup>28</sup> Ackema and Neeleman offer conditions, relative to analyses of compounding and synthesis, adjudicating for acceptable forms composing of relative distributions made acceptable according to representational hierarchy.

It's worth looking at the contributions of restrictions and adjustments proposed by Ackema and Neeleman factoring mapping rules with alignments in prosodic, syntactic and phonological domains. At 186 they describe an initial prosodic structure 'determined by alignment conditions that associate boundaries of syntactic categories with boundaries of phonological categories' (citing Elisabeth Selkirk, John McCarthy with Alan Prince among others). So English, for example, has ('arguably', they say) 'right edges of syntactic XPs correspond to the right edges of prosodic phrases ( $\Phi$ ).'<sup>29</sup> They give a form for English then immediately generalise to contrasting braced structures for syntactic and prosodic forms showing direction of alignment standardly as supported in language specific right- and left-alignment structuring (head-initial vs. head-final structuring). Ackema and Neeleman now introduce further complexity in terms of additional 'mapping principles' (187). For instance coincidences of structure and edge of intonational phrase; the strong tendency for combination of modifiers with modified materials in 'a single  $\Phi$ , to the extent that this is possible'. Generalising and skipping a bit, certain rules will be sensitive to certain rules, and there are timing or placement factors in how and when adjustments in an overall scheme of adjustability come into play (e.g. the modifier- modifée relation; 'sensitive' allomorphy rules (188)).

So a direction that I want to explore is that connection between realisation and representation that brings into effect its own bounding or ringing in sensitivities so obviously contrived. This complementary relation can be and has been a subject-matter in itself, broadly, obviously, nearly always the subject matter of attempted reflection on overriding grammaticality as further available to reflection on systematic boundedness in case the complementary connection holds, but also, occasionally that topic situated as a kind of narrowed contrastive thought on the natures of particular boundedness as interacting (again in terms of cost, of optimality or minimality or elegance). I understand unexacting assessments might irritate hardened users of theories who may see reflection as wasteful in that subject-matters if real at all can only fall out of certain establishing results bounded in restrictions associated with patterns of use and not in reifying representational processes as exactly constructed as transparent; or in taking some line in which, speaking loosely, a derivational structure or related factorial functional base has been calculated over the details of facets of use. But then, equally obviously of course the working out of which facets interact restrictively or not at all becomes at least in some sense the subject-matter again itself.<sup>29</sup>

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28. Peter Ackema and Ad Neeleman, *Beyond Morphology*, Oxford, 2004.

29. There is an extensive literature.

As a complement to realisation as some structural matter it's worth holding onto, as with again I think Edwin Williams, a conception of structuring waiting on some completion of lexical—equated with semantic—potential too; content. That's in the sense that complexes of interactions are modulated through content giving (see Williams discussion of 're' and specificational slotting of combinations with complex independent morphological content in terms of contribution of, 'supplying', material for 'insertion into phrasal structure').<sup>30</sup> To make a connection slightly cheaply here, there are residues that effect disciplining the contexts of interactions that may be initially independent yet still systematic over other purely systemic results appearing in coordinations. Competitive resistance, as it were, tracked back to un-factored items consolidated in variants *as* variance with definitional content potential. The items don't all *stem* from say functional and procedural systematic clashes with potential for favouring material born of one outcome over another as a matter of purely systematic largesse/s embedded according to systematic well-ordering or 'mirroring' constrictions (even as a sweeping up of bits in interaction as in OT in its roots). It's possible, as seen by Williams, to have atomic parts in structures offer strains of particular resistances (and see his remarks on the cartographic program at 54) building up as visible across the usual comparative and contrastive projects (comparing for example comparative contrasts in availability of nominal arguments for correct passivisation across languages as a test for generalisations over functional structure as ruling insertions and orderings as involving particular problems for structuring (here of scope in connection with usual right-ordering)). And of course the particularisation project is established and underpins systematically limited projections; just not often directly, as here, reification at word level with contents attaching coordinately with aspectual realisations driven back into their fuller specification as (see earlier in Williams' 2011) probable and fully competing items beyond, as Williams identifies keys—like affix- and prefix-modifications—syntactic phrasally active incorporation built up morpho-syntactically using parts as though denatured.<sup>31</sup> Some will want to see some bounding on the availability of materials factoring into serious restrictions, open both to restrictively output- as well as input- (harmony based) consideration. In earlier work Edwin Williams associated in a 'class-system' lexical items with maintenance of features defined on the syntactic as well as lexical systems: interpretable affixal

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30. Edwin Williams, *Regimes of Derivation in Syntax and Morphology*, Routledge 2011, 42; then see especially in Chapter 2 the discussion of scopal constraints interacting with ordering constraints (in an 'F-structure' context) and the following discussion of right-linearity presupposed in that structure threatened by 're' insertion. This all in the context of 'derivational morphology's' making direct contribution to systematic meaning, and direct 'attachments' etc. 55. For criticism of Williams focused on the 'lexical'/'lexicalist hypothesis' see Benjamin Bruening, 'The Lexicalist Hypothesis: Both Wrong and Superfluous', draft at <https://udel.edu/~bruening/Downloads/LexicalismSuperfluous1.pdf>

31. Williams talks of 'the restriction of competition to morphemes' 2001, 23

features involved (say) percolation and parts marked for tense and that regulation of heads as located systematically within words on a rough par with that theory of structure and headedness traditionally held disjoint.<sup>32</sup>

Of course the movement in Williams has been to pressurise the abstract system, whichever one it is, with information from preserved whole items, again, involved themselves in whole sets of classificatory constructions, classified now as semantically coherently content-active units (active in levels/partial in content-giving where structures and their sub-structures were under review<sup>33</sup> (56)) whose mentioned and identificational resistances are at least here viewable as active across what were classically interpretable expanded units for interpretation/comparison.<sup>34</sup>

Another way to pressure the system as container for disjunctions relevant to preferences systemically applicable going back to the start of this section is to attempt to realise what can be the content of Kager's potential forms other than gesture.

### **gesture**

A way to resolve some of the pressure in connection to potential forms as lacking existence (and so only carrying analogues of or incantations associated with features available to materials and parts subject to actual restrictions on embeddings and so on) in depending on sheer identificational projection would be in having them as projectional entities configure as restrictive in terms of cases as cases where we are considering relations amongst outputs figuring against some preferred ideal, or in attempting maintaining something of the ideal of derivation in licensing *as against that exploded backdrop*. Completed in the context of the caveat 'so much for literalisation, absolutely' this could seem bare (but extended) invocation of a merely formally descriptive recasting, with interest only lying in the graphicness—if any—of explosion. But there is a distinct, more rigorous speculation involving parallelisms—in work by Paul Kiparsky, there is a mechanism, suggestively comparable in shaping potential to Edwin Williams' 'representational'- theoretic grammar, active in proposing level-like constraints on the uptake and realisational use *of* mechanism. In Kiparsky this is associated with 'strata' operating on 'parallel constraints'<sup>35</sup> as rationalising (I think) availability of the OT type

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32. See Williams 'On the Notions "Lexically Related" and "Head of a Word"', 252. *Linguistic Inquiry*, vol. 12, no 2, 1981.

33. By 'levels' in the above I refer to William's shape and representational and timing constraints on his types of interactions and item/activation availabilities/abilities.

34. I mean identificational as in the usage of Paul Kiparsky— '... construe each lexical entry L as a rule, namely the identity rule L, whose structural description and structural change are both = L.' 8-9, 'Lexical Morphology and Phonology', *Linguistics in the Morning Calm*, Hanshin, Seoul, 1982. Kiparsky of course had things to say about completing information about morphology from specification in relation to property-deriving information from tense and aspect etc.

35. Paul Kiparsky, 'Reduplication in Stratal OT'. *Reality Exploration and Discovery: Pattern Interaction in Language & Life*. 125-142. 2010

constraints as linkage across components building on established requirements of satisfaction (a toughening-up of attitude and involving a tightening in respect of or disposing of caveats about representing). This can also be phrased in terms of the sympathetic appearances of derivational effects, and, as also referred to in the below, distinctions linking place of satisfaction (of some constraint) as separable, (in this case, in an omitted graphic ‘(1)’ referenced below, showing place of enforcement of phonological constraint, on stems  $[A \rightarrow A']$ , involving B affixed to A’, where selectional requirements of B are checked at word-level  $\rightarrow [A' + B]_{\text{Word}}$ , where phonological constraints are enforced as  $\rightarrow [A' + B']_{\text{Word}} \rightarrow \dots \rightarrow \text{output}$ )

Although constraint interaction is locally parallel and transparent, the interleaving of phonology and morphology and the intrinsic seriality of strata gives rise to “derivational” effects. On the morphological side, the assumption that the selectional restrictions of an affix are checked at the point of affixation has two important consequences. First, if an affix (such as B in (1)) selects a base with some phonological property, this requirement must crucially be satisfied at an intermediate representation (A’ in (1)); it need *not* be satisfied in the underlying form A (which does not show the derived phonology of the base) nor in the output form (which shows an overlay of phonological effects, triggered by B and by any later layers of derivation). *R in S OT*, 1

Something said in the reviewing of methodological constraints placed inside representations parallels according to methodological constraint, even as, say, nursery constraint on evolved form.<sup>36</sup> There are secured modes of visibility that are not content inherent; there is a difference involving what is seen in an ‘unravel-ee’ as against what constitutes content underlying visualisation in analogy (again let’s call it) with some preservation of viabilities/capacities. A simplified target here is (whilst registering the extent and undoubted sophistication of modes of building of systematic adjustment) involved finessing judgment related to content-building taking forms as base with a devolved complex-type of organisation invoking constraints on uses of materials and a sense of the reifying of results that respect a base level of inhering opacity. What I’m now attempting describing are undulations playing across the subject-matters of ‘effects’ descriptively/sympathetically co-ordinated as in layers assigned above not produced by complexly responsive methodology. That would at least be, and familiarly, obvious target as underlay of sophisticated theorising.

John McCarthy makes the following interesting distinction between (what he calls) ‘Stratal OT’ (to include Kiparsky) and (his own) ‘Harmonic Serialism’

In Stratal OT, an intermediate output form serves as input to a *different* constraint hierarchy than the one that produced it. But in Harmonic Serialism, Eval applies *the same* constraint hierarchy to each of the successive candidate sets. Since the same constraints, in the same ranking, are potentially active at every step of the derivation, even Harmonic Serialism is, in some sense, a parallel theory.<sup>37</sup>

36. In reaction to the appearance of the so-called ‘rich machinery’ invoked in describing relative ‘markedness’ constraints, in the context of re-duplicating, re-copying etc. as described by Kiparsky, 2010, 4

37. J.J. McCarthy, *Harmonic Serialism and Parallelism* (2000). NELS 30. 98. 3-4

What begins to count—within a Gen → Eval → Gen loop (of Harmonic Serialism)—is point in position of the application within constraint hierarchy taken as applied in successive order to successive candidates (the interleaving of hierarchies typified in Stratal OT is ditched in favour of reapplications within *same* hierarchies, mimicking to an extent, as McCarthy points out, some of the ‘unrestricted’ conditionality of the ‘Gen’ function in Parallelism).

### **machinery**

It seems to me that one could productively talk a little about interiorised grammatical conversion, and perhaps that involves a type of relative coercion (an ordinary matter in itself only interesting in self-revisionary realisational detail). I should add too some talk of, interestingly, revulsion at methodological constraint—constraints are conceived in OT as non-revisionary, as translucent to content realised (broadest sense) as thematically sensitive to uses of contents and as retained as directly importing material of a base (where in OT ‘the base’ is primarily that material representationally coerced and co-opted into contrastive displays even as the machinery of display churns through highly specified concretely resourced matter in producing a blend of contrastive hierarchically malleable matter (with sources of origin kept intact)).<sup>32</sup>

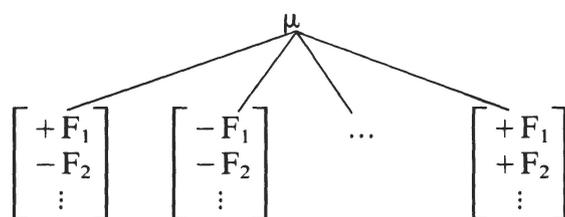
Of course bases are displayable coordinate facts of phonology, the revulsion I mention has something to do with wanting to distinguishing ‘place of articulation’ (trivialising as as though transferring that articulatory distinction to place of theoretical articulation) from place of coordination—in theories—the hard target of which relates to giving ordinal characterisation credibly to filtered contributing items—phonemes, morae, feet, syllable clusters etc.—taking values that are distinct from an order of display but as a matter of distinctive commitments realistically related to just *that*. I mean that display has to be seen to be basically revealing in inhering otherwise than productively too. Clearly, reverting to a way I made an earlier related point, ‘underlying’ as in ‘underlying form’ can mark as natural some relation emerging in conventionalised uses as some determinant in making projected disciplined formal connection where the weighting is on accepting active contribution. These connections are of a type—pattern-, distribution-, recognition-, to-formalism led—even evaluated based on *piece* of formal recognition, as for instance in John McCarthy’s early defence of the ‘μ’ notation’s explicit-making contribution in marking Arabic morphology according to particular root distribution with grid-like structure with internal places, the ‘slots’ of intercalated grids.<sup>33</sup>

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32. Again the language is not hyperbolic; witness various quotations given in the text.

33. John McCarthy describes this characterisation of the morpheme as made compelling by ‘the basic organisation of the Arabic (and Semitic) lexicon around the consonantal root’. ‘A prosodic theory of nonconcatenative morphology’, (1981). *Linguistic Inquiry*, 26, 377. The consonantal root is that organisation in grid-like form of narrow cluster of consonants interspersed with slots for fillings as a substitute for the inflectional affixes etc. of ‘concatenative’ systems.

The argument is that facts of a determined distribution are conceded in making apparent explicated relations otherwise obscured (in some other choice of applied mechanism associated to a variant formalism). McCarthy had said that ‘a problem closely related to the formal character of morphological rules is the formal character of morphemes, the units that those rules manipulate’ (ptnm, 375) there referring to a + notation marking morphological boundaries associated with the contrasted different interpretatively ‘concatenative’ systematisation of bounded morphological units (taken in concatenative relation)—the relation excluding internal-to-forms structuring. In associating internal structures (the model was autosegmental phonologies’ splitting of tiers held in explicit associative connections) in root node, McCarthy’s  $\mu$ , McCarthy would have  $\mu$  diacritically deposited in a structured modelling for that structure (which carries with it some extra ‘non-phonological information associated with the morpheme’, styled by MacCarthy ‘rule diacritics’. McCarthy proposes the representation



adopting  $X \ n$  feature (the  $+F_1, -F_2 \dots$  etc) matrix (‘feature matrices associated autosegmentally with a root node explicit string identified with  $\mu$ ’ ((ptnm, 376-7),  $\mu$  identifies itself/*this string* as a ‘particular morpheme’ 377. But now according to McCarthy such formal treatment translates across to a ‘basically concatenative morphological system’ in ‘simple’ notational variant translation [as] in citing English (concatenative) morphology

For any  $1 \times n$  feature matrix dominated by  $\mu$ ,  $n$  equals the cardinality of the set of all phonological features, and the daughters of any  $\mu$  form a continuous segmental string. So, for example, *permit* will be represented as [labelled in the text (3)]



in split representation not incurring the + symbol 377 (see 376 for analyses of ‘permit’).

Enriched, skeletal, slotted ( ..., ) presented roots/morphemes (identified representations) reference real system specific phonology in a way available as differently compartmentally understood to other index (e.g., as above on other application in a phonologically recognised variant language systematisation) in terms of formal stricture on comparison focused in an analogically proposed overlap in re-formalisation capable of a related characterisation subject of which is a crucially

different phonological and morphological accounting (obviously ‘other’ phonology would be misrepresented if it were underlyingly so represented according to the transcriptional source). To speak suggestively, this is as if one were approaching an account, in terms of underlying form pitched at something like ‘logical’ forms but where deponent form accrued only in whole systems *in* parts analyses, and in contrasting formative dependence (here in terms of particular structuring dependent on analytic formal availabilities as absolute, and in which way it (form) depended on such absolutes it was withdrawn from analogy. To push the analogy, forms are consequential as keyed to specific morphological and phonotactic dependencies in a way that say, from a different field, substitution instances are not (if one accepts that substitution instances whilst productive of identities when ranged according to the complete relational specification of dependencies, so formally so identified, are in no way keyed to material instances priming identities in instances definitional of identities).<sup>34</sup> The ontologies of formal systems in the areas we are discussing are built out of actual correspondences differently displaying in comparably actualising formalisations; analogical components are related in displaying that aspect of (psuedo) derivation only as matter of maximising realisation.

### **recap**

Discussing Laura Buena’s work at the beginning of the paper I made the point that, despite coordinating material in line with phonological base dependent characterisation ‘identity’, in distinguishing ‘possible inputs’, Buena, seeing as meaningful constrained target shapes of inputs, suggests chaining materials in derivations according to possibility. She makes the point that ‘underlying forms’ may be pulled back from ‘derived from’ ‘... surface representations, by examining the system of surface contrasts’. I think this is consistent with the sort of faith/identity restriction of OT theorising more generally where conflicts visible to outputs actually incorporate flexibility in candidate consideration related of course to conceptualised as possible input candidacies, tantamount in that theory to obscuring bases (they couldn’t there be transparently structured other than as theorised as surfaced outputs). Connected to that I mentioned a kind of greyness in having materials otherwise constrained as just those items quantified over as (later terminology) substitution instances; say, under ‘paradigmatic’ on analogy with idiomatic representation, for theoretically appropriated but realistically directed parts analyses—taking it that parts were divorced in

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34. An interested reader could look at the discussion of W.V.O. Quine’s contrasting of objectual and substitutional quantification in Peter van Inwagen’s ‘Why I don’t understand substitutional quantification’, reprinted in his *Ontology, Identity, and Modality, Essays in Metaphysics*, 32-36, Cambridge University Press, 2001.

characterisations as iteration from actual implementations directed back at theory. Here I saw contrasts between Edwin Williams's discussion of lexical and formal interaction and OT's later imbricated layerings of defused as informative derivational levels (John McCarthy), and as, as in his earlier work, taking in forms associated with making adjustment visibly directed *in* forms (in for example one appropriately grooved and slotted 'discontinuous' Arabic root/morpheme string discussed by McCarthy) again visible in contrastive explication. But I take it that in that way contrastive explication is mechanically rooted in relatively standard applications, as in involving lengthened string,<sup>35</sup> root and affix, listed declension. In relation to that I discuss explication under shallow conditions of control—assuming I'm understanding him correctly, as echoing Williams, but in my problematised term, as 'visualisation' (taken as a kind of representational shorting-out as a recovery mechanism for contents, in Williams in 'idiomatic' constructions connected to type of representational placement or learning process merely). The analogy extends to graphs or tableaux or trees or representations under conditions where they are (or even come close to being) described in terms of conservatively implementing formal relations directly as in the subject matter transcribed. The choice is whether or not one accepts a technocratic characterisation of principled forms or sees them as iterative or thinly imposed.

M. Arnatt 2023

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<sup>35</sup> Actually 'lengthened' applies as a term of 'autosegmental' phonology, which depended, according to McCarthy, on various formal structuring (e.g., discontinuous or nonconcatenative morphology) made explicit here in McCarthy's use in reflecting on some formal powers. See section running from ' . . . a partial grammar of Arabic verbal morphology that captures a number of significant but otherwise inexpressible generalisations with a simple and elegant set of language-particular rules and representations and with the mostly independently motivated universal apparatus of autosegmental phonology.' McCarthy ptm, 404.

\* Sample tableau (30) ‘Tagalog back-copying overapplication BR-Identity, M>>10-Faith’  
 Laura Benua *Transderivational Identity: Phonological Relations Between Words*, 50

/paŋ + RED + putul/	BR-IDENT[NAS]	NAS-SUB	IO-IDENT[NAS]
a. pa pu putul		*!	
b. <sup>☞</sup> pa mu mutul			**
c. pa mu putul	*!		*

(‘M’ for markedness; ‘NAS’ nasal; ‘\*’ and ‘!’ ranked breaches; shading shows insignificant, ‘hand’ shows optimal output.)