

6

Paradigm Uniformity constraints

6.1 Leveling: synchronic and diachronic

6.1.1 The idea behind Paradigm Uniformity constraints

We now return to the class of paradigmatic constraints briefly discussed in section 1.5, including Lexical Conservatism, Anti-Allomorphy, Uniform Exponence, and Leveling, here referred to collectively as PARADIGM UNIFORMITY CONSTRAINTS. Like the Output/Output constraints dealt with in the preceding chapter, Paradigm Uniformity constraints are designed to account for certain synchronic analogical phenomena within a constraint-based theory of grammar, but they differ from O/O constraints in form and in empirical scope.

Since the early days of generative grammar, a distinct class of analogical rules or constraints has from time to time been claimed to play a role in synchronic grammars, but until recently these proposals remained programmatic. The putative analogical mechanisms proved hard to formalize and even harder to integrate with the standard derivational rule formalism, and the whole question was obscured by unresolved phonology/morphology interface issues (such as cyclicity and abstractness). OT offers solutions to many of the technical problems, including a theory of faithfulness constraints on which paradigmatic constraints can be modeled, and a theory of how they would interact with others in a system of ranked violable constraints. Several linguists began to explore this new approach, largely independently of each other, and this chapter is an assessment of their results.

The specific type of analogy that Paradigm Uniformity constraints address is LEVELING, which it treats as intraparadigmatic analogy. Interparadigmatic analogy falls outside their scope. The case for Paradigm Uniformity constraints rests on three types of arguments.

Extending paradigmatic relations. The first argument for Paradigm Uniformity constraints is that they are required to capture certain types of paradigmatic relations

that O/O constraints cannot capture. Uncontroversially, some paradigmatic relations involve bound forms, at least as one of their terms, and are therefore not accounted for by O/O correspondence theory, which deals with free forms only. Advocates of Paradigm Uniformity constraints also claim that derived words can determine the form of their Bases, contrary to O/O theory's claim that only the converse occurs. Paradigm Uniformity constraints are not restricted in either of these ways. This has led to the proposal that Paradigm Uniformity constraints should be added as a new constraint type on top of O/O constraints. Obviously this would result in overlapping coverage of many analogical phenomena. As we will see below, it would also result in an excessively rich theory which generates nonexistent types of analogical relations between expressions. In fact, the two types of constraints effectively cancel out each others' most substantial predictions. Therefore this first type of argument is the least persuasive of the three.

Single-level representations. A more interesting argument for Paradigm Uniformity constraints is that they allow the theory to be tightened by eliminating underlying representations. In Steriade's words, "no unique expression functions as THE base in the formation of either words or phrases. The base is the paradigm." If there are no underlying representations, there can be no correspondence (I/O Faithfulness) constraints of the conventional sort. The job of ensuring that related words are pronounced in systematically similar ways devolves on constraints that relate output forms to each other. In what looks like a revival of the Natural Generative Grammar of the 70's, the theoretical distinction between morphology, morphophonology, and allophony is effectively dismantled.

Historical evidence. A third set of arguments for Paradigm Uniformity constraints rely on diachronic phenomena (e.g. Kiparsky 1972, Kenstowicz 1996). Even though the theory is primarily intended to deal with synchronic leveling effects, showing that it helps to explain historical change can in principle provide legitimate evidence for it. However, the reasoning from change requires great care. The existence of diachronic leveling processes *per se* is no evidence for Paradigm Uniformity constraints. It must be shown that the changes are driven or shaped by those synchronic constraints, and not by other mechanisms of change, such as "imperfect learning". On this latter alternative, diachronic levelings are reflexes of constraint systems constructed by learners at intermediate stages of acquisition in which ordinary I/O Faithfulness constraints are ranked high.³⁰¹

To repeat, this is not to say that there could not be cogent diachronic evidence bearing on the articulation of the theory of grammar. The point is that reasonable alternatives must be excluded. The argument that sound change requires distinguishing word phonology from postlexical phonology (Ch. 3) meets those standards. At present there is no such diachronic evidence for Paradigm Uniformity constraints.

³⁰¹This would not necessarily mean that Faithfulness constraints initially outrank markedness constraints: they might be so reranked in the learning process, for example, when the learner discovers that the latter constraints are opaque.

6.1.2 What are Paradigm Uniformity constraints?

The core idea of Paradigm Uniformity has been articulated by different phonologists in different ways. It will be useful to start with a brief review of the differences, if only to avoid confusion later on when we focus on what they have in common.

At what level does identity hold? One open question is on what level of representation paradigmatic relations are defined, and what other levels of representation (if any) are posited. Paradigmatic Uniformity constraints have been situated in three-level, two-level, and one-level frameworks. Kenstowicz defines them on *lexical representations*, equivalent to the output of the lexical phonology, which are subject to modification by a postlexical constraint system. In addition, Kenstowicz posits a third level, *underlying* (input) representations, which are related to lexical representations by O/O constraints (as in standard OT correspondence theory). Raffelsiefen, on the other hand, operates only with two levels, lexical and postlexical. Finally, Burzio and Steriade hold that Paradigm Uniformity constraints are defined on the phonetic level, which they treat as the only linguistically significant level of representation.

What types of elements must be identical? One type of Paradigm Uniformity constraint imposes similarity or identity on words (and in some cases on on larger expressions, section 6.5) which are morphologically related. Words are morphologically related when they belong to the same morphological paradigm, defined by a shared complex of morphological features, or more broadly in virtue of just containing the same morpheme or the same lexeme. Another type of Paradigm Uniformity constraint imposes similarity or identity on the allomorphs of a morpheme. Steriade explicitly allows constraints to specify paradigmatic sets of different inclusivity (either all allomorphs of a morpheme, or all allomorphs that share some paradigm-defining morphological feature).

What is the domain of identity? Some theorists propose constraints on the paradigms of individual items (Kenstowicz), for others they apply to general morphologically and/or phonologically defined classes of elements (Buckley, Steriade, Raffelsiefen).

What is the direction of leveling? One of the main differences between Paradigm Uniformity constraints and O/O constraints has to do with the directionality of paradigmatic relations. Paradigm Uniformity constraints allow the form of a base to be determined by its derivatives just as well as the other way round. Steriade, however, argues for a different kind of directionality, determined not by base/derivative relations but by the “listedness” of certain allomorphs.

What kinds of identity is required? The kinds of identity requirements that constraints may or must impose vary widely. Everyone would probably allow total identity and various kinds of featural identity; Buckley and Raffelsiefen also formulate constraints that impose prosodic uniformities of a more abstract kind, which go beyond the power of correspondence theory and do not involve minimization of allomorphy. An extreme example is the constraint proposed by Buckley (section 6.5) which requires that if a word or phrase containing a root is stressed on the first foot, then all words

or phrases containing that root must be stressed on their first foot (which may be a different morpheme altogether). This is an example of a Paradigm Uniformity constraint which actually increases allomorphy.

6.1.3 Preview: types of Paradigm Uniformity constraints

Lexical Conservatism I begin in section 6.2 with Steriade's theory of Lexical Conservatism (1998, 1999), which makes a good starting point because it is a particularly clear and explicit version of Paradigm Uniformity. Steriade introduces a family of constraints which require related allomorphs to share some phonological property. These constraints have the following form:

- (820) The target allomorph of morpheme μ in form class F is identical with respect to phonological property P to some listed allomorph of μ .

Listedness is defined in terms of "familiarity" (for a given speaker).

Steriade argues that her theory explains certain facts of English derivational morphology and French liaison. I will show that a superior account of this material, which extends to much else that her analysis does not cover, can be formulated on the basis of absolutely standard markedness and I/O faithfulness constraints, provided we adopt the framework of stratal OT. The English data, along with some general issues, will be taken up in sections 6.2.1-6.2.3. A discussion of the French data follows in 6.2.4.

Other anti-allomorphy approaches. Burzio (1996) was probably the first phonologist to introduce a type of Paradigm Uniformity constraint into OT. His proposal is in many ways the most far-reaching and ambitious in this family, and Burzio supports it by a range of interesting conceptual arguments. These will be discussed in section 6.3.1.

Raffelsiefen 1995, independently of the other authors mentioned, worked out a subtle and rich analysis of German ∂ -deletion, where historical and synchronic data are woven together into an intricate argument for a paradigmatic LEVELING constraint. Raffelsiefen's work will be the topic of section 6.3.2, where we will see that LEVELING can be reformulated without loss of generality as an I/O faithfulness constraint (in fact, as the same constraint σ -DEP that we will invoke in section 6.2.4 below).

Analogical leveling: Latin rhotacism. Kenstowicz 1996 sifts a number of plausible cases from earlier works (see section 6.3.3). Undoubtedly the most important of these is the leveling of Latin rhotacism (*honōs* > *honor*). Being one of the famous touchstones of the theory of analogy, it will be given special attention in section 6.4. There I take issue with the standard analysis and argue that the leveling is one of several side effects of a *morphological* change, the generalization of vocalic case endings after -C stems, a choice of allomorph motivated by optimization of syllable structure. This is a case of *covert* generalization: an opaque generalization at the stem level, intractable under full parallelism, but straightforward in Stratal OT.

Kashaya stress. I conclude in section 6.5 with a dissection of Buckley's impressive work on Kashaya (Buckley 1999). I believe I can show that his insights are not only

compatible with Stratal OT but are enhanced by it. Recasting the generalization behind his Paradigm Uniformity constraint as an I/O constraint — not a trivial undertaking as we shall see — improves both its empirical coverage and its theoretical coherence.

6.2 Lexical Conservatism

6.2.1 Conceptual issues

6.2.1.1 Listedness, allomorphy

Steriade 1998, 1999 proposes LEXICAL CONSERVATISM constraints that require phonological identity of related allomorphs. Like Burzio 1996 and Raffelsiefen 1995, Steriade departs from the other approaches we have been considering so far in rejecting a level of underlying representations. A consequence is that there are no I/O correspondence constraints, and paradigmatic correspondence constraints must bear the entire burden of accounting for “faithfulness” in phonology. The theory is morpheme-based, in that the units on which correspondence is defined are not words (as in O/O correspondence theory), or elements at different levels of morphology including stems and words, as in Stratal OT, but allomorphs (the minimal components of word structure).

A basic theoretical construct of Lexical Conservatism is the LISTED ALLOMORPH. Every linguistic theory posits a lexicon that contains listed items, but Lexical Conservatism’s listed items are special in several respects. First, allomorphs are listed in their output shapes: for example, the listed allomorphs of *atom* would be [æ̀rəm] and [ətʰám] (as in *atomic*). In fact, the theory recognizes no other level of representation than phonetics, in the face of much evidence that analogical leveling processes distinguish between postlexical and lexical phonological processes.

Secondly, Lexical Conservatism does not tie listing to irregularity, unpredictability, or unproductivity, as most morphological theories since Aronoff 1976 have done. Rather, an allomorph is listed if the speaker has a “degree of familiarity” with it that is sufficient to give him or her the confidence that it is sanctioned by past linguistic usage. Here Lexical Conservatism revives a proposal of Halle 1973, and derives novel consequences from it. At present it offers no general criteria for determining on independent grounds what that degree of familiarity is, and whether a given form possesses it or not (in the internalized grammar of a particular speaker). Pending the further research that will hopefully provide those criteria, we need some provisional way to determine listedness in order to get the discussion off the ground. On the assumption that frequency leads to familiarity (though it is undoubtedly not the only thing that does) I’ll take frequency as a guide, and consider allomorphs as listed if they are at least as frequent as those allomorphs which Steriade says are listed. To determine frequency for this purpose, I have used the Brown corpus (Francis and Kučera 1967).

As the general form of Lexical Conservatism constraints, Steriade 1999 proposes the following:

- (821) a. Let $T(\mu)$ be the allomorph of μ in a form under evaluation.

- b. Let $L(\mu)$ be a listed allomorph of μ . Let P be a phonological property.
- c. $T(\mu)$ is characterized by P only if *some* $L(\mu)$ is characterized by P.

To the extent that phonological constraints are dominated by Lexical Conservatism constraints of the form (821c), they will be blocked from putting out unlisted allomorphs.

Not all O/O constraints can be reduced to Lexical Conservatism constraints. Like other anti-allomorphy approaches, Lexical Conservatism allows the relation between bases and derivatives to work in both directions, and to be transitive. In a constraint of the form (821c), the lexeme containing $T(\mu)$ could be the base (in the morphological sense) of the lexeme containing $L(\mu)$, or both could be derivatives of some other base. That is one reason why O/O constraints that impose properties of bases on their immediate derivatives are not interconvertible with Lexical Conservatism constraints. The burden is on advocates of Paradigm Uniformity constraints to show that the locality properties built into O/O constraints are incorrect.

Lexical Conservatism also differs from O/O theory in being able to impose leveling on bound forms. Since listed allomorphs do not have to be free forms, such Lexical Conservatism constraints are not restatable as O/O correspondence constraints. This was of course one reason why Paradigm Uniformity constraints were proposed in the first place.

In spite of massive overlap in coverage, then, both Lexical Conservatism constraints and O/O correspondence constraints cover their own little exclusive corner of paradigmatic phenomena. But to admit both (as well as Sympathy constraints, or one of the other proposals for dealing with non-paradigmatically motivated opacity) would be unfortunate, not only because of the redundancy, but more importantly because Lexical Conservatism and O/O correspondence theory neutralize each other's most interesting empirical predictions.

The dilemma just posed justifies a fresh look at the problem, and makes a uniform solution of the sort offered by Stratal OT a priori attractive.

6.2.1.2 Steriade's argument

Steriade's argument for Lexical Conservatism is based on some simple and incontrovertible observations about the stress of derived words in English. She notes that speakers, when asked to form *-able* adjectives from *rémedy* and *párody*, volunteer the following words:

- (822) a. From *rémedy*: *remédiable* or *rémedyable*
- b. From *párody*: *párodyable*

These judgments hold for a range of styles and speakers. Steriade reports that the speakers she consulted treated these words as novel formations. Even so, their judgments are in perfect agreement with current usage as reported in standard dictionaries, which moreover seems to have been stable in this respect for at least 300 years. *Remédiable* is the preferred pronunciation, recorded in unabridged dictionaries (Webster's 2nd and

3rd, the OED), in desk dictionaries (*Webster's Collegiate Dictionary*, *American Heritage Dictionary*), in pronouncing guides (Kenyon & Knott, Daniel Jones), as well as in numerous older dictionaries.³⁰² The variant *rémediable* is also attested, though less commonly.³⁰³ The reason it is not found as often in dictionaries is presumably that dictionaries do not even aim for complete listings of fully productive formations such as those with word-level *-able*, which in principle can be made from any verb.³⁰⁴

Clearly, then, these are robust data that must be accounted for by any theory of English word structure. They raise the following questions.

- What is wrong with **remédiable*, **parodiable*? As Steriade observes, they are “negligibly different” from their bases, and minimize *LAPSE violations — if we count *-able* as disyllabic, as Steriade does — so why are they dispreferred?
- Why is **parodiable* bad, or at least worse than *remédiable*? Why are the verbs *párody* and *rémedy*, though similar in form, treated differently in *-able* derivatives?
- Why do adjectives in *-able* show variable stress in the first place?

Steriade’s answer is based on Lexical Conservatism. According to this theory, speakers make new words by using allomorphs that they know from other words — listed allomorphs. Speakers who say *remédiable* recycle the listed allomorph of *remédial*, while those who say *rémediable* recycle the allomorph of the verb itself. Since *párody* is the only listed allomorph of the morpheme *parody*, *párodyable* is its only *-able* adjective. This answers the first two questions. Regarding the third, Steriade claims that “the ability of certain affixes [such as *-ism* and *-able*] to generate either Level 1 or Level 2 formations is in fact just a reflex of lexical conservatism”. Specifically, the variation results from the conflicting demands of metrical well-formedness, which requires rightward stress shift with such suffixes (“level 1” treatment), and lexical conservatism, which requires use of a listed allomorph. Variation arises when only one of these constraints can be satisfied at the same time.

To implement this idea, Steriade proposes the constraints in (823), where the lexical conservatism constraints (823a,b) instantiate the schema in (821c), and (823c,d) are phonological constraint of the familiar LAPSE family.³⁰⁵

³⁰²Danielsson 1948:376 cites *remédiable* from Levins’ *Manipulus Vocabulorum* (1570), Dyché’s *Spelling Dictionary* (1725), Bailey’s *Dictionarium Britannicum* (1730), Dyché and Pardon’s *New general English dictionary* (1737), Johnson’s *Dictionary of the English language* (1755), Entick’s *New spelling dictionary* (2nd edition, 1772), Walker’s *Rules* (1791), Daniel Jones’ *Phonetic dictionary of the English language* (1944).

³⁰³According to Danielsson it is given in Bailey’s *Universal Etymological English Dictionary* (1755), Fenning’s *Royal English dictionary* (1761), and Johnston’s *Pronouncing and Spelling Dictionary* (1761).

³⁰⁴There is also a general weak blocking effect that gives stem-level derivatives a competitive edge over coexisting synonymous word-level derivatives, e.g. favoring *prosperity* over *prosperousness*. Some dictionaries may treat this as a normative preference, in which case they might not record the word-level variants.

³⁰⁵Steriade 1999 discusses only (823a) and (823c); (823b,d) are cited from the more detailed treatment in Steriade 1998, which in turn does not impose the special restriction on *LAPSE $\sigma\sigma\sigma$ to final syllables.

- (823) a. LEX [\pm STRESS]: Let $\sigma(T)$ be a syllable in the target form $T(\mu)$. There is a [listed allomorph] $L(\mu)$ of morpheme μ such that for any $\sigma(T)$, $\sigma(T)$ has a correspondent $\sigma(L)$ in $L(\mu)$ and $\sigma(T)$ is [α stressed] only if $\sigma(L)$ is [α stressed].
- b. LEX ([\pm STRESS], LEXCAT): Same as (a) LEX [\pm STRESS], with the additional requirement that $L(\mu)$ and $T(\mu)$ must be [+Vb].
- c. *LAPSE $\sigma\sigma\sigma$: three [final] unstressed syllables in a row are not allowed.
- d. *LAPSE $\sigma\sigma$: two unstressed syllables in a row are not allowed.

In (823), [α stress] ranges over plus and minus, so that the difference between primary and secondary stress does not count (see section 6.2.2.2).

These constraints are ranked in the following two alternative ways.

- (824) a. LEX [\pm STRESS] \gg *LAPSE $\sigma\sigma\sigma$ \gg LEX ([\pm STRESS], LEXCAT), or
 b. LEX ([\pm STRESS], LEXCAT), (LEX [\pm STRESS]) \gg *LAPSE $\sigma\sigma\sigma$.

The constraint tables in (825) show the outputs of the two rankings in (824), on Steriade’s assumption that the listed allomorphs of the two lexemes under consideration are as shown.

(825)

	LEX [\pm STRESS]	*LAPSE $\sigma\sigma\sigma$	LEX ([\pm STRESS], LEXCAT)
Listed allomorphs: <i>rémedy</i> , <i>remédi-</i>			
1a. \wp rémedyable		*	
1b. \wp remédiable			*
1c. remédiable	*		*
Listed allomorph: <i>párody</i>			
2a. \wp párodyable		*	
2b. paródiable	*		*
2c. parodiable	*		*

The two Lexical Conservatism constraints differ with respect to the form *remédiable*. It violates only LEX ([\pm STRESS], LEXCAT), because the allomorph *remédi-* contained in the words *remédial*, *remédiation* is assumed not to have the feature [+Vb] (i.e. the assumption is that verb stems are not [+Vb]). In effect, the constraint LEX ([\pm STRESS], LEXCAT) provides a way of indirectly privileging the base/output relation. When it dominates *LAPSE $\sigma\sigma\sigma$, the adjective receives the stress of the verb it is derived from.

(826)

	LEX ([\pm STRESS], LEXCAT)	*LAPSE $\sigma\sigma\sigma$
Listed allomorphs: <i>rémedy</i> , <i>remédi-</i>		
1a. \wp rémedyable		*
1b. remédiable	*	
1c. remédiable	*	
Listed allomorph: <i>párody</i>		
2a. \wp párodyable		*
2b. paródiable	*	
2c. parodiable	*	

It should be noted that Steriade evaluates the LAPSE constraints on the basis of the assumption that the presuffixal *-i-* in *remediable*, *parodyable* does not count as a syllable for purposes of stress, and that the final *-l* of the suffix *-able* does count as a syllable for purposes of stress.³⁰⁶

6.2.1.3 An advantage of Lexical Conservatism: cyclicity and distinctiveness

Like Stratal OT, Lexical Conservatism seems to posit a unified set of correspondence constraints. This is conceptually preferable to O/O correspondence theory, where correspondence constraints are split into I/O constraints (governing faithfulness to Inputs) and O/O constraints (governing faithfulness to Bases), in addition to B/R and Sympathy constraints. On the empirical side, Lexical Conservatism has the advantage of explaining the correlation between cyclic preservation effects and (actual or potential) lexical distinctiveness, discussed in section 1.4.5. In Stratal OT, the correlation follows from the assumption that both faithfulness to underlying forms and cyclic faithfulness to Bases are governed by the same set of correspondence constraints. Derived forms and underlying forms serve equally as inputs to subsequent derivations, and their properties are retained in derived forms — to the extent allowed by the markedness constraints that dominate I/O correspondence constraints, of course. As noted above, O/O correspondence loses this generalization by positing distinct sets of correspondence constraints governing faithfulness to underlying forms and faithfulness to Bases. Lexical Conservatism is not subject to that objection because it has just one type of correspondence constraint.

To concretize this point, let us return to the familiar case of cyclic stress in English. Recall from Ch. 1 Pater's 1997 generalization that the contexts where stress is cyclically preserved in derived words are the same as the contexts where stress is lexically contrastive in underived words. In English, primary stress at the stem level has the same distribution in simple and derived forms. Pretonic light syllables are regularly deaccented in derivatives (see (827a)), just as they are in simple words (see (827b)).

- (827) a. *sólid*, *solídity* (**sólídity*); *párent*, *paréntal*; *specífic*, *spècíficity*; *màthemátics*,
màthematícian; *mílitáry*, *míltarístic*; *órigín*, *orígínal*; *lógic*, *logícian*; *míracle*,
miráculous; *expláin*, *èxplanátion*; *époným*, *epónymous*
 b. **bànána*, **Mònonoghéla*, **Tìcondèróga*

In contrast, pretonic heavy syllables display regular cyclic stress preservation.

- (828) *condénse*, *còndensátion*; *impórt*, *impòrtátion*; *augmént*, *àugmèntátion*; *àuthéntic*,
àuthénticity

Correspondingly, in this environment stress is lexically distinctive:

³⁰⁶In the alternative to be presented here, the former assumption is possible but will not be needed (see Chomsky and Halle 1968:225 ff. and Hayes 1980:188 ff.), and the latter must be rejected; *-able* is phonologically monosyllabic, as pointed out by Chomsky and Halle 1968:160, fn. 119.

- (829) *Ìstànbúl, òdòntólogy, Mòntána, Nàntúcket* (vs. *Ívanhòe, gòrgonzóla, Kentúcky, Sandúsky*)

Non-pretonic initial light syllables likewise preserve stress, in this case optionally:

- (830) *orìginal, orìginálicity; imáagine, imáginátion; phenómènon, phenòmènologý; apócalýpse, apócalýptic* (contrast *àpophthegmátic*, from *ápophthègm*); *apócopàte, apócopátion; epíscopal, epíscopálian* (contrast *èpigrammátic*, from *épigràm*); *totálicity, totálitárian* (contrast *tòtalizátion*, from *tótalìze*)

In this environment stress is again lexically distinctive, albeit marginally:

- (831) *Epàminóndas, apòtheósis* (vs. *èpithalámium, àbracadábra, àpotropáic*)

As Pater notes, this distribution of contrasts is explained by the ranking of markedness constraints on stress (such as FTBIN and *CLASH) with respect to Faithfulness (at the stem level). English has a lexically governed variation between the two constraint rankings in (832).

- (832) a. FTBIN \gg *CLASH \gg STRESSIDENT \gg ALIGNLEFT
 b. FTBIN \gg STRESSIDENT \gg *CLASH \gg ALIGNLEFT

Because STRESSIDENT strictly outranks ALIGNLEFT, non-initial stress in the input is not shifted to the initial syllable.

From the Stratal OT perspective, the input of a simple stem is its underlying form and the input of a derived stem is the stem-level phonological representation of its base; this predicts the correlation of lexically distinctive stress with cyclic stress preservation. The fixed ranking FTBIN \gg STRESSIDENT categorically excludes stressed light pretonic syllables in both types of inputs. The lexically controlled variation in the ranking of *CLASH and STRESSIDENT is responsible for the variability in words like *condensation*.

In Lexical Conservatism theory, the extent of paradigmatic uniformity effects depends on the ranking of lexical conservatism constraints with respect to markedness constraints. For example, cyclic stress preservation in (828c) requires the ranking LEX [\pm STRESS] \gg ALIGNLEFT. This ranking forces the stress of bases to be retained in non-initial non-pretonic syllables, as in *epíscopálian* from *epíscopal*, versus *èpigrammátic* from *épigràm*. The same ranking predicts the possibility of *lexically* distinctive stress in this environment. The lexical conservatism constraint LEX [\pm STRESS] says that the output form T(μ) must have the same stress values on corresponding syllables as the listed form L(μ) (even if this violates ALIGNLEFT). In the case of non-alternating simple stems, T(μ) = L(μ). The stress of the output is therefore identical with that of the sole listed allomorph. In this way, contrasts like (831b) can be lexically specified.

The opposite case where a markedness constraint must outrank a lexical conservatism constraint is instantiated by FTBIN \gg LEX [\pm STRESS], which suppresses stress on pretonic light syllables (e.g. *atómic* rather **átómic*, from *átom*). This again gets the right results for non-alternating simple stems, where T(μ) = L(μ). A “wrong” listed allomorph such as **bànána* would be thrown out by the dominant constraint FTBIN, which says that T(μ) cannot have a light stressed pretonic syllable. This compels a

violation of LEX [\pm STRESS], and correctly excludes words like (827b). Thus, Lexical Conservatism (unlike O/O correspondence constraints) can account for the correlation between lexical distinctiveness and cyclic preservation of stress. This is an important advantage.

However, Lexical Conservatism's view that "the base is the paradigm" has some unfortunate consequences as well. These are discussed in the following sections.

6.2.1.4 A problem with Lexical Conservatism: locality

The relation between Base and Derivative is non-transitive (see section 1.6.2). That is, in a derivational chain $A \rightarrow B \rightarrow C$, faithfulness relations obtain between B and C, but not between A and C. The intrinsic "cyclicity" of Stratal OT guarantees this. O/O correspondence theory stipulates it for empirical reasons. Lexical Conservatism theory, being allomorphy-based, does not express this generalization.

The consequence is that Lexical Conservatism theory does not account for the form of derivatives from complex Bases. Contrast the forms in (833a) and (833b).

- (833) a. *tótalize, tòtalizátion* (with [r]); *húmanize, hùmanizátion; équalize, èqualizátion*
 b. *totáality, totàlitárian* (no [r]); *humánity, humànitárian* (\sim *hùmanitárian*);
equáality, equàlitárian

The distinction in the place of secondary stress in the derived nouns, e.g. between *tòtalizátion* and *totàlitárian*, is not predictable from the phonological shape of the words, since they have the same number and weight of syllables and their primary stress is in the same place. Phonology by itself would predict a uniform place of secondary stress in all of them. The reason the derived nouns are in fact stressed differently must be that they carry over the stresses of their bases. As it stands, Steriade's phonological constraints would put stress on the second syllable, by *LAPSE $\sigma\sigma$. But words like *vèterinárian* and *Tàtamagóuchi* show that *LAPSE $\sigma\sigma$ must be dominated by some constraint which stresses the initial syllable, presumably ALIGNLEFT, as discussed in Ch. 2. Let us assume that the system is fixed up in this way. In that case, the secondary stress of *humànitárian* must reflect the primary stress of *humánity*; so Lexical Conservatism requires that *humán-* is a listed allomorph of the morpheme *human*; since *húman* is the more frequent allomorph, it must be listed too, by the assumption stated on p. 497. But then the stress difference between *hùmanizátion* and *humànitárian* cannot be the result of a Lexical Conservatism constraint such as LEX [\pm STRESS], or of any other Lexical Conservatism constraint of the format in (823), or indeed of any anti-allomorphy constraint whatever. If both allomorphs *húman-* and *humán-* are listed, either can appear in the derived words without adding to allomorphy. Being equally compatible with the Lexical Conservatism constraints, the choice between the candidates is made by the phonological constraints, which will wrongly assign both words secondary stress on the same syllable (presumably on the initial syllable by ALIGNLEFT).

The pair of derivations in (834) furnishes an even simpler example of this point, shorn of all complications involving stress.

- (834) a. *cȳcle cȳcl+ic cȳcl+ic+ity*
 b. *trĭbe trĭb+al trĭb+al+ity*

The vowel of *cȳcle* is shortened in *cȳcl+ic* by Trochaic Shortening (a.k.a. Trisyllabic Shortening). The conditions for shortening are not met in *cȳcl+ic+ity*. Yet this word has a short vowel too, clearly by inheritance from *cȳcl+ic*, where the phonology compels it. Lexical Conservatism does not account for the shortening in *cȳcl+ic+ity* because the allomorph [saykl] is also available for “recycling”. Either of the two listed allomorphs [saykl] and [sɪkl] would equally satisfy the applicable phonological constraints in *cyclicality*. The reason why *cȳcl+ic+ity* is pronounced with a short vowel, then, must be faithfulness to the *proximate* Base.

This shows that minimization of allomorphy is not enough: the morphological relation between base and derivative is indispensable. For O/O correspondence constraints, where that relation is the fundamental correspondence relation, such cases are unproblematic. The same is true of Stratal OT, where the cyclic principle reduces the relation between bases and derivatives to that between inputs and outputs.

6.2.1.5 Another problem with Lexical Conservatism: asymmetry

The point of the previous section was that, because of their allomorphy-centered nature, Lexical Conservatism constraints subvert the locality of paradigmatic transfer effects. In this section I show that Lexical Conservatism constraints subvert the morphologically determined directionality of paradigmatic transfer effects.

Recall that the relation between $T(\mu)$ and $L(\mu)$ in constraints of the form (821c) need not be that between a base and a derivative; the requirement is that $L(\mu)$ be listed. This misses the empirical generalization that *derivatives can be faithful to their bases but not the other way round*. It predicts that there should be simple words whose pronunciation reflects the pronunciation of words derived from them. For example, the constraints in (823) (as well as the other constraints proposed by Steriade and discussed further below, such as (849) and (850)) could be satisfied in the paradigm *intuit, intuition* by pronouncing *intuit* as **intui[s̃]*. In reality, there are no good examples of phonological constraints that are violated in simplex words through transfer of allomorphs from the complex words that contain them (as opposed to the converse case, which is certainly common).

The diachronic facet of this generalization is that back-formations are “smart”: they do not produce new phonemes or extend existing phonemes into environments where they are prohibited by phonological constraints. For example, the verb back-formed from the noun *television* is *televise* and not **televízh*. In general, back-formed words are structured like other words of their class, and undo the phonological effects triggered by the complex words they are derived from. From the viewpoint of Lexical Conservatism this generalization, an instance of the primacy of the Base, is unexplained.

Stratal OT adopts the OT correspondence theory, according to which the output is identical with the input unless markedness constraints that dominate faithfulness demand otherwise. While Bases are inputs to derived forms, there is no question of derived

forms being inputs to Bases. Consequently, since there is no trigger of palatalization in *-able*, the final consonant of the stem should retain its underlying unpalatalized form before it.

6.2.1.6 Reification of allomorphs

A related point is that Lexical Conservatism lists variant output shapes of morphemes as allomorphs even when they are derived by phonological processes, provided only that they have the requisite degree of familiarity. That includes not only non-automatic but also automatic morphophonological processes, and indeed even allophonic processes. For Stratal OT, “allomorphs” produced by phonological alternations have no ontological status as grammatical entities, and faithfulness constraints could not refer to them. An allomorph is just a suppletive lexical entry. For example, *go* and *went* are allomorphs of one verb, and *-s* and *-en* are allomorphs of the plural morpheme. But from our perspective, [æɹəm] and [ətʰám] are not distinct allomorphs of *atom*, nor are *intuí[s̩]* and *intúit*, because the relation between these pairs is morphophonological rather than morphological.

Historical processes of reanalysis can of course result in originally automatic phonological variation becoming opaque and eventually becoming reanalysed as allomorphy. It is also true that where phonological conditions do not decide the choice between different forms, morphology can step in to resolve it (Anttila 1997). But there are no grounds for reifying *predictable* realizations of morphemes as “allomorphs” which can be referred to by paradigm constraints or other constraints.

6.2.1.7 Summary

Contrary to both Stratal OT and by O/O correspondence theory, Lexical Conservatism predicts that paradigmatic effects could be nonlocal and symmetrical. Such effects are not reliably attested. If Lexical Conservatism is understood as a replacement of O/O constraint theory, as in Steriade’s work, it is too weak, and if it is understood as a supplement or addition to it, it undermines its most desirable results by compromising the locality of the Base/Derivative relation and by allowing derivatives to influence the shape of the base. Also, Lexical Conservatism theory and O/O theory have a large overlap in coverage, for which they make partly contradictory predictions.

6.2.2 The empirical argument from English

6.2.2.1 The status of *-able*

***-able* forms both stems and words.** Now let us turn to the English evidence. Steriade adduces the stress variation in *-able* adjectives in support of Lexical Conservatism. I will show that the variation reflects two morphologically distinct types of formations, respectively derived from stems and words. This alternative account of the data does not rely on storage of predictable allomorphs as Lexical Conservatism does. It generalizes correctly to many types cases for which Lexical Conservatism makes the wrong predictions. The upshot is that the *-able* facts actually refute Lexical Conservatism.

Adjectives in *-able* can be divided into two morphological classes of unequal size. Roughly 75% of *-able* words listed in Webster's Unabridged Dictionary are deverbal word-level formations, which keep stress on the same syllable as in the base.³⁰⁷ The actual frequency of this fully productive use of *-able* is of course much larger, for the dictionary lists only a sampling of it. In (835) I reproduce those which begin with the letter *a-*, obtained from an electronic corpus containing the words in Webster's 2nd.

- (835) abandonable abatable abridgeable absolvable absorbable abusable acceptable acclamable acclimatable acclimatizable accomplishable accordable accostable accountable accusable acetylizable achievable achromatizable acidifiable acknowledgeable acquirable acreable actable adaptable addable adjudgeable adjustable administrable admissible adoptable adorable adsorbable advanceable advertisable advisable affectable affirmable affordable afforestationable aggrandizable agreeable aidable airable alarmable alcoholizable alkalifiable alkalizable allegeable alliable allocatable allottable allowable alterable amassable amendable amortizable amovable amusing analysable anchorable annexable announceable annulable answerable anticipatable antiportable appealable appeasable applaudable applicable appointable apportionable apposable appraisable approachable approvable arguable arrangeable arrentable arrestable ascendable ascertainable ascribable askable aspectable assailable assaultable assayable assemblable assertable assessable assignable assumable assurable astounding atonable attachable attackable attainable attemptable attestable attractable attributable augmentable authorizable autoxidizable available averrable avertable avoidable avouchable avowable awakable awakenable awardable

A smaller subclass of word-level *-able* adjectives is formed from nouns. This includes adjectives in meanings like 'fit for N', 'worthy of being or becoming N', such as (836a),³⁰⁸ semi-productive derivatives from nouns in *-ion*, in several idiosyncratic meanings, as in (836b), and two derivatives from simple nouns in the sense 'possessing N as a characteristic' ((836c)).³⁰⁹

- (836) a. actionable clergyable clubbable fissionable marriageable merchantable percentable serviceable tenantable
 b. collocatable companionable compassionate conversationable disproportionable educationable emotionable exceptionable expressionable fashionable frictionable illusionable impressionable motionable notionable objectionable opinionable perditionable portionable proportionable repartitionable reversionable suggestionable suspicionable treasonable
 c. peaceable sizeable

The remainder is formed from bound stems ("roots"). This class of *-able* adjectives is stressed on the presuffixal syllable if it is heavy and otherwise on the syllable before that. This is the rule which defines normal pattern of English stem stress (the "Latin

³⁰⁷Since the distinction between primary and secondary stress plays no role in Steriade's analysis, I will disregard for now variation of the type *authorizable* ~ *àuthorizable*, which *-able* shares with other word-level derivational endings (e.g. *evidently* ~ *èvidently*). But see p. 515 on how this variation in primary stress tells against Lexical Conservatism.

³⁰⁸This class enjoys some productivity, evidenced in new words like *(re)saleable*.

³⁰⁹Of course, all words in *-able* allow prefixation with *un-* and suffixation with *-ility*.

stress rule” of Chomsky & Halle 1968, see also Hayes 1980, 1995, Kager 1989 for detailed investigation of its functioning in English), to be referred to here as the STEM STRESS rule.

Importantly, *-able* counts as one syllable, for purposes of stress. This accords with its underlying form /æbl/,³¹⁰ independently motivated by its syllabification in derived forms, where *-able* adjectives pattern with words like *noble* and not with words like *global*:³¹¹

(837)	/Cl/	[Cli]	/CVl/	[C]li]
	noble	nobly	global	globally
	idle	idly	bridal	bridally
	stable	stably	modal	modally
	feeble	feebly	evil	evilly
	able	ably		
	adjustable	adjustably		
	parodyable	parodiably		

The majority of adjectives so formed correspond to verbs in *-ate*; the examples beginning with *a-* are listed in (838a). The balance is formed from other bound stems (see (838b)).

- (838) a. abdicable abhominable abnumerable abominable abrogable accelerable accentuable accommodable accumulable affiliable agglutinable aggregable agitable alienable allocable amalgamable ameliorable animable annihilable annunciable appreciable appropriable arbitrable articulable assimilable associable attenuable autoinoculable
- b. affable amenable amerceable amiable amicable appellable applicable arable

Explaining the neologisms. The fact that *-able* forms both stems and words explains the intuitions about words in *-able* revealed by speakers’ intuitions and by the usage recorded in unabridged dictionaries. *Remédiable* is a stem-level formation, built from the same root as the words *remédial* and *remédiation*, while *rémediable* is a word-level formation (as the contrast between *irremédiable* and *unrémediable* confirms). In contrast, **paródiable* is bad because *parody* permits no stem-level derivation, as shown by the fact that **parodial*, **parodiation* are not possible.³¹² So *-able* is added to the *parody* only *qua* word, hence has no effect on the stress. Independent confirmation for

³¹⁰There are some exceptions: *formidable*, *hospitable*, *despicable*, *(in)explicable* vary between penult and antepenult stress. Some dictionaries call the antepenult accentuation an ‘Americanism.’

³¹¹Some /-Cl/ stems have an *-i-* in derivatives like *nobility*, *stability*, *-ability*. This alternation is evidently a stem-level alternation. Whether it is suppletive allomorphy, deletion, or epenthesis (as suggested by Chomsky & Halle 1968:196 for the somewhat similar alternation in *vehicular*, *angular*, *tabulate*) does not matter for now.

³¹²As a matter of fact, there is one infrequent stem-level derivative of *parody*, namely the denominal adjective *paródic*. Steriade’s discussion presupposes, plausibly enough, that *paródi-* is not a listed allomorph; otherwise, on her theory, speakers should allow the adjective **paródiable*. I will assume that Steriade is right in claiming that this word is not familiar, in the relevant sense. For more on this point, see p. 6.2.2.2 below.

the word-level status of *parodiabile* comes from the deviance of **imparodiabile* (versus the acceptability of *unparodiabile*, *nonparodiabile*).

Secondly, the nonexistence of **parodiáble*, **remediáble* is predicted because neither a stem-level derivation nor a word-level derivation would produce this stress pattern. It would be completely irregular. Therefore, the fact that speakers don't produce such words provides no evidence whatever for Lexical Conservatism; it simply shows that they know English morphology and the English stress system.

Third, the vacillation observed in the two pronunciations of *remediabile* is characteristic of words in *-able* in general. The stem-level and word-level derivatives often coexist as doublets in the existing vocabulary. Webster's 2nd includes the doublets in (839a), and (839b) is a sampling of additional doublets for which the dictionary gives only the stem-level form.³¹³

- (839) a. *ádmirable/admírabale*, *admittable/admissible*, *appliable/applicable*, *acclimatizable/acclimatable*, *allocatable/allocable*
 b. *abdicable/abdicable*, *acceleratable/accelerable*, *accumulatable/accumulable*, *activatable/activable*, *annihilatable/annihilable*, *appropriatable/appropriable*, *assimilatable/assimilable*, *articulatable/articulable*

It can now be seen that Steriade's data can be explained without any appeal to listed allomorphy or to lexical conservatism. Her observation that familiarity with *remédial* entails acceptability of *remédiabile* as a neologism is correct. But there is a better explanation for it. Making explicit the analysis proposed in the preceding paragraphs, let us suppose that a speaker has acquired the lexical and phonological knowledge in (840a). Such a speaker can make the inferences in (840b), which correspond exactly to what Steriade found about speakers' projections in novel forms.

- (840) a. Speaker's previously acquired knowledge:
 1. *remedy* is a word
 2. *remédial* is a word
 3. *-al*, *-ation* select stems, *-able* selects both stems and words
 4. stems get stem stress, words are stress-neutral
 b. Speaker's new inferences:
 1. *remedi-* is a stem (inferrable from (a2, a3))
 2. *remédiabile* is a possible word (inferrable from (a3, a4, b1))
 3. *rédiabile* is a possible word (inferrable from (a1, a3, a4))
 4. **remediáble* is not a possible word (inferrable from (a4))

Nothing in (840) requires keeping track of particular allomorphs or recycling them. Nothing requires a paradigmatic constraint that requires keeping output stresses on a constant syllable of the stem. Therefore, the fact that speakers project from learned

³¹³Even an unabridged dictionary cannot give a complete listing of word-level *-able* because of its practically unlimited productivity. Probably most of the stem-level forms in (838) have word-level doublets even they are not listed in any dictionary.

knowledge to the new knowledge in (840b) provides no evidence for Lexical Conservatism.

As for *parody* and its derivatives, Lexical Conservatism explains the absence of **paródiable* on the basis of the assumption that learners/speakers follow the maxim “if you haven’t heard an allomorph, don’t use it”. On my account, speakers are reluctant to form the stem-level derivative because they are not familiar with any stem-level derivatives of the verb *párody*, and assume that it is in fact only a word, not a stem as well. Let us suppose, uncontroversially, that (841a) is a principle of grammar, and that (841b) is a default assumption that guides learners.

- (841) a. A free form is a word.
b. A word is not also a stem.

Thus, to categorize a free form as being, in addition to a word, also a stem, some positive evidence of stemhood is required.

On this assumption, the knowledge that **parodial* is unacceptable is acquired as follows.

- (842) a. Speaker’s previously acquired knowledge:
1. *párody* is a word
 2. *-al, -ation...* select stems, *-able* selects both stems and words (= (840a3))
 3. stems get stem stress, words are stress-neutral (= (840a4))
- b. Speaker’s new inferences:
1. *parody* is not a stem (by (a1), (841b))
 2. *paródiable* is a possible word (by (a1, a3, a4))
 3. **paródiable* is not a possible word (by (a3, a4, b1))
 4. **parodiable* is not a possible word (by (a4))

This alternative makes several predictions which differ from those made by Lexical Conservatism theory. In what follows I show that the evidence consistently favors the former.

6.2.2.2 The stress evidence

The stress of adjectives in *-able* shows that Lexical Conservatism fares poorly in comparison with O/O constraint theory, and even more so in comparison with Stratal OT. There are at least seven kinds of cases where the theories make different empirical predictions. All of them support Stratal OT over Lexical Conservatism.

Case 1: There is no listed allomorph. The first test case consists of long words with no listed allomorph. Suppose someone encounters words like (843) for the first time, in writing or in some other way which does not reveal their stress.

- (843) *inenúbiable, incomménsurable, irréfragable, inexorable*

From the prefix *in-* and from the non-existence of free forms such as **enubil*, **refrag* a speaker or learner can infer, by the sort of reasoning we just went through, that the adjectives in (843) are stem-level formations. That in turn implies that they are stressed by the stem stress rule, which predicts the stresses in (843). And indeed, people who have never encountered a word like *inenubitable* before (I certainly had not until I fished it out of the unabridged dictionary) judge that *inenúbilable* and not **inenubíable* is the right stress for it (as long as they pronounce *-bil-* as short, of course).

In so far as speakers place the stress on the right place in unfamiliar words in *-able*, they must be drawing on shared productive knowledge of the English stress rules. But the Lexical Conservatism analysis does not characterize this shared productive knowledge. It predicts the wrong presuffixal stress for the words in (843).³¹⁴

(844)

	LEX [\pm STRESS]	LAPSE $\sigma\sigma\sigma$	LAPSE $\sigma\sigma$
Listed allomorphs: <i>none</i>			
a. \leftarrow inènubíable			*
b. ìnenubíable			**
c. \leftarrow inenúbilable		*	**

It predicts **inènubíable* by the constraint LAPSE $\sigma\sigma$ (see (823d)), or the equally implausible *inenubíable* if we amend the system by adding ALIGNLEFT to dominate LAPSE $\sigma\sigma$ as suggested for other reasons above. The correct form (844c) is in any case excluded by LAPSE $\sigma\sigma\sigma$.

Case 2: There is no free listed allomorph. A second test case is provided by lexemes that have only bound allomorphs. In Steriade's terms, they are listed items bearing the feature [$-Vb$] with different stresses, e.g. *perpétu(-ate)*, *perpetú(-ity)*. By (823) and (824), *-able* should then select the allomorph with the rightmost stress — the end-stressed one if it exists, for that minimizes **LAPSE* violations on either ranking in (824).

(845)

	LEX [\pm STRESS]	*LAPSE $\sigma\sigma\sigma$	LEX ([\pm STRESS], LEXCAT)
Listed allomorphs: <i>perpétu-</i> , <i>perpetú-</i>			
a. \leftarrow perpétuable		*	*
b. \leftarrow pèrpetuable			*

This is not what actually happens in English. The data are eloquent on this point. My search turned up many such words, and not one of them allows stress on a short presuffixal syllable.

³¹⁴For *-able* adjectives formed from bound stems ending in *heavy* syllables, such as *irrefrangible*, Steriade's account predicts the right stress, but for the wrong reasons.

(846)	L(μ) [-Vb]	T(μ)	L(μ) [-Vb]	T(μ)
a.	mémory	mémorable	memórial	*memóritable
b.	númerous	númerable	numérical	*numéritable
c.	perpétuate	perpétuable	perpetúity	*perpetúible
d.	sócial	sóciabile	sociéty	*sociáible
e.	sátiate	sátiable	satiéty	*satiáible
f.	áctivate	áctivable	actívity	*actívible
g.	intérrogate	intérrogradable	interrógative	*interrógible
h.	pérson, pérsonal	pérsonable	persónify	*persónible
i.	líquid, líquidate	líquidable	liquídity	*liquídible
j.	óxidize	óxidable	oxídic, oxídity	*oxídible
k.	discourage	discourageable	courageous	*discourageable
l.	lítigate	lítigable	litígious	*lítigible
m.	íntegrate	íntegrable	intégrity	*intégrible

The Stratal OT analysis explains these data. It says that when the stem of *-able* is bound, the derivative will be stressed by the stem stress rule, which means stressing the stem's prefinal syllable if the final one is short. This characterizes the data of (846) precisely.

Case 3: The bound allomorph has final stress. A third test case involves verbs which have a bound allomorph with final stress. If the corresponding free form ends in an unstressed syllable, Lexical Conservatism predicts stress variation in the *-able* adjectives (by the same alternative constraint rankings that it postulates for the variation between *remédiable* and *rémediable*). The bound allomorph (if listed) should occur in the adjective before *-able* under the ranking LEX [\pm STRESS] \gg *LAPSE $\sigma\sigma\sigma$ in (824a), and the free allomorph should occur in the adjective under the opposite ranking in (824b). On the standard assumptions about English phonology and morphology adopted here, no stem-final stress is expected in such cases on either the word-level treatment or the stem-level treatment of *-able*. On the word-level treatment, the verb will keep its penult stress by I/O faithfulness, and on the stem-level treatment of *-able*, Stem Stress will skip the light stem-final syllable and place the stress on the stem's penult.

All such *-able* words that I have been able to find have the stress on the penultimate syllable of the stem, where my analysis puts it. The stem-final stress that should emerge from the ranking (824a) never materializes. For example, there is a word *continuable*, but there is no word **continuable*, which Lexical Conservatism predicts for those speakers for whom **continú(-ity)* is a listed allomorph.

(847)	L(μ) [+Vb]	T(μ)	L(μ) [-Vb]	T(μ)
a.	contínue	contínuable	continúity	*continúable
b.	ínjure	ínjurable	injúrious	*injúrabable
c.	váry	váritable	variety	*váritable
d.	demólísh	demólíshable	demolítion	*demolíshable
e.	admónísh	admóníshable	admonítion	*admóníshable
f.	abólísh	abólíshable	abolítion	*abolíshable
g.	dimínísh	dimíníshable	diminútion	*diminútiabable
h.	écho	échoable	(an)echóic	*échoable
i.	équal	équalable	equáality	*équalable
j.	árbor	árborable	arbóreal	*árborable
k.	májor	májorable	majóurity	*májorable
l.	cénsor	cénsorable	censórious	*cénsorable
m.	fáctor	fáctorable	factórial	*fáctorable
n.	tótal	tótable	totáality	*tótable
o.	pírate	pírateable	pirátical	*pírateable

(847a-g) are basic verbs and (847h-o) are verbs derived from nouns and adjectives. All confirm the prediction of Stratal OT and falsify the prediction of Lexical Conservatism.

To deny that the [-Vb] allomorphs in (847) are listed would be implausible. The words containing them are at least as frequent, on average, as the words containing the allomorphs *remedial* and *remediation*, on which Steriade's argument for Lexical Conservatism in English rests; the nouns in *-ity* are overwhelmingly more frequent.

Also, any claim to the effect that the *-able* adjectives in (847) are marked or exceptional would miss the point. The bottom line is that (847) represents a pattern that is exceptionless in the existing vocabulary, to which every new formation also cleaves. In fact, because practically any noun can be converted into a verb (Clark & Clark 1979) and any verb can make an *-able* adjective, the list can be made as long as you like. A student recently asked me if his paper was *óralable* — not **orálabable*, in spite of *oráality* (a word with which he was familiar). If we improvise denominal verbs such as *to angel* 'to invest in', or *to Clinton* (the reader is invited to decide what that might mean), their *-able* adjectives will be *ángelable*, *Clíntonable*, not **angélabable*, **Clintónable*, whether or not we are "familiar" with the latter allomorphs from the words *angélic* and *Clintónian*.

While Steriade 1999 does not discuss the data in (847), she does bring up the special case of verbs whose final consonant is palatalized before an affix beginning with /y/, such as those in (848).

(848)	L(μ) [+Vb]	T(μ)	L(μ) [-Vb]	T(μ) ₁	T(μ) ₂
a.	édít	édíttable	édítion	*édíttable	*édíttable [-š-]
b.	contríbute	contríbutable	contribútion	*contribútable	*contribútiabable
c.	exhíbít	exhíbíttable	exhibítion	*exhíbíttable	*exhíbíttable
d.	ínfluence	ínfluenceable	influéntial	*influénceable	*influéntiabable

Her constraints in (823) predict the two sets of starred forms in (848) listed under T(μ)₁ and T(μ)₂. To exclude the first set, Steriade adds a constraint LEX $\sigma!$, which prohibits

segmental alternations between a verb and its derived allomorph in syllables which are stressed in the derivative.

- (849) LEX σ !: For any stressed syllable σ in the target form $T(\mu)$, there is a correspondent σ' in some listed allomorph, $L(\mu)$, such that σ' is stressed and σ and σ' are segmentally identical.

To exclude the second set of predicted wrong forms in (848) (viz. the one listed under $T(\mu)_2$), Steriade adds a constraint LEX (C], LEXCAT), which requires that the last stem consonant must come from the base of the derivative, namely, for *-able* adjectives, the verb:

- (850) LEX (C], LEXCAT): If $T(\mu)$ and some listed allomorph of μ , $L(\mu)$, have the same lexical category, then if there is a final consonant C in $T(\mu)$, C has a correspondent C' in $L(\mu)$ and is featurally identical to C' .

The constraints (849) and (850) somewhat compromise Steriade's analysis because they hardly go beyond the descriptive generalizations that they are supposed to explain, and they do not cover the problematic general case (847) anyway. Although the stem-final consonant alternation in *contribute*, *contribution* is a diagnostic of the stem-level status of *-ion*, it only picks out an accidental subset of the stem-level cases, for the obvious phonological reason that the diagnostic alternation occurs only with the plain coronal obstruents (*-t*, *-d*, *-s*, *-z*). Therefore (849) and (850) do not address the fundamental difficulty posed by the data in (847).

The Stratal OT account proposed above takes care of everything without any additional machinery, including both the data in (848) that constraints (849) and (850) are intended for, and the data in (847) that they do not handle. All the wrong stress outputs are excluded simply because their stress pattern obeys neither word-level phonology (faithfulness to the base) nor stem-level phonology (the stem stress rule). Also, the problem of excluding **editiable* does not arise in the first place in a theory which posits underlying forms, such as that proposed here. On that view, the stem-final palatal [-š] in the word *edition* is conditioned by the suffix (presumably by its initial /y/, which is absorbed by the stem-final palatal [š] but retained in other contexts, e.g. *rebell-ion*, *opin-ion*). The reason why a word like **editiable* is excluded is then simply that the suffix *-able* does not trigger palatalization (because it does not begin with /y/). In the absence of a palatalization trigger, faithfulness requires realizing underlying /t/ as [t] rather than as [š]. Again, the reification of phonological alternants as allomorphs on a par with suppletive alternants leads to false predictions.

In sum, lexical items whose bound allomorphs have final stress falsify Lexical Conservatism. The constraints (849) and (850), which in any case address only a small subset of this portion of the data, are artifacts of its reification of output allomorphs. Their only purpose is to exclude phonologically conditioned "allomorphs" such as [ədíš] from contexts where the phonological conditions that require them are not present.

Case 4: There is no stressed listed allomorph. The fourth test case arises when the only listed allomorph of a morpheme is unstressed. Lexical Conservatism then pre-

dicts that the stem should be unstressed in the *-able* adjective as well. This case arises only marginally, but for the sake of completeness I cite such cases as I have found.

- (851)
- | | K(μ) [-Vb] | T(μ) | T(μ) |
|----|------------------|------------|------------|
| a. | deléte | délible | *delíble |
| b. | tenáceous | ténable | *tenáble |
| c. | capácity | cápable | *capáble |
| d. | solútion | sóluble | *solúble |

Constraint (823a) predicts that the unstressed allomorphs (such as *del-*), if listed, might be transferred to the derived adjectives. For example, consider a speaker unfamiliar with the word *delible* who encounters it in writing and parses it as morphologically related to the familiar *deléte*. According to Lexical Conservatism such a speaker might recycle the listed allomorph and say **delible*. The Stratal OT analysis predicts, instead, that such adjectives should follow the regular stem-level stress rules of English, regardless of how deeply their morphology is analyzed. It seems clear that the facts contradicts the expectations of Lexical Conservatism and accord fully with the Stratal OT alternative.

Case 5: When stress is unpredictable. As the result of a historical shift, the stress of verbs in *-ate* has some idiosyncrasies, and differs from the stress of the corresponding *-able* adjective in some cases. Only when the penult is light is the antepenult regularly stressed:

- (852)
- | | | |
|----|-------------|--------------|
| a. | términate | términable |
| b. | contáminàte | contáminable |
| c. | ánimàte | ánimàble |
| d. | decápitàte | decápitable |

When the penult is heavy, matters are more complicated. Most heavy penults involve either possible onset clusters or sonorant+consonant clusters. Retraction is favored, as in (853).

- (853)
- | | | | |
|----|------------|-------------|--------------|
| a. | íntegrate | íntegrable | *intégrable |
| b. | législate | législable | *legíslable |
| c. | dénigrate | dénigrable | *denígrable |
| d. | célebrate | célebrable | *celébrable |
| e. | íllustrate | íllustrable | *illústrable |
| f. | cálibrate | cálibrable | *calíbrable |

but there are also cases of where the cluster counts optionally as heavy,

- (854) *equílibrate* ~ *equilíbrate*, *equilibrable* ~ *equilíbrable*

and in some cases the *-ate* verb and the *-able* adjective differ.³¹⁵

- (855)
- | | | | |
|----|-------------|--------------|-----------------------------|
| a. | cónfiscate | *confíscate | cónfiscable ~ confíscable |
| b. | démonstrate | *demónstrate | démonstrable ~ demónstrable |

³¹⁵See Kager 1989, Ch. 2 for a treatment of the phonological processes at work in these cases, in particular medial sonorant destressing.

These data could be dealt with by marking the stress in the lexicon, or, less brutally, by marking the syllabification. The latter possibility implies rejecting the claim that syllabification is universally nondistinctive (McCarthy 2000). And in fact this claim does not seem to be correct (see (521) in Ch. 3). In English, marking the syllabification would make sense of the fact that initial secondary stress is unpredictable precisely in those cases where alternative syllabifications are permissible, namely in cases like *p[ə]strámi* vs. *g[ə]strítis*. The variation between a stressed and unstressed initial syllable in words like *astronomy* would then be fundamentally a variation in syllabification.

Up to now we have seen that in so far as stress is predictable, it is assigned by the same principles in the basic verb and in the derived *-able* adjective. With the new data in (854) we have finally come to a residue of actual unpredictability, a candidate for lexically listing in conventional terms. Their significance is to show that the problems with the Lexical Conservatism hypothesis do not arise merely from the overly inclusive criterion of “familiarity” that Steriade uses to determine listedness. Surely, if there is any truth at all to Lexical Conservatism, its effects should be visible at least here, where we come as close to undisputed listedness as the *-able* data allow. But it turns out that precisely in the sorts of cases where the stress is unpredictable in the verb, it sometimes *differs* in the verb and in the adjective. So the only cases where there is no question that some kind of listing of allomorphs (or at least lexical marking) is needed turn out to undermine Lexical Conservatism rather than supporting it. From our point of view this is hardly surprising, since lexical idiosyncrasy tends to be a lexeme-specific property, not a morpheme-specific property.

Case 6: Primary stress. The Lexical Conservatism analysis disregards the distinction between primary and secondary stress and treats stress as a binary feature [\pm stressed]. The Stratal OT analysis extends without modification to the full range of data, predicting correctly that primary stress too is retained before word-level *-able*.

- (856) a. Forestress retained: *màintáin*, *màintáinable*; *èntertáin*, *èntertáinable*;
àugmént, *àugméntable*; *ìntercépt*, *ìntercéptable*
 b. Afterstress retained: *vétò*, *vétòable*; *hándpìck*, *hándpìckable*; *áir-condition*,
áir-conditionable, *súpervìse*, *súpervìsable*; *sýncopâte*, *sýncopâteable*; *álocàte*,
álocàtable; *accúmulàte*, *accúmulàtable*

As far as I can tell, Steriade’s exclusion of stress levels from the purview of the Lexical Conservatism constraints does not follow from any principle; it just protects the constraints (823), (849), and (850) from another set of failed predictions. If the analysis did not conflate levels of stress, two empirical problems would arise. First, the constraints would mislocate the primary stress of an additional class of *-able* adjectives. These are adjectives formed from verbs whose allomorphs show prominence alternations like (857).

- (857) *pènétràte*, *pènétrátion*, **pènétrátable*; *éxecùte*, *éxecútion*, **éxecútable*; *accúmulàte*,
accúmulátion, **accúmulátable*

The primary stress of stem-level derivatives (in this case, of the *-tion* nouns such as *pènétrátion*) does not license corresponding *-able* adjectives with presuffixal primary

stress (**pènètrátable*). The *-able* adjective's primary stress is determined by the primary stress of the base itself, not by the primary stress of any other listed allomorph of the base.

Secondly, a number of *-able* adjectives, especially frequent ones, tend to shift the primary stress to the presuffixal syllable. The suffix *-able* shares this (mostly optional) stress shift with at least one other word-level derivational ending, the adverb-forming *-ly*.

- (858) a. *áuthorizable* ~ *àuthorízable*, *ánalýzable* ~ *ànalýzable*
 b. *mómentàrily* ~ *mòmentárilý*, *évidèntly* ~ *èvidéntly*

Crucially, the stress alternation in (858) does not care whether there is an otherwise existing allomorph with primary stress on that syllable (let alone a "listed" one). For example, the morphemes in the words of (858) have no prior allomorph with primary stress on the syllable that receives it by the stress shift.

The dilemma for Lexical Conservatism is that the data in (856) show paradigmatic uniformity of primary stress, while the data in (857) and (858), mysteriously, show paradigmatic *non*-uniformity of primary stress. From the Stratal OT point of view, there is no contradiction. The entire set of data just shows the usual stress-neutrality of word-level endings, overlain in (858) by an optional rhythmic word-level stress shift.

Case 7: Noun stems and verb stems. Steriade and I agree that **paródiable* is bad for the same reason that **parodial* and **parodiation* are bad (p. 506). But we take this fact to mean different things. Lexical Conservatism's explanation is that speakers are not familiar with the allomorph *paródi-*. Stratal OT's explanation is that there is no stem *parody*. If that approach is right, we should expect other morphological restrictions on word formation to play a role in neologisms.

Nouns like *telescope*, *telephone*, *photograph* form zero-derived verbs at the word level. These verbs are only words, never stems. This is shown by the unacceptability of deverbal stem-level derivatives such as (859a), even when the corresponding nouns allow denominal stem-level derivatives such as (859b).

- (859) a. **photographal*, **photographation*, **telescopal*, **telescopation*, **telephonal*,
**telephonation*
 b. *photographic*, *photography*; *telescopic*, *telescopy*; *telephonic*, *telephony*

Lexical Conservatism's allomorphy-based account predicts that the *-able* adjectives formed from the verbs could recycle the allomorphs with presuffixal stress from the *-ic* adjectives, predicting the wrong forms in (860).

- (860) **photográphable*, **telescópable* [*tɛlɔskápabl*], **telephónable*

On Stratal OT's morphology-based account, the fact that stem-level *-able* goes productively only on verb stems, not on noun stems, coupled with the asymmetry documented in (859), accounts for the ill-formedness of (860).

Summary. The preceding paragraphs show how Lexical Conservatism and Stratal OT make different predictions about neologisms. Steriade's claim that the stress of *-able* adjectives is governed by a constraint which favors recycling known allomorphs seems to be baseless. Several types of *-able* formations militate against it and support a different explanation based on well-supported assumptions about English stress and morphology. They show that speakers draw on this knowledge when they encounter novel words and when they make them up themselves.

In the next section we shall see that the same analysis extends well beyond the stress data that we have been looking at so far.

6.2.2.3 Non-stress evidence

According to Steriade, the variation between *rémediable* and *remédiable* reflects specifically a conflict between LAPSE constraints and Lexical Conservatism constraints. The alternative analysis proposed here, on the contrary, says that it is a variation between two morphologically distinct types of formations, respectively derived at the stem level and at the word level. Unlike Lexical Conservatism, it predicts that other reflexes of the distinction between stem-level and word-level treatment of *-able* should diagnose it even where there is no question of violations of LAPSE constraints (or of any other stress differences). The dual status of *-able* should be equally manifested in syllabic and segmental phonology, and in its purely morphological properties. Moreover, these syllabic/segmental and morphological properties should correlate with each other and with the stress properties in ways predicted by the level-ordered phonology and morphology of English. To the extent that these predictions are confirmed, the LAPSE-based explanation for the dual status of *-able* is inadequate. It will be seen that this is another case of the atomism charge that we brought against O/O constraints and Sympathy theory above.

The data are quite clear on this point. The dual status of *-able* is confirmed by a range of phonological, morphological, and semantic differences, most of which have been well-known since Aronoff 1976. The PHONOLOGICAL evidence that *-able* belongs both to the stem level and to the word level has to do with syllable-sensitive phenomena at the stem-suffix boundary. Stem-final consonant clusters before *-able* show both word-internal and word-final treatment before *-able*, reflecting respectively the suffix's stem-level and word-level status.

(861) /-gn/:

- a. Word level: *signable*, *assignable* (from *sign*, *assign*, with word-final *g*-deletion and lengthening)
- b. Stem level: *pregnable* (from the root *pregn-*), *impregnable* (from *impregn-* or from *pregnable*, with opposite meanings, with [g] and a short vowel)

As can be seen, the phonology correlates with the morphology in the expected fashion.

(862) /-ng/:

- a. Word level: *prolongable* (with [ŋ])

b. Stem level: *tangible* (with [nʃ])

(863) /-mn/:

- a. Word level: *damnable* ‘deserving condemnation’, *condemnable* (with [mn])
- b. Stem level: *damnable* ‘which can be damned’, *condemnable* (optionally with deletion of *n*)

Other syllable-based contrasts before *-able* include the color of /l/,

- (864) a. *fallible*, *gullible* (clear [l] for most speakers)
 b. *fellable*, *annullable*, *pullable* (velarized [ɫ] for most speakers)

and the syllabicity of postconsonantal liquids:

- (865) *filterable/filtrable*, *registerable/registrable* (variation between syllabic and non-syllabic /r/)

On the MORPHOLOGICAL side, the negative prefix *in-* is a good diagnostic of stem-level status; words regularly take *un-*, *non-* instead.³¹⁶

- (866) a. Word level: *unadmittable*, *undefendable*, *undividable*, *unviolatable*, *uneducatable*
 b. Stem level: *inadmissible*, *indefensible*, *indivisible*, *inviolable*, *ineducable*
 c. Inconsistent: **inadmittable*, **indefendable*, **individable*, **inviolatable*, **ineducatable*

The morpheme order also differs as predicted:

- (867) a. *self-irrecoverable*, *self-indivisible*
 b. *un-self-recoverable*, *un-self-dividable*
 c. **in-self-recoverable*, **in-self-divisible*

Particles are sometimes transferred from verbs to derived nouns and adjectives, either postnominally or by “incorporation”. This is a more or less ad hoc lexical resource, fully naturalized in a few words but extendable in various creative ways. The point of interest here is that it serves as another diagnostic of word-level status.

- (868) a. *take-outer*, *picker-upper*, *picker-up*
 b. **cool-offant*, **coolant-offant*, **coolant-off*

With *-able* it seems to pick out the same division, as the contrast between the words in (869a) and the words in (869b) indicates.

- (869) a. *turn-off-able*, *un-get-at-able*, *un-get-on-able with*, *countable on*, *filterable out*, *dividable off*
 b. **reliable on*, **filtrable out*, **divisible off*

³¹⁶Of course, non-bound stems can be words (since no inflection is required in English), so words like *unadmissible*, *undefensible* are not ill-formed. If they are not fully felicitous it is because they are weakly blocked by their stem-level synonyms, as is typical in derivational morphology. It should also be noted that *in-* sometimes exceptionally attaches to words, e.g. *incopresentable*, and most spectacularly *irreinoculability* (attested as a technical term in medical usage, but mercifully not included in Webster’s), with stem-level *in-* and *-ity* outside the (word-level) repetitive/restitutive prefix *re-*.

Thus both phonology and morphology converge on showing dual status for *-able*. Stress variation is only one of many phenomena that reflect it. None of the data in (861) through (868) can be understood simply in terms of a conflict between LAPSE constraints and Lexical Conservatism constraints. The variation is fundamentally a morphological option, which conditions a wide range of correlated phonological and morphological effects. Lexical Conservatism theory misses these connections.

The argument in this section is isomorphic to the atomization argument that we made in previous chapters against O/O theory and Sympathy. Fundamentally the problem lies in the failure of parallel OT to provide a structured phonology/morphology interface.

The short-changing of morphology has roots in a careless practice that many phonologists (myself included) have been guilty of. There is a long tradition in work on English phonology of dividing stem-level affixes from word-level affixes simply on the basis of their stress properties. This shortcut is risky enough even as a rough heuristic.³¹⁷ But it is simply unsound when the very nature of the distinction between them is at issue. The argument for level-ordering in English rests on the correlation of stress with other phonological properties, and on the correlation of stress and these other phonological properties with morphology. Therefore any alternative to level ordering must deal with all those other properties too.

This concludes my review of the *-able* data. On every point where the analyses have distinguishable consequences, the data were found to favor the Stratal OT analysis. The conclusion is that this class of derived adjectives provides evidence against Lexical Conservatism rather than in favor of it. In the next section I show that data from lexical innovations point in the same direction. However, while the data so far yield even to an Stratal OT analysis of a fairly standard sort, which may be implemented in OT but is not especially dependent on it, the embedding of LPM within OT will now become crucial.

6.2.3 What lexical innovations tell us

Innovations with novel “allomorphs”. To remove any lingering doubts that the arguments of the preceding sections are based on unproductive and lexicalized words, or that there is something peculiar about words in *-able*, let us look at some coinages with other suffixes, taking some freshly minted terms from our own field under observation. They will offer us a new argument: that neologisms contain new allomorphs when constraints of English morphology and phonology require it, against the expectations of Lexical Conservatism.

The words *honorify*, *honorification* were coined as technical terms from the earlier *honorific*.³¹⁸ The endings *-ify*, *-ation*, and their combination *-ification* (unlike *-able*) are largely confined to stem-level suffixation, as shown by their stress pattern and by

³¹⁷For example, there are inherently stressed word-level suffixes such as *-ee* and *-esque*, e.g. *Whiti[ŋ]esque*, *Chomskyesque*. Gussenhoven 1994 indeed argues that many affixal stress properties are prespecified, and concludes that stress is the weakest of all the criteria for the level of an affix.

³¹⁸My guess is that *honorification* was first derived from *honorific*, and in turn gave rise to *honorify*

their segmental behavior in words such as *signify*, *signification*, *indemnify*, *assignation*, *condemnation* (see section 6.2.2 above). Speakers know that stem-level derivatives are stressed according to the stem stress rule, and this knowledge enables them to project the stress of *honórfify*.

Lexical Conservatism says that speakers form new words by recycling listed allomorphs. So *honórfify* should have been formed from a listed allomorph *honór-*. But the only allomorph was *hónor-*, contained in the following words: the noun *hónor* itself, with a zero-derived verb *to hónor* (from which are in turn derived *hònorée*, *hónorer*, *hónorance*); also *dishónor* (noun and verb), *hónoràry*, *hónorous*, *hónorable*, and — the immediate source of the neologism in question — *hònorífic*. Listed or not, all these allomorphs of *honor-* have a primary or secondary stress on the *first* syllable. When *honórfify* was coined, there *was* no listed allomorph *honór-*. This did not prevent *honór-* from being introduced in the new word *honórfify*, where the phonology requires it.

The presence of a listed allomorph is all-important for Lexical Conservatism theory, however. If the only listed allomorph is *hónor-*, and LEX [\pm STRESS] is ranked above the stress constraints for the suffix *-ify* (as Steriade 1998 argues), then Lexical Conservatism predicts **hónorífify* as the only form, on the basis of the following tableau:

(870)

	LEX [\pm STRESS]	LAPSE $\sigma\sigma\sigma$	LAPSE $\sigma\sigma$
Listed allomorphs: <i>hónor</i>			
a.  <i>hónorífÿ</i>			*
b.  <i>honórfÿ</i>	*		

More generally, the suffix *-ify* has been fairly productive in English, and in the established vocabulary it is always stressed regularly.

Examples like this can be multiplied at will. The technical term *agrammatism* is unhesitatingly stressed on the second syllable by English speakers who encounter it for the first time, in spite of the fact that they know an “allomorph” *grammát* from *grammátical* but no “listed allomorph” *grámmat*. Another example of a word coined in linguistics is *syllabify*, back-formed in the mid-19th century from the older *syllabification*.³¹⁹ Before the terms *mórfify* and *mòrficátion* were made up, the previously existing listed allomorphs of *mora* were [mó:rə] itself, and [mərəy] in *moraic*. But neither of them is used in the newly coined word *morfify*. Rather, it is always pronounced with the truncated stem, so as to rhyme with *horrifÿ*.³²⁰

by back-formation. Now that both new words are established, *honorification* could be synchronically derived from *honorfify*, as well as from *honorífic*. Some support for the availability of both these synchronic bases comes from the variation in secondary stress. Thus, *honòrficátion* would come from *honórfify*, as opposed to *hònoríficátion* from *hònorífic*. Compare the variation between *académician*, from *academy*, vs. *àcadémician*, from *àcadémic* (Kager 1989:170).

³¹⁹Which for the reasons explained in fn. 318 would have had secondary stress on the initial syllable before the verb became current.

³²⁰A pronunciation rhyming with *glorify* ought to be possible too (for speakers who distinguish between them), since Trisyllabic Shortening is not fully productive. Note also that I am assuming that the allomorph in older terms like *trimoric* is not familiar in the relevant sense (else the neologism *moraic* would not have been formed).

As a thought experiment, let us further extend the vocabulary with the denominal verb *to mora* (perhaps meaning ‘to represent with moras’), and form an *-able* adjective *morable* from it. Will it be pronounced with one of the listed allomorphs, as *[mórəb] (like *morify*), *[mó:rəb] (like *mora*), or, as the Lexical Conservatism analysis seems to predict, *[mərəyəb] (like *moraic*)? Not likely. The expected pronunciation is [mó:rəb], with still another allomorph, the long-vowel truncated stem, which has regular stress and respects the undominated constraint which bars [ə] sequences (**rhumbaable*).

As these examples show, the claim that productive word-formation cannot introduce novel allomorphs is false, if allomorphs are understood as in Lexical Conservatism. The allomorphs which *cannot* arise through word-formation are exactly those which LPM and Stratal OT characterize as allomorphs, namely those which do not reflect phonological regularities of the language. Thus, Lexical Conservatism loses a generalization which can be maintained in its full generality under Stratal OT.

Coercion. The above examples involve derivatives which are morphologically well-formed. Now let us turn to cases where morphological constraints are violated under the pressure of the expressive needs of language users. A speaker seeking a word for some complex concept can be driven to violate morphological restrictions, for example, by putting a stem-taking suffix after a word. How will such contradictory word structures be processed phonologically and morphologically?

We can again study the situation naturalistically through lexical innovations. Continuing to draw examples from linguistic terminology, consider the word *obligatorification*, used in the grammaticalization literature. A common reaction of people who first encounter this word is that it is “clumsy” or even “ugly”.³²¹ There are solid morphological grounds for this feeling. First, the suffix *-ify* goes on nouns, and on nominal roots, not on adjectives. Secondly, adjectives in *-ory* are not inputs to *any* kind of stem-level derivation (as opposed to nouns in *-ory*, e.g. *territorial*). Our way of stating this second generalization is that adjectival *-ory* makes words, not stems. The word *obligatorification* violates both these morphological generalizations.

Now let us take the verb *obligatorify*, back-formed from the noun. Interestingly, most people will stress it *obligatorify*, keeping the primary stress of the base unshifted, unlike what normally happens with words in *-ify*. This fact can be connected to the morphologically anomalous status of the word if we suppose that speakers treat the word as having an exceptional word-level and adjective-taking variant of *-ify*, *-ification*, not as having an exceptional derived adjective stem in *-ory*. Presented with a forced choice between violating affixal selectional restrictions and recategorizing a word, speakers prefer the former. They coerce a stem-level affix into a word-level affix instead of coercing a word into a stem.

This turns out to hold fairly generally. If we simulate the situation experimentally by asking speakers to form derived words of certain kinds, we get the same effect. Suppose that we ask a subject to make a derivative with a stem-level affix such as *-ify*,

³²¹Not surprisingly, the linguist who coined this technical term is not a native speaker of English.

-ian, -ious, -ity, or -al from a word, rather than from a derivational stem. As might be expected, speakers tend to be reluctant to do so, but what they tend to volunteer in such a situation are again the stress-neutral forms. For example, *market* is not a derivational stem, and when coerced to put them before stem-level suffixes speakers typically produce stress-neutral forms like **márketify*, **márketian*, rather than stress-shifted forms like **markétify*, **markétian*. Again, in a forced choice situation, speakers treat a stem-taking affix such as *-ify* as a word-taking affix (**márketify*) rather than treating a word such as *market* as a stem (**markétify*).

We could model this preference as follows. Assume the selectional constraints MAX(AFFCAT) and MAX(LEXCAT), dictating faithfulness respectively to the categorization of an affix and of a lexical element. Then we posit the fixed ranking MAX(AFFCAT) \gg MAX(LEXCAT). In the normal state, both these constraints dominate MAX-WORD, the constraint which precludes null outputs. The coercion process effects a reranking of MAX-WORD ahead of the selectional constraints. Thus, (871a) is the basic system, and (871b) the reranking, whether coerced by the experimenter, or by some expressive predicament of the language user.

- (871) a. **Normal state:** MAX(AFFCAT) \gg MAX(LEXCAT) \gg STRESS, MAX-WORD
- b. **Coercion:** MAX-WORD \gg MAX(AFFCAT) \gg MAX(LEXCAT) \gg STRESS

I write STRESS here as shorthand for the ensemble of constraints that determine stress placement in stems and words. In the present simple case, it amounts in practice to the stem stress rule in stems, and retention of the base stress in words.

The two systems are displayed in (872) and (873):

(872)

Normal state	MAX(LEXCAT)	MAX(AFFCAT)	STRESS	MAX-WORD
Input: [[market] _ω -ify] _α				
1a. [[márket] _ω -ify] _ω		*		
1b. [[markét] _ω -ify] _ω		*	*	
1c. [[márket] _α -ify] _α	*		*	
1d. [[markét] _α -ify] _α	*			
1e. \emptyset				*

(873)

Coercion	MAX-WORD	MAX(LEXCAT)	MAX(AFFCAT)	STRESS
Input: [[market] _ω -ify] _α				
1a. \emptyset [[márket] _ω -ify] _ω			*	
1b. [[markét] _ω -ify] _ω			*	*
1c. [[márket] _α -ify] _α		*		*
1d. [[markét] _α -ify] _α		*		
1e. \emptyset	*			

The reason for the ranking MAX(LEXCAT) \gg MAX(AFFCAT) is perhaps related to the dominance of stem faithfulness over affix faithfulness in accentual and harmonic phenomena (Alderete 1998, Revithiadou 1999).

The emancipation of affixes. This suggests a mechanism by which affixes change their status historically. In actual language use, the need to expand some part of the vocabulary in technical terminology may constitute the coercion mechanism that forces level ordering violations. Once enough violations are introduced, they may eventually cause a complete recategorization of the affix. A possible example of such a process in the history of English is the ongoing shift of *-ize* from the stem level into the word level, as a consequence of its increasing productivity. It is manifested in the variation between two stress patterns:

- (874) a. *sycophántize, aggrándize, cataléptize, hydrógenize*
 b. *Prótestantize, díphtho[η]ize, óxygenize*

Words like (874a) represent the old stratum of stem-level formations, words like (874b) represent the innovative stratum of word-level formations. A historical shift from type (874a) to type (874b) is on record for a number of such words, such as (875a) (Danielsson 1948), and nonce words and recent formations like (875b) document the productivity of the new word-level type of *-ize*.

- (875) a. *oxýgenize > óxygenize, alcóholize > álcoholize*
 b. *nothí[η]ize, Fínlandize*

The example of *-ize* also shows how the shift of an affix to the word level may have repercussions on other affixes that build on it. A consequence of *-ize* gaining word-level status is that *-ization* could no longer be derived by addition of stem level *-ation* to *-ize*. Thus *-ization* became reanalyzed as a word-level suffix cluster.

- (876) *dìphthongizátion, òxygenizátion*

This seems to be the origin of so-called “level ordering paradoxes” of English. The two other major ones, *-ment-al* and *-ist-ic*, are probably the result of a similar recategorization of *-ment* and *-ist*. From the synchronic perspective, these combinations should also be analyzed as compound suffixes; for the evidence see 2.7.3.

To summarize the discussion so far: in sections 6.2.1.4 and 6.2.1.5 I argued that Lexical Conservatism theory does not correctly characterize the nature of paradigmatic relations and that it constitutes an undesirable weakening of the theory. I then examined the empirical side on the basis of derived words in English, and showed that in so far as Lexical Conservatism makes testable predictions that differ from those of Stratal OT, the evidence supports the latter. Listedness of allomorphs in the technical sense of Lexical Conservatism theory turns out to be irrelevant.

In the next section I conclude my discussion of Lexical Conservatism with a review of Steriade’s analysis of French liaison.

6.2.4 French liaison

6.2.4.1 Regular liaison

The argument. Steriade’s other main body of evidence for Lexical Conservatism is based on the phonology of adjective + noun combinations in French. Her idea is that