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*Absolute ill-formedness and other morphophonological effects**

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In this paper I explore the theoretical significance of phonologically conditioned gaps in word formation. The data support the original approach to gaps in Optimality Theory proposed by Prince & Smolensky (1993), which crucially involves MPARSE as a ranked and violable constraint. The alternative CONTROL model proposed by Orgun & Sprouse (1999) is found to be inadequate because of lost generalisations and technical flaws. It is shown that a careful distinction between various morphophonological effects (e.g. paradigm uniformity effects, phonological repair and 'stem selection') is necessary to shed light on the morphology–phonology interface. The data investigated here support affix-specific constraint rankings, but argue against any stratal organisation of morphology.

1 Introduction

Describing grammatical well-formedness in terms of optimality raises the question of how to account for absolute ungrammaticality. The original approach to phonologically conditioned gaps within OT, involving the special constraint MPARSE (cf. Prince & Smolensky 1993: 48ff), is attacked by Orgun & Sprouse (1999), who argue that an adequate description of gaps requires a broad revision of OT. To eliminate what they view as undesirable predictions of the MPARSE model, they propose an alternative model with two components: the usual ranked and violable constraint component, where the candidates generated by EVAL are evaluated for optimality, and a separate non-optimising component called CONTROL, which contains a set of unranked inviolable constraints. The idea is that EVAL contains the ranked set of constraints which may 'trigger repair', whereas CONTROL contains the unranked constraints which 'cause ungrammaticality'. Grammatical outputs are those which are chosen by EVAL and satisfy all constraints in CONTROL.

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Orgun & Sprouse's challenge to the MPARSE model is motivated by the model's strong empirical consequences, which are perhaps stronger than anticipated by its creators, who treat the issue only in passing. Yet the evidence cited against MPARSE is not cogent. Moreover, there are correct predictions which follow from the MPARSE model, especially concerning the relation between gaps and other morphophonological effects, which are lost in the weaker CONTROL model. Finally, evidence from SUBCAT effects, i.e. violations of morphosyntactic subcategorisation requirements in order to satisfy phonological constraints, brings to light a flaw in the CONTROL model. The 'only-if' nature of such effects indicates that subcategorisation requirements are also violable under domination. It can be shown that in Orgun & Sprouse's model all phonological constraints which cause ungrammaticality and dominate subcategorisation requirements would have to be assigned to both EVAL and CONTROL. I conclude that whether or not additional data refute the MPARSE model, the CONTROL model proposed by Orgun & Sprouse is not a viable alternative.

This paper is organised as follows. In §2 I will briefly illustrate the role of MPARSE *vis-à-vis* other types of constraints and discuss various methodological and empirical issues relating to gaps. In §3 the CONTROL model is criticised for having weak supporting evidence and losing generalisations. The evidence against CONTROL on the basis of SUBCAT effects requires detailed justification, which is presented in a case study of English *-ise* and *-ify*-suffixation in §4. The relevant data are equally important for refuting an independent attack on MPARSE by Plag (1999), who denies the existence of gaps and assumes various sorts of repair (e.g. deletion, epenthesis, suffix allomorphy) instead.

2 Gaps

2.1 The MPARSE approach to gaps

A potential problem with affixes is that attachment to a stem may violate some phonological markedness constraint *PHON. One response to this problem is to violate *PHON, another response is to satisfy *PHON by violating a paradigm uniformity (PU) constraint (i.e. by 'repair') and a third response is to satisfy *PHON trivially by having a gap. These three possibilities are illustrated with the morphophonology of the English suffixes *-ee* [i:], *-ese* [i:z] and *-eer* [i:r] in (1). The symbol '⇒' relates inputs and optimal outputs in word formation.[1]

[1] Cf. Raffelsiefen (1996: 297ff, 1999: 230ff), where the phonological contrasts between these suffixes motivate individual constraint rankings for cohesive suffixes in English. Strangely, Orgun & Sprouse (1999: 215) write that morphological specificity is not directly addressed in that work.

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(1) a. seléct + ée ⇒ selèctée *violation*
b. Taiwán + ése ⇒ Tàiwanése *repair* ('stress shift')
c. batón + éer ⇒ ∅ (cf. wèaponéer) *gap*

Because these suffixes bear lexical main stress, they potentially violate the constraint *CLASH when they are attached to stems with final stress.

(2) *CLASH
Adjacent stressed syllables are prohibited.

The examples in (1) illustrate the systematic differences in responses to *CLASH violations outlined above. Analysing the first two responses in terms of constraint domination is straightforward. The violation in (1a) indicates that *CLASH is dominated by the PU constraint defined in (3), whereas the 'stress shift' in (1b) indicates the opposite ranking.

(3) PU [stress]
For every derived word and its base, relative prominence patterns in the stem must correspond.

The gap in (1c) indicates that both types of constraints must be satisfied in order for affixation to occur. Prince & Smolensky's (1993) proposal to account for such gaps is to include in the candidate set an unstructured candidate $\{root_i, affix_j\}$, referred to as the Null Parse, 'which merely collects together the constituent morphemes' (1993: 49), and to rank a constraint MPARSE, which prohibits unparsed morphological structure, below the constraints which induce ungrammaticality. The gap illustrated in (1c) can accordingly be described by ranking the constraints in (2) and (3) above MPARSE, defined in (4):

(4) MPARSE
Morphemes are parsed into morphological constituents.

The tableaux in (5) illustrate the analysis of the gap in terms of MPARSE. Since there is no candidate which satisfies both PU[stress] and *CLASH, the Null Parse (represented in tableaux as ⊙) wins in (5a), which means that there is no derived form. By contrast, for all nouns or adjectives with non-final stress, there is a candidate which satisfies both constraints. Consequently, there is a phonologically well-formed *-eer* formation.[2]

[2] The elimination of the Null Parse in (5b) is not meant to assert that the winning candidate is readily accepted by native speakers. Rather, the claim is that the candidate is acceptable from a phonological (and morphosyntactic) point of view. That is, whatever is wrong with e.g. non-attested *cudgeleer*, the constraint ranking associated with *-eer* is not to blame.

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(5) a. *No grammatical output for final-stressed stems*

batón+éer	PU[stress]	*Clash	MParse
i. batònéer		*!	
ii. bàtonéer	*!		
☞ iii. ⊙			*

b. *Grammatical output for non-final-stressed stems*

wéapon+éer	PU[stress]	*Clash	MParse
☞ i. wèaponéer			
ii. ⊙			*!

To summarise, the three responses illustrated in (1) indicate distinct rankings of the three types of constraints *Clash, PU[stress] and MParse, where one type is dominated by the other two, as is shown in (6). The type of affix-specific constraint ranking illustrated in (6) is characteristic of all cohering affixation (including all vowel-initial suffixation) in English.[3] Systematic constraint-ranking differences revealed by *-ise* and *-ify*-suffixation will be demonstrated in §4.[4]

(6) a. *Clash violation *-ée* PU[stress], MParse ≫ *Clash
b. *Clash repair *-ése* *Clash, MParse ≫ *PU[stress]
c. *Clash gap *-éer* PU[stress], *Clash ≫ MParse

A description of morphophonology using MParse as a violable constraint entails a range of predictions. Ignoring for now the potential impact of higher-ranking constraints, it holds that, for any affix, violations of some phonological markedness constraint $\textsc{Phon}_i$ in some context (e.g. the *Clash violations in *-ee* derivations based on the iambic words in (1a)) may not exist side by side with systematic $\textsc{Phon}_i$-related gaps in other contexts (i.e. other types of oxytonic bases). This is because a $*\textsc{Phon}_i$ violation indicates that MParse dominates $*\textsc{Phon}_i$, whereas a $*\textsc{Phon}_i$ gap indicates that $*\textsc{Phon}_i$ dominates MParse. Consequently, within the

[3] The rankings in (6) are not on a par in terms of presupposed knowledge. Consider *-ese* formation, for which *Clash is regularly satisfied by 'stress shift' (cf. (1b)). Due to the neutralisation of vowels in unstressed position in English (cf. the schwa in (i)) the coiner faces the question of how to pronounce that vowel under stress in the output form:

(i) J[ə]pán + ése ⇒ J[ˀ]panése

Only knowledge of the written representations will help the coiner to solve this problem. This difficulty is perhaps the reason for the rareness and low productivity of suffixes for which *Clash dominates PU[stress] in English (i.e. only *-ese*).

[4] Fanselow & Féry (2002: 304) assert that 'for conceptual reasons' morpheme-specific constraint rankings should not be part of Eval. In view of the fact that *any two* (cohering) affixes in English exhibit systematic differences in constraint ranking it would follow that English morphophonology cannot be described in OT.

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MPARSE model only actual *-ee*-suffixation (7a), but not hypothetical *-ee′* -suffixation (7b), can be described.

(7) a. actual *-ée* seléct+ée ⇒ selèctée bríbe+ée ⇒ brìbée
b. hypothetical *-ée′* seléct+ée′ ⇒ selèctée bríbe+ée′ ⇒ ∅

Similarly, the model makes predictions about the relation between gaps and repair. For example, it predicts that an affix which exhibits stress-related gaps must be stress-neutral. This is because such gaps indicate that MPARSE is dominated by a constraint requiring stress identity, whereas non-neutrality would indicate the opposite ranking.

These are in fact the type of cases on the basis of which Orgun & Sprouse propose to reject the MPARSE model. For detailed discussion of the distinct predictive power of the two models, see §3.1.2.

Before finishing the review of basic morphophonological effects in the MPARSE model I will briefly discuss the data in (8b), which may seem to contradict the ranking associated with *-ee*-suffixation based on the data in (8a):

(8) a. affrónt + ée ⇒ affròntée
insúre + ée ⇒ insùrée
b. presént + ée ⇒ prèsentée
confér + ée ⇒ cònferée

Before recognising repair, it is necessary to examine the question of whether the base has been identified correctly. Given the independent existence of the boldfaced stems in (9b), the cases of apparent 'stress shift' in (8b) could instead be analysed in terms of stem selection.[5]

(9) a. affrónt]$_V$, affrónt]$_N$
insúre, insúr-ance
b. presént, **prèsent**-átion
confér, **cónfer**-ence

Specifically, the patterns in (8) could be described by ranking the constraint SUBCAT(Wd) defined in (10) below the constraints in (6a):[6]

(10) SUBCAT(Wd) (cf. Aronoff 1976: 21)
Affixes attach to words (not stems).

Tableau (11) illustrates the claim that all *-ee*-suffixations in (9) can be described by a single constraint ranking. Violations of PU[stress] need not be assumed.

[5] Cf. the notion of 'lexical sourcing' in Perlmutter (1998: 320). 'Split-base effects', as proposed by Steriade (1999), are discussed in §4.4.

[6] The perhaps most extensively discussed example for a phonologically conditioned violation of syntactic requirements concerns gender agreement in French (cf. Tranel 1981, 1990, Morin 1992; within OT, Raffelsiefen 1993b, Tranel 1994, 1999, Perlmutter 1998, Steriade 1999). For critical discussion, see Janda (1998).

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(11)

		PU[stress]	*Clash	Subcat(Wd)
a.	cónfer-ence+ée			
	☞ i. cònferée			*
b.	insúre+ée			
	☞ i. insùrée		*	
	ii. ìnsurée	*!		

The analysis in (11) is intended to merely illustrate the possibility of Subcat(Wd) effects, which happen to occur only sporadically in *-ee*-suffixation (cf. the *Clash violations in *invìtée* and *consùltée*, despite the existence of *ìnvit-átion* and *cònsult-átion*). More systematic Subcat(Wd) effects will be presented in §4. The question of how stems are recognised will also be discussed there. For now it suffices to say that stems are the fully prosodified (e.g. stressed and syllabified) parts of words which remain when derivational affixes are removed.

2.2 Methodological issues

The identification of gaps raises a fundamental methodological issue relating to the distinction between synthesis and analysis. That is, gaps in 'synthetic' word formation are easily obscured by the existence of words which are synchronically analysed as morphologically complex, but were not – and arguably could not have been – composed natively.[7] A few examples may illustrate this point.

English speakers attach deverbal *-al* only to iambic words such as those in (12a), with the result that for all other verbs there is a gap, as in (12b).[8] The phonological constraint in question does not prevent native hearers from recognising the suffix *-al* in existing words, as is shown in (12c). In Old English *byriels* 'grave, tomb', stem-final *s* was reanalysed as a plural marker and then stem-final *el* was reanalysed as the suffix *-al*. Similarly, the French loanword *triel* was analysed as bimorphemic, consisting of a verbal stem and the suffix *-al*. The symbol '>' indicates (re)analysis.

(12) a. withdráw + al ⇒ withdráwal
caróuse + al ⇒ caróusal

b. wórry + al ⇒ ∅ (*worrial)
fly + al ⇒ ∅ (*flial)

c. OE byriels > bíriel/búryel > búrial > búri + al
OFr triél > trí al > trí + al

It is inappropriate to characterise the words in (12c) as 'exceptions' to regular conditions on *-al*-suffixation (cf. Giegerich 1999: 17), because the conditions for accepting the 'given', already existing, are distinct from the conditions for creating the new. As is well known, the acceptability of

[7] Cf. Aronoff's (1983) distinction between potential and actual words.

[8] The gap is characterised by the typical dilemma: simple attachment of the suffix violates the phonological constraints in question (e.g. **wórrial*, **flial*), whereas the necessary adjustments would lead to violations of PU constraints.

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the 'given', including words from foreign languages, depends largely on the prestige of the source (speaker or writer). The question of whether given words can be analysed morphologically is a separate matter, which depends on the associability of parts of words with already known morphemes. There is simply no reason to assume that the net result of such conditions obey the affix-specific restrictions on the creation of new words. The existence of the nouns in (12c) is accordingly entirely consistent with the claim that there is a systematic gap in (12b).

The need to distinguish conditions for accepting and analysing the given from conditions for creating the new can be demonstrated with additional examples. English speakers strictly avoid attaching *-ity* to stems ending in *t*, as in (13b), but apparently have no qualms about borrowing words ending in *-tity*, as in (13c) (cf. Raffelsiefen 1999: 242). (It seems clear that the Null Parse is preferred to the candidate violating the constraint OCP-Onset, which prohibits adjacent syllables with identical onsets. It is less clear why violations of this constraint cause ungrammaticality only when affixation itself would cause the violation, but not otherwise; cf. impeccable OCP-Onset violators such as *rurality*, *jejunity*, *pomposity*. The generalisation in question holds, I believe, for all gaps discussed in this paper.)

(13) a. odd + ity ⇒ oddity
sparse + ity ⇒ sparsity
forlorn + ity ⇒ forlornity

b. content + ity ⇒ ∅
faint + ity ⇒ ∅
succinct + ity ⇒ ∅

c. Fr entité > entity
identité > identity
quantité > quantity
saincteté > sanctity

Moreover, there is no reason to assume that alternations in the given vocabulary automatically 'license' repair when creating new words. For example, English speakers strictly avoid attaching the suffix *-ation* to iambic stems, as in (14a), despite the relatively large number of alternations in the existing loanword vocabulary illustrated in (14b).[9]

(14) a. remáin + átion ⇒ ∅ *rèmanátion
distúrb + átion ⇒ ∅ *dìsturbátion
desíre + átion ⇒ ∅ *dèsirátion
ignóre + átion ⇒ ∅ *ìgnorátion

b. èxplanátion ~ expláin
pèrturbátion ~ pertúrb
ìnspirátion ~ ìnspíre
àdorátion ~ adóre

[9] Both the derived nouns and the corresponding base verbs in (14b) were independently borrowed into English. I do not mean to imply that reanalysis or the adaptation of loanwords are uninteresting to the morphophonologist. For a discussion of various morphophonological effects, including PU effects, in loanword adaptation, see Raffelsiefen (2004: ch. 8).

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The decision to disregard loanwords when describing the conditions for word formation might provoke the comment that learners are unaware of the origin of words and base their grammar on the complete input. This objection would be valid if the recognition of relatedness between words as in (14b) automatically led to the abstraction of 'generative' rules deriving both forms from a unique underlying form or, on a more traditional view, licensed the inference of new forms via proportional analogies, as in (15) (cf. Becker 1990):

(15) expláin : èxplanátion = remáin : X
X = rèmanátion

However, the rejection of the starred formations in (14a) by native speakers indicates that the conditions for word formation are not simply abstracted on the basis of recognised relations in the existing vocabulary. Rather, learners appear to induce a specific ranking of constraints for each affix,[10] such that rankings may be partially fixed by general ranking schemata. For English, there is an exceptionless generalisation that all verbal (both verb-deriving and deverbal) word formation satisfies PU[stress], as shown in (16a). Examples of ungrammatical verbal word formation are given in (16b).

(16) a. *Ranking for verbal morphology*
PU[stress] ≫ MPARSE

b.

verb-deriving word formation		*deverbal word formation*	
rádical + ise	⇒ *radícalìse	appóint + ee	⇒ *àppointée
corrúpt + ise	⇒ *córruptìse	édit + ive	⇒ *edítive
prívat + ify	⇒ *privátifỳ	distúrb + ation	⇒ *dìsturbátion
sólid + en	⇒ *solíden	devélop + able	⇒ *dèvelópable
péregrine + ate	⇒ *perégrinàte	díscipline + er	⇒ *discípliner

All the starred candidates in (16b) have optimal foot structure, but none is acceptable, because of PU[stress] violations. The claim that PU[stress] is strictly inviolable in English verbal (and most other) morphology may seem to be exaggerated (e.g. *ímmunìse*, *solídifỳ*, *orígināte*), but the definiteness of the judgements in (16b) casts doubt on putative counterexamples. It can indeed be shown that all apparent counterexamples are either not natively coined or involve a crucial violation of SUBCAT(Wd), and actually satisfy PU[stress], as illustrated in (11). In §§3.2 and 4 it will be demonstrated that the relevant generalisations in English, which crucially involve undominated PU constraints, are captured straightforwardly in the MPARSE model, but cast severe doubt on the adequacy of the CONTROL model.

[10] Orgun & Sprouse (1999: 215) err when they assert that the stress alternation seen in the loanwords *propóse* ~ *pròposition* shows that shift of primary stress is tolerated for that morphological rule. Instead, the PU[stress] violation in question is the cause of the complete absence of native *-átion* or *-ítion*-suffixation to iambic bases.

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2.3 The status of the optimal candidate: empirical considerations

Selecting the Null Parse as optimal as in (5a) is a way of describing a systematic gap. Empirically, such gaps are identified by comparing judgements of pairs of (nonce) coinages based on words with matching syntactic and semantic features, which differ in that one formation violates some constraint whereas the other satisfies it. To anticipate the discussion of one type of gap in *-ise* formation, consider the judgements in (17), which, if correct, indicate that *CLASH is ranked above MPARSE for *-ise* (cf. also Goldsmith 1990: 271):

(17) a.	Clínton + ise	⇒ Clíntonìse	b.	Búsh + ise ⇒ ∅	*Búshìse
	Thátcher + ise	⇒ Thátcherìse		Bláir + ise ⇒ ∅	*Bláirìse
	Dáimler + ise	⇒ Dáimlerìse		Fórd + ise ⇒ ∅	*Fórdìse
	Sérbian + ise	⇒ Sérbianìse		Sérb + ise ⇒ ∅	*Sérbìse

A convenient tool for verifying grammaticality judgements is the use of Google searches. However, care must be taken in interpreting the results. In the searches presented in (18) I removed doublets, accidental homonyms (e.g. proper nouns, words from other languages) and entries associated with names and web addresses highly indicative of non-native speakers. Formations explicitly marked as 'absent' or 'ill-formed' were also not counted. Both *-ize* and *-ise* spellings were searched for.[11]

(18) a.	Clintonise	101	Bushise	0	Bush-ise	1	(172)
b.	Thatcherise	21	Blairise	6			(231)
c.	Daimlerise	1	Fordise	5			(60)
d.	Serbianise	61	Serbise	6			

To interpret the data in (18) it is necessary to relate the numbers to other numbers which indicate the likelihood of a specific base to be chosen for *-ise*-suffixation. For the proper nouns in (18a–c) frequency is likely to correlate with the prominence of the actual referent of the base. (19) gives the results of a search for full names, in order to reduce the number of accidental homonyms.

(19) a.	Bill Clinton	2,420,000	George W. Bush	4,120,000
b.	Margaret Thatcher	230,000	Tony Blair	2,530,000
c.	Gottlieb Daimler	12,500	Henry Ford	742,000

The numbers for the *CLASH-violating *-ise*-suffixations in (18a–c) should be compared to the numbers in parentheses in the righthand column, which indicate the frequency expected on the basis of comparing the

[11] Several colleagues have commented that asterisks should be removed from examples which are attested. This criterion would surely lead to the removal of many familiar asterisks in linguistic textbooks (cf. successful Google searches for **ungreen*, **unbad*, **unsilly*, **unnaked*, **to unsing*, **to unwalk*, **to untell*).

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counts in (18) and (19). This method, though coarse, suggests that even in cases where *CLASH violators score higher than *CLASH satisfiers their frequency may lag well behind the expected frequency.[12]

The occasional preference of the *CLASH-violating formation *Serbise vis-à-vis Serbianise* could be intended to convey negative attitudes on the part of the speaker. This is because in the Google data *Serbise* and *Serbianise* are always used in negative contexts (i.e. forcible assimilation of non-Serbs) and negative connotations stick more easily to expressions denoting exclusively individuals than to adjectives (cf. *Pole vs. Polish*, *Brit vs. British*).

The comments offered for the specific cases in (18) are, I believe, entirely representative of the larger picture: after abstracting away from various extralinguistic facts which may enhance or stifle the frequency of individual items we are left with the observation that *-ise* formations based on monosyllabic words are not as frequent as the frequency of comparable words ending in an unstressed syllable would lead us to expect. The phenomenon in question is apparently not strictly phonological, as the starred forms in (17b) are not difficult to pronounce, and indeed have predecessors with comparable phonological forms in the 'given' English vocabulary (e.g. *fránchìse*, *súlphìte*, *óxìde*). Instead, the cause of the gap in (17b) is morphophonological, indicating that, in addition to the 'fixed' ranking in (16a), *CLASH also dominates MPARSE for the suffix *-ise*:

(20) *-ise*: PU[stress], *CLASH ≫ MPARSE

Despite their relatively low frequency, the occurrence of the *CLASH violators in (18) (assuming that they were created by competent English speakers) raises the question of how their coming into existence can be reconciled with the ranking in (20). Should it turn out that these formations originate typically in writing, we might speculate that phonological markedness constraints do not affect the combinability of written forms. On this view, ungrammaticality of the spoken form (21a) and acceptability of the written form (21b) may exist side by side. In fact, once created, the written form may even be 'sounded out', as in (21c), with the result that (21a) and (21c) are not necessarily contradictory.[13]

(21) a. [bóʃ] + [áɪz] ⇒ ∅ (ranking in (20))
b. <Bush> + <ise> ⇒ <Bushise> (ranking in (20) does not apply)
c. <Bushise> → [bóʃàɪz]

[12] To refine the method, a virtually unlimited set of real-world facts would have to be taken into account. For instance, conventionalisation of a formation due to some salient idea or event associated with the base can induce frequency boosts. This sort of condition probably contributes to the relative success of *Fordise* (*vs.* e.g. *Daimlerise*), which is defined as 'to standardise a product and manufacture it by mass means at a price so low that the common man can afford to buy it'. Yet, although a verb with such a meaning, first defined in 1914, would have been increasingly useful, it never caught on.

[13] Empirically, (21a) and (21b) differ in that (21b) presupposes literacy.

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Alternatively, assuming that the constraint ranking induced for each affix is not necessarily identical for all speakers of a language, the occasional coinages may originate from speakers for whom the ranking between *CLASH and MPARSE is reversed with respect to (20). Assuming that such permutations with respect to the standard ranking are typically minimal, this explanation derives some support from the consideration of additional phonological markedness constraints. Consider the OCP-related constraint SHELL, defined in (22) (cf. Vennemann 1988: 11):

(22) SHELL
A nucleus must not be flanked by speech sounds with identical place and manner features.

The rejection of *-ise* formations such as **Énglishìse*, **Párisìse* (cf. *Lóndonìse*), which violate SHELL due to the occurrence of the coronal fricatives, indicates that SHELL also dominates MPARSE. Like *CLASH, SHELL is occasionally violated in *-ise* formations (e.g. two Google hits for *Swedishise* and one for *Polishise*). The proposal that marginal formations come into existence through constraint permutation with respect to some standard ranking (e.g. through 'imperfect' learning) entails that formations indicating the permutation of several constraints should be less frequent than formations indicating the permutation of just two (adjacent) constraints.

(23) a.	*-ise*: standard ranking SHELL, *CLASH ≫ MPARSE	*Bláirìse	*Swédishìse	*Búshìse
b.	*-ise*: marginal ranking SHELL ≫ MPARSE ≫ *CLASH	Bláirìse	*Swédishìse	*Búshìse
	-ise: marginal ranking *CLASH ≫ MPARSE ≫ SHELL	*Bláirìse	Swédishìse	*Búshìse
c.	*-ise*: exceptional ranking MPARSE ≫ *CLASH, SHELL	Bláirìse	Swédishìse	Búshìse

The ranking-based account of marginal formations in (23) *vis-à-vis* the account in (21) is supported by the observation that speakers tend to find *Búshìse* or *Márshìse* worse than *Bláirìse* or *Swédishìse*.[14] Indeed the fact that the only attested occurrence of *Bushise* in the Google data is hyphenated indicates that these forms simply do not go together, not even in writing.

A final issue concerning the interpretation of the Null Parse concerns the observation that there exist two closely related types of phonologically

[14] Compare judgements of *Áustrianìse*, based on *Áustrian+ìse*, which is optimal according to the ranking in (23a), with *Swíssìse*, based on *Swíss+ìse*, which is optimal only for the exceptional permutation of the standard ranking of constraints in (23c). The relevant complete (unscreened) Google hits are given in (i):

(i)	Áustrian	3,460,000	Áustrianìse	1,620
	Swiss	12,300,000	Swíssìse	0

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conditioned gaps in word formation. If affixed candidates are eliminated because of constraint violations the result can be either a complete gap with no form or the appearance of the affixless form. The causal relatedness of both types can be illustrated with respect to *-n*-suffixation in German. For both the derivational suffix *-n*, which derives verbs from nouns or adjectives (24a), and the infectional suffix *-n*, which derives dative forms from plural nouns (24b), there is a gap for trochaic stems which end in a non-liquid consonant. Whereas in the former case there is no form, in the latter case there is no affixed form.

(24) a. Trödel + n ⇒ trödeln 'junk + SUFF'
Tínnef + n ⇒ ∅ 'junk + SUFF'
b. (den) Kínder + n ⇒ (den) Kíndern '(to the) children + SUFF'
(den) Áutos + n ⇒ (den) Áutos '(to the) cars + SUFF'

While it appears that 'no-form gaps' are typical of derivational morphology and 'no-affix gaps' are typical of inflectional morphology, there are some clear cases of 'no-form gaps' in inflectional morphology[15] and many unclear cases of 'no-affix gaps' in derivational morphology. The constraint MPARSE is generally interpreted as inhibiting 'no-form gaps' (i.e. ungrammaticality), but ultimately it might be desirable to formulate a single constraint to capture the causal relatedness between the two types of gaps.

3 CONTROL

Orgun & Sprouse argue that while MPARSE works for some cases of ungrammaticality, there are other cases which require extensive revision of the OT architecture. They introduce a separate component called CONTROL, to which the winning candidate from EVAL is submitted for further evaluation (cf. (25)). Unlike EVAL, CONTROL includes only inviolable (and consequently unranked) constraints. To be grammatical, the candidate chosen by EVAL must satisfy all constraints in CONTROL.

(25)

	input	CON_1	…	CON_k
a. EVAL	cand_1			
	☞ cand_i			
	…			
	cand_n			

		CON_{k+1}, … CON_{k+m}
b. CONTROL	cand_i	

[15] E.g. Swedish gender agreement, imperatives in Danish and some dialects of Norwegian (cf. Kristoffersen 1991, Rice 2003).

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To support their bipartite model Orgun & Sprouse (1999: 197) argue as follows:

> When there is no grammatical output, speakers often have judgements about what the output would have been if a grammatical output were possible. This suggests that the phonological input–output mapping does generate an output form, which independent constraints rule out. Our proposal takes this intuition as a starting point in developing an empirically superior alternative to MPARSE.

While speakers undoubtedly have intuitions as to which form would best fill a gap, preferences among the suboptimal candidates (including the choice of the best suboptimal candidate) could in principle be accounted for by constraint ranking in standard OT. The evidence from speaker judgements therefore does not favour the CONTROL model, but the empirical weight given to the winning candidate from EVAL in the quotation above will be crucial for demonstrating flaws in the CONTROL-based analyses (cf. §§3.2 and 4). In the next section I will discuss weakness in the empirical arguments against MPARSE, and types of generalisations which are lost in the weaker CONTROL model. The 'constraint-duplication problem' arising from SUBCAT effects is discussed in §4.

3.1 Orgun & Sprouse's evidence against MPARSE

Orgun & Sprouse claim that, in addition to English *-ise*-suffixation to be discussed in detail in §4, there is watertight evidence from Turkish and Tagalog which shows that the MPARSE approach to gaps must be abandoned.[16] Consider first the gap in Turkish possessive suffixation illustrated in (26b):

(26) a.	it	'dog'	itim	'my dog'
	sol^{j}	'musical note G'	sol^{j}ym	'my G'
b.	do	'musical note C'	∅	('my C')

Orgun & Sprouse follow Itô & Hankamer (1989) in analysing the gap in (26b) as the result of a minimality violation, henceforth referred to as MIN. The constraint MIN prohibits derived words which have fewer than two syllables. Two additional constraints relevant for Orgun & Sprouse's analysis of the data in (26) are CODACOND and the PU constraint DEP, defined in (27):[17]

(27) a. CODACOND
Coda clusters are prohibited.

b. DEP
Any segment in the output must correspond to a segment in the base.

[16] The only remaining example is from Tiene, which the authors themselves characterise as 'not as watertight on its own as the Turkish and Tagalog cases'.

[17] A more comprehensive PU constraint, PU[seg], which incorporates DEP, will be introduced in (68).

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Assuming that the possessive suffix is *-m*, the winning candidates in (28) are selected by ranking CODACOND above DEP in EVAL. The gap in (26b) is then described by assigning MIN to CONTROL:

(28)

input	*winners from* EVAL	*acceptance by* CONTROL
it + m	itim	✓
sol^{j} + m	sol^{j}ym	✓
do + m	dom	*

The only uncontroversial part of Orgun & Sprouse's analysis is the choice of *dom* as the best filler of the gap, since this is in fact the form regularly used by Turkish musicians.[18] But granting that there is a gap,[19] the evidence from the Turkish data against MPARSE is anything but watertight. This evidence centres on the ranking of DEP in relation to MPARSE. Specifically, the fact that DEP is regularly violated to repair illicit coda clusters, as in (26a), but not to repair subminimal forms, as in (26b), is claimed to indicate a ranking paradox. However, the combination of repair and gap illustrated in (26) is problematic for the MPARSE model only if epenthesis in (26b) does not cause violations of independent constraints. The relevant candidate here is *doum*, which differs from the acceptable forms in (26a) in that it violates the constraint *V.V, defined in (29):

(29) *V.V

A vowel must not be followed by a vowel.

It is crucial to Orgun & Sprouse's argument that *doum* is eliminated as a result of violating DEP, rather than *V.V. They dismiss the latter possibility by claiming that *V.V violations are generally grammatical in Turkish. However, the examples they give can be grouped into two categories, represented by the examples in (30), neither of which bears on the *V.V violation in *doum*:

(30) a. sa.at 'hour' b. jata.ɯm 'my bed'

*V.V violation in (30a) is irrelevant because this word is not derived by *-m*-suffixation (in fact, it is monomorphemic). The example in (30b), which is derived by *-m*-suffixation, differs from *do.um* in that the *V.V violation does not involve the first vowel in the word. Consequently a window restriction on *V.V as in (31a) (perhaps some type of alignment constraint) suffices to save the MPARSE account, as shown in (31b):

(31) a. *V.VWND
The first vowel in the prosodic word must not be followed by a vowel.

b. CODACOND, *V.VWND ≫ MIN ≫ MPARSE ≫ DEP ≫ *V.V

Imposing a positional restriction on *V.V is supported by the well-known restriction on Turkish *k*-deletion illustrated in (32) (cf. Lees 1961,

[18] This information is due to Cem Mansur.

[19] That is, it can be granted that it is the task of morphophonologists to explain why at least some speakers avoid [dom] 'my C' while freely producing [sol^{j}ym] 'my G'.

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Sezer 1981, Inkelas & Orgun 1995). In certain derived environments, intervocalic *k* deletes unless the preceding nucleus is first in the prosodic word. Citing experiments with nonsense words and regular patterns of loanword adaptation (cf. *frikii vs. *bei* in (32)), Zimmer & Abott (1978) demonstrate the synchronic validity of this restriction.[20]

(32) a. jatak + m ⇒ jata.ɯm ‘my bed’
frikik + ɪ ⇒ friki.i ‘free kick (in soccer)’
b. ok + m ⇒ okum ‘my arrow’
bek + ɪ ⇒ beki ‘back (in soccer)’

We can resolve the apparent ranking paradox between *V.V and the constraint *VKV, which prohibits velar obstruents in intervocalic position, by ranking *V.Vwnd above both constraints. Tableau (33) illustrates the analysis.[21]

(33)

		CodaCond	*V.Vwnd	Min	MParse	*VKV	Dep	*V.V
a. jatak-m								
i. jatakɯm						*!	*	
☞ ii. jataɯm							*	*
iii. jatakm	*!							
iv. ⊙					*!			
b. ok-m								
☞ i. okum						*	*	
ii. okm	*!		*					
iii. oum		*!						*
iv. ⊙					*!			
c. do-m[22]								
i. doum		*!					*	*
ii. dom			*!					
☞ iii. ⊙					*			

[20] It is sometimes claimed that the positional restriction in question reflects a restriction on the occurrence of *g*, which deletes, and *k*, which does not delete. On that analysis the velar in (32a), which deletes, is underlyingly a *g*, and the velar in (32b), which is stable, is underlyingly a *k*. The stability of *g* in derived forms based on monosyllabic roots like *lig* + *i* ‘league-3poss’ argues against that analysis.

[21] The promising candidate *jatam* is not mentioned in (33) because that candidate’s fatal flaw touches upon a thorny issue which is not directly relevant to the gap in (26b). The thorny issue for non-derivationalists is this: assuming the inputs *jatak-m* ‘my bed’ and *kafa-m* ‘my head’, how can one eliminate the candidates *jatam* and *kafaum*, while sparing the winners *kafam* and *jataum*? A perhaps unattractive solution, which incidentally would also undermine Orgun & Sprouse’s argument, is to posit allomorphs in the lexicon: *m* for vowel-final stems (e.g. *kafa-m*, *do-m*) and *Vm* for consonant-final stems (*jatak-Vm*). For discussion of opacity in OT, see McCarthy (2002: 163ff).

[22] Other augmented candidates such as *domV* or *Vdom* can be eliminated by alignment constraints.

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The ranking in (33) accounts for the gap in (26b), for the fact that *dom*, rather than *do.um*, is the best filler of the gap and for the restriction on *k*-deletion illustrated in (32). Moreover, the analysis makes superfluous the revision of OT architecture proposed by Orgun & Sprouse.

Consider next the gap in Tagalog *um*-prefixation illustrated in (34):

(34) a. abot 'to reach for' um + abot ⇒ umabot
b. keri 'to carry' um + keri ⇒ kumeri
c. meri 'to marry' um + meri ⇒ ∅

According to Prince & Smolensky (1993), the effect in (34a, b) (i.e. prefixation proper for vowel-initial stems *vs.* infixation for consonant-initial stems) indicates that the prosodic constraint NoCoda, which requires open syllables, dominates a morphological constraint Align, which requires that prefixes fall completely to the left of the stem. Being violable (cf. (34b)), Align ranks below MParse. The gap in (34c) indicates the inviolability of the OCP constraint defined in (35).

(35) OCP-*um* (cf. Orgun & Sprouse 1999: 207)
**mum*, **wum*: sonorant labials are not allowed in consecutive onsets.

If MParse dominates Align, Orgun & Sprouse's argument goes, then OCP-*um* could be satisfied by additional Align violations. That is, the candidate *merumi* is expected to win in (34c), rather than the Null Parse. The paradox is solved in the Control model by ranking Onset, which requires syllables to have an onset, above NoCoda and Align in Eval, and by assigning OCP-*um* to Control, as in (36) (their tableau (33)).[23]

(36)

	um+meri	Onset	NoCoda	Align
a. Eval	☞ i. mumeri			* (*m*)
	ii. ummeri	*!	*	
	iii. merumi			*** (*mer*)

	OCP-*um*
b. Control ✂ i. mumeri	*!

However, it appears that only minor revisions of the MParse analysis are needed to eliminate the contested candidate *merumi*. Some sort of window restriction on the site of the prefix would do.[24] A related proposal is made by McCarthy (2003), who eliminates candidates like *merumi* by ranking

[23] In Orgun & Sprouse's tableau (33) the input is specified as *um* + RED + *meri*, apparently a mistake which I have corrected in (36). I have also omitted the presumably unintended asterisk in the NoCoda column for the candidate *merumi*.

[24] Orgun & Sprouse consider and reject the possibility of implementing a window restriction on infixation, claiming that it is not in the spirit of OT. However, while clearly complicating Prince & Smolensky's original analysis, the gist of the explanation of why *-um* is properly prefixed to vowel-initial stems but infixed in consonant-initial stems is preserved. Orgun & Sprouse's claim that such a window amounts to Prosodic Circumscription is accordingly false.

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the quantised, categorical (rather than gradient) alignment constraint in (37) above MPARSE:[25]

(37) PREFIX/σ(-*um*-)
-um is not preceded by a syllable within the prosodic word.

The patterns in (34) can accordingly be described within the MPARSE model as follows:[26]

(38)

	um+abot	PREFIX/σ(-*um*-)	*mm	OCP	MPARSE	ONSET	NOCODA
a.	☞ i. u.ma.bot					*	*
	ii. a.um.bot	*!				*	
	iii. a.bu.mot	*!					
	iv. ⊙				*!		
b.	um+keri						
	i. um.ke.ri					*!	
	☞ ii. ku.me.ri						
	iii. ke.um.ri	*!					
	iv. ⊙				*!		
c.	um+meri						
	i. um.me.ri		*!			*	
	ii. mu.me.ri			*!			
	iii. me.um.ri	*!					
	iv. me.ru.mi	*!					
	☞ v. ⊙				*		

A comparison of the two descriptions of the '*um*+*meri* gap' highlights an important conceptual difference between the models. In the MPARSE model, gaps arise when for a given input there are specific constraints which are not (conjunctively) satisfied by *any* candidate. In the CONTROL model, gaps arise when there are specific constraints which *some particular* candidate (i.e. the best candidate from EVAL) fails to satisfy. That is, in the MPARSE model gaps arise when no candidate is good enough (where 'good enough' is defined absolutely in terms of constraints dominating MPARSE), whereas in the CONTROL model gaps arise when the (allegedly) 'best' candidate is not good enough. One empirical issue relating to this

[25] One objection to both Orgun & Sprouse's OCP-*um* and McCarthy's (2003) PREFIX/σ(-*um*-) and MPARSE(-*um*-) concerns the specific reference to the affix *-um* in the constraints themselves. Orgun & Sprouse motivate this by noting that the relevant OCP constraint is violated freely in Tagalog reduplication and *maN*-prefixation. Such observations argue for affix-specific constraint ranking, not for affix-specific constraints.

[26] In a more comprehensive analysis, candidates such as *umkeri* would probably be eliminated by ranking a constraint prohibiting (universally marked) VC syllables (or a conjoined constraint [ONSET/NOCODA]; cf. Smolensky 1995) above MPARSE.

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difference can be illustrated with the candidate *ummeri*. Orgun & Sprouse (1999: 206, n. 11) observe that there is an inviolable constraint prohibiting double-*m* sequences in Tagalog, yet the candidate *ummeri* is eliminated as a result of a mere ONSET violation in (36).[27] It appears that the MPARSE model more adequately reflects the severity of the shortcomings of the individual candidates (for some specific morphological rule).[28]

3.2 Lost generalisations

In terms of predictive power, the CONTROL model is weaker than the MPARSE model, because certain types of effects are no longer linked. Consider for example the hypothetical suffix *-eer′* in (39).

(39) a. batón + éer′ ⇒ ∅
b. ármament + éer′ ⇒ armàmentéer

This suffix differs from actual *-eer* in that it yields gaps for stems with final stress to satisfy *CLASH, but shifts stress in dactylic stems to satisfy the constraint *LAPSE, defined in (40):

(40) *LAPSE
Adjacent stressless syllables are prohibited.

Within the CONTROL model, the behaviour of *-eer′* can be described by ranking *LAPSE above PU[stress] in EVAL, and assigning *CLASH, which causes ungrammaticality, to CONTROL:

(41) a.

	batón+éer′	*LAPSE	PU[stress]
i. EVAL	☞ batònéer		
	bàtonéer		*!
		*CLASH	
ii. CONTROL	✂ batònéer	*!	

b.

	ármament+éer′	*LAPSE	PU[stress]
i. EVAL	àrmamentéer	*!	
	☞ armàmentéer		*
		*CLASH	
ii. CONTROL	☞ armàmentéer		

[27] Apparently ONSET is always satisfied phonetically, as all vowel-initial words, including *umabot*, start with a glottal stop. In contrast to McCarthy (2003: 99ff), I assume that such low-level automatic rules belong to the phonetic level and are irrelevant to the conditions for word formation, which refer to lexical structure. There is reason to doubt that all phonetic features automatically pass into the lexicon by 'Lexicon Optimisation' as long as there are no alternations. For more detailed discussion of this claim, cf. §4.5 and Raffelsiefen (2004: §§3.4, 6.1, 6.4, to appear).

[28] For instance, according to tableau (38) what is worst about the *um*-prefixation *ummeri* is the occurrence of *mm* rather than the lack of an onset.

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By contrast, within the MPARSE model, the behaviour of *-eer′* cannot be described. This is because the gap in (39a) indicates that PU[stress] dominates MPARSE, whereas the stress shift in (39b) indicates the opposite ranking.[29] That is, within the MPARSE model, the gap for *batón* in (39a) predicts that *-eer′*-suffixation applied to bases like *ármament* yields either a gap as well (by the ranking in (42a)) or a *LAPSE violation (by the ranking in (42b)), but not repair (i.e. stress shift):[30]

(42) a. PU[stress], *CLASH, *LAPSE ≫ MPARSE
b. PU[stress], *CLASH ≫ MPARSE ≫ *LAPSE

The actual English suffix *-eer* is described by the ranking in (42b), as is shown by the attested coinages in (43).

(43) cábinet + éer ⇒ càbinetéer cúlverin + éer ⇒ cùlverinéer
báyonet + éer ⇒ bàyonetéer sýndicate + éer ⇒ sýndicatéer

In general it is predicated in the MPARSE approach that suffixes which exhibit stress-related gaps cannot change stress. Stress-neutrality of the English suffixes in (44) can therefore be inferred on the basis of their sensitivity to the stress patterns of the stem:

(44) *-ive* attaches almost exclusively to stems with final stress
-ise[31] attaches almost excusively to stems with non-final stress
-ify attaches almost exclusively to stems with final stress
(noun-forming) *-al* attaches exclusively to iambic stems
(verb-forming) *-en* attaches exclusively to monosyllabic (stressed) stems

[29] With very rare exceptions in nouns (e.g. *càtamarán*), *LAPSE violations in words other than proper names occur only to satisfy PU[stress].

[30] A reviewer notes that by distinguishing a positional faithfulness constraint IDENT[stress]]$_{\text{STEM}}$, which requires stress identity for stem-final syllables, from a positional faithfulness constraint [$_{\text{WD}}$IDENT[stress], which requires stress identity for word-initial syllables, the behaviour of *-eer′* could be described in an MPARSE model by the following ranking:

(i) IDENT[stress]]$_{\text{STEM}}$, *CLASH, *LAPSE ≫ MPARSE ≫ [$_{\text{WD}}$IDENT[stress]

While I consider the evidence for positional constraints convincing, the description in (i) is problematic. This is because the empirical motivation for positional constraints is closely linked to certain 'privileged positions' (cf. Beckman 1998), which include word- or root-*initial* syllables and stressed syllables. The function of high-ranking IDENT[stress]]$_{\text{STEM}}$ in (i) would be to ensure stress identity (in fact identity of stresslessness in the case of *àrmamantéer*) on stem-*final* syllables, thereby targeting decidedly unprivileged positions, whereas [$_{\text{WD}}$IDENT[stress], which does target a privileged position, is ranked too low to make its force felt. Provided that positional constraints must be linked to privileged position, the suffix *-eer′* can indeed not be described in the MPARSE model. (The occurrence of progressive Nasal Assimilation in cases like *i*[m]-*mature*, *i*[m]-*moral*, but not in *alig*[n]-*ment*, *gover*[n]-*ment*, shows (contrary to a reviewer's claim) not that stem-final positions can be a privileged position, but that PU constraints are restricted to stems.)

[31] The claim that *-ise* and *-ify* are stress-neutral will be motivated in detail in §4.

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Similarly, the 'repair' of *CLASH violations associated with the suffix *-ese* allows for the prediction that for this suffix *LAPSE violations are either also repaired or tolerated, but *LAPSE gaps are ruled out. This is because *CLASH repair indicates that MPARSE dominates PU[stress]. For *-ese*, *LAPSE violations are indeed tolerated, as is shown by the attested coinages in (45). The example *Sènegalése* is particularly instructive, as it involves both a *CLASH repair and a *LAPSE violation.

(45) Péntagon + ése ⇒ Pèntagonése Sènegál + ése ⇒ Sènegalése
Áragon + ése ⇒ Àragonése Àrakán + ése ⇒ Àrakanése

Similarly, systematic stress shifts induced by the suffixes *-ic* and *-ian* indicate that these suffixes have no stress-related gaps. In fact, there are none. By contrast, within the CONTROL model a suffix *-ese′* could be described which shifts stress in stress-final stems to satisfy *CLASH, but yields gaps for dactylic stems. Such a suffix is described by ranking *CLASH above PU[stress] in EVAL and assigning *LAPSE to CONTROL.

The examples show that the MPARSE model is more restrictive than the CONTROL model in that the latter allows for the description of affix behaviour, which is ruled out in the former. The reason for introducing the CONTROL model is of course precisely that MPARSE is claimed to be too restrictive. While presumably regarding the generalisations discussed here (e.g. the predicted stress-neutrality of the suffixes in (44)) as accidental, Orgun & Sprouse claim that the arguments for the MPARSE model can be refuted on the basis of evidence from English *-ise*-suffixation. However, on close inspection the relevant data support the MPARSE model but raise problems for descriptions in the CONTROL model. To my knowledge, all English data are consistent with the empirical predictions entailed by the MPARSE model.

4 Case studies: English *-ise* and *-ify*-suffixation

The large stock of native formations exhibiting stem alternation makes the English suffix *-ise* a good testing ground for theories of the phonology–morphology interface. It will be shown below that the suffix, contrary to earlier analyses (cf. Plag 1999), is associated with inviolable PU constraints on both segmental and prosodic structure. Apparent phonological repair will be shown to indicate SUBCAT effects.

4.1 Stress-related gaps: MPARSE *vs.* CONTROL

To illustrate the inadequacy of the MPARSE approach to ungrammaticality, Orgun & Sprouse discuss Raffelsiefen's (1996) analysis of gaps in *-ise* formation. They accept the claim that *-ise* attaches productively to nouns and adjectives with non-final stress, as in (46a), but not to nouns or adjectives with final stress, as in (46b):[32]

[32] Relative prominence between the main stress in the stem and the stress on the suffix follows canonical verb prosody in that final stress is normally weak in polysyllabic

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(46) a. rándom + ìse ⇒ rándomìse
b. corrúpt + ìse ⇒ ∅

Orgun & Sprouse discuss various counterexamples to the generalisation that *-ise* attaches only to stems with non-final stress, which they categorise and illustrate as follows.

(47) a. *Final-stressed polysyllabic stems taking* -ise *with stress shift*
Japán Jápanìse
b. *Final-stressed polysyllabic stems taking* -ise *with stress clash*
machíne machínìse
c. *Monosyllabic stems taking* -ise (*necessarily with stress clash*)
Sérb Sérbìse

Type (47a) would be a counterexample to my generalisation that PU[stress] is strictly inviolable in verbal morphology, and is indeed a likely misanalysis. There is evidence, to be discussed below, that *Jápanìse* is formed not by shifting the stress in *Japán* but rather by selecting the trochaic stem allomorph *Jápan-*, which occurs in *Jàpanése* (cf. §4.2.1). While Orgun & Sprouse consider both of the types illustrated in (47a) and (47b) to be marginal, they claim that the type in (47c) 'seems to be productive and readily accepted by native speakers' (1999: 193).[33] The problem for an analysis in terms of MPARSE is then the coexistence of *CLASH gaps (e.g. **corrúpt + íse ⇒ ∅*) and *CLASH violation (e.g. *Sérb + íse ⇒ Sérbìse*). However, as was discussed in §2.3, the type in (47c) *is* marginal, a conclusion which is not affected by the evidence presented by Orgun & Sprouse. In view of the roughly 1700 *-ise* formations in the *OED* their list cited in (48), based on a search of Brown (1963), is decidedly short.

(48)

Serbise	Grecise	Francise	Turkise
zincise	mythise	dockise	coalise
stylise	filmise	tourise	sensise
chlorise			

The verbs *chlorise*, *Serbise*, *zincise* and *filmise* are listed neither in the *OED* nor in *Webster's*, which reflects their low acceptability. *Grecise*, *Francise* and *stylise* are borrowings.[34] The only relevance of those words for a description of English *-ise* is the common adaptation of *stylise* as

---

verbs ending in a single (or no) consonant (e.g. *réconcìle*, *círcumcìse*, *cónstitùte*, *álternàte vs. rècomménd*, *circumvént*, *ìnterrúpt*, *rèpresént*). Plag (1999: 170) accordingly errs when he writes that the stress patterns of *-ise* derivatives 'differ markedly from other verbs, which usually carry [primary] stress on the last syllable'.

[33] Oddly, they claim that the third type is not mentioned in Raffelsiefen (1996). In fact, this type is explicitly described as ungrammatical, on a par with the type in (47b) (cf. Raffelsiefen 1996: 194, Table 1b).

[34] These words are borrowed from Latin (*Graecisare*), French (*franciser*) and German (*stilisieren*), respectively.

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[stáɪ(ə)làɪz], to satisfy *CLASH. The verb *coalise* relates not to *coal*, but to *coalition*, according to the *OED*, and is pronounced without a stress clash (i.e. [kóʊəlàɪz]). More importantly, when confronted with nonce formations, native speakers tend to reject *-ise* formations based on monosyllabic stems.

Even if Orgun & Sprouse were to insist that the words in (48) prove the productivity of *-ise* formations based on monosyllabic stems, the distinction they draw between this type and cases of stress clash based on polysyllabic stems is unmotivated. Recall that they agree that the latter type is marginal. Yet the list in (48) can easily be matched by an equally long list of attested *CLASH-violating coinages based on polysyllabic stems.[35]

(49) cocáinìse babóonìse banálìse buffóonìse
disinséctìse ferócìse gentéelìse infírmìse
machínìse propagándìse routínìse Achíllise

It is unclear then what the empirical basis is for Orgun & Sprouse's claim that the cases of stress clash in (48) are perfectly acceptable, whereas those in (49) are marginal.

The main generalisations are summarised and compared with those established in Orgun & Sprouse's paper in Table I. The description 'possible but marginal' accounts for the relative rareness and low acceptability of coinages. I argue then that the status of the forms in (b) and (c) is identical, but differs sharply from that in (a).

type	Orgun & Sprouse	evidence reviewed here
a. stress shift (*Jápanìse–Japán*)	possible but marginal	strictly ungrammatical[36]
b. stress clash based on polysyllables (*machínìse–machíne*)	possible but marginal	possible but marginal
c. stress clash based on monosyllables (*Sérbìse–Serb*)	no gap; fully productive	possible but marginal

Table I

Comparison between the generalisations established in Orgun & Sprouse and here.

[35] In addition to the coinages in (49) there are also cases of *CLASH violations to satisfy PU[stress] in the adaptation of loanwords (cf. *serénìse*, *sublímìse*, *etérnìse*).

[36] The claim that PU[stress] is strictly inviolable in English *-ise* formations does not preclude the adaptation of French *canalisér* as *cánalìse* (in spite of the existence of *canál*), or a historic stress shift *canálìse* > *cánalìse*. The latter pronunciation is preferred on strictly phonological grounds, as it does not involve a stress clash (cf. historical shifts in *recógnìse* > *récognìse*). What is excluded though, is the possibility that a speaker coins a new *-ise* formation *cánalìse* directly based on *canál*.

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Orgun & Sprouse account for the alleged difference in grammaticality between types (b) and (c) by breaking up the constraint PU[stress], defined in (3), into two separate constraints, given in (50):

(50) a. HEAD-MAX
The head syllable of each input morpheme must correspond to a stressed syllable in the output (i.e. no deletion of the main stress of a morpheme).

b. HEAD-ID
The location of the head syllable of the output should be the same as the location of the head syllable of the input (i.e. no main stress shift).

The difference between the allegedly well-formed cases in (c) of Table I and the ill-formed cases in (b) is then described by ranking HEAD-MAX above *CLASH in EVAL, whereas HEAD-ID is assigned to CONTROL:[37]

(51) *Distinction between types* (*b*) *and* (*c*) *in the* CONTROL *model*

		corrúpt+ise	HEAD-MAX	*CLASH
a. EVAL	☞	córruptìse		
		corrúptìse		*!
		Sérb+ise	HEAD-MAX	*CLASH
b. EVAL	☞	Sérbìse		*
		Serbíse	*!	
			HEAD-ID	
c. CONTROL	✂	córruptìse	*!	
	☞	Sérbìse		

The definition of HEAD-MAX is meant to ensure that the winner chosen in EVAL involves a stress shift for candidates based on polysyllabic stems (e.g. *córruptìse*), but not for candidates based on monosyllabic stems (e.g. *Sérbìse*). However, unlike HEAD-ID, HEAD-MAX is not a PU constraint, and, as will be argued below, plays no role in *-ise*-suffixation. There are two pieces of evidence showing that HEAD-ID is a ranked constraint which must be assigned to EVAL. First, the form *córruptìse*, which emerges as the winning candidate from EVAL, is clearly not the form chosen by English speakers as the best filler of the gap (cf. the quotation from Orgun & Sprouse in §3 above). Rather, if forced to come up with a coinage, speakers invariably choose the candidate *corrúptìse*. The sceptical reader may compare her judgements of the respective candidates with the

[37] In (51) I have corrected two apparent errors in the original article (1999: 215). I have removed the first stress mark from the second candidate for *Serb-ise* and added an asterisk in the *CLASH column for the first candidate for *Serb-ise*.

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judgements given in (52) to verify this claim (severity of ungrammaticality is indicated by the number of asterisks):

(52)	*stress-preserving candidate*	*stress-shifting candidate*
bizárre	*bizárrìse	**bízarrìse
absúrd	*absúrdìse	**ábsurdìse
abrúpt	*abrúptìse	**ábruptìse
obscúre	*obscúrìse	**óbscurìse

The second problem with assigning HEAD-ID to CONTROL concerns the fact that the constraint *LAPSE is freely violated in *-ise* formation. A small proportion of the relevant words listed in the *OED* is given in (53):

(53)	márginalìse	Áfricanìse	hóspitalìse	míneralìse
	vísibilìse	vítaminìse	hárlequinìse	cáramelìse
	dísciplinìse	cítizenìse	álcoholìse	kératinìse
	pýramidìse	partícularìse	cosmopólitanìse	parámeterìse

Whatever the assessment of the forms in (48) and (49), they clearly differ from those in (53) in terms of acceptability. While there is indication that the formations in (48) and (49) are only weakly productive at best, those in (53) exhibit unbridled productivity. The problem for Orgun & Sprouse's analysis is where to place *LAPSE. Obviously this constraint should not be placed in the CONTROL component, because it does not cause ungrammaticality. Placing it in EVAL, however, will cause candidates which violate HEAD-ID to emerge as winners from EVAL. The trouble is that candidates like *fedéralìse* and *hospítalìse* satisfy HEAD-MAX (in addition to satisfying *LAPSE and *CLASH) and are therefore optimal, regardless of the order of those constraints in EVAL. Once these candidates are submitted to CONTROL, they would be eliminated due to HEAD-ID violations, thereby falsely yielding a gap, as is seen in (54):

(54)

	márginal+ìse	HEAD-MAX	*LAPSE
a. EVAL	márginalìse		*!
	☞ margínalìse		

		HEAD-ID
b. CONTROL	✂ margínalìse	*!

The only way to ensure that *LAPSE does not make its force felt is by ranking it below HEAD-ID. Such a ranking is necessary to account for the fact that there are no gratuitous *LAPSE violations in *-ise* formations (or any other verb, for that matter; cf. **élimìnàte* but *elímìnàte*, **éxacerbàte* but *exácerbàte*). Rather, *LAPSE violations always serve to satisfy HEAD-ID (or the more comprehensive constraint PU[stress]), which shows that HEAD-ID dominates LAPSE and therefore must be part of EVAL.

At this point we might give up on the distinction between types (b) and (c) in Table I and revise Orgun & Sprouse's analysis of Eng-

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lish *-ise*-suffixation within the CONTROL model as follows (reference to the constraint HEAD-MAX is superfluous):

(55)

a. EVAL	HEAD-ID	*LAPSE
b. CONTROL	*CLASH	

The analysis in (55) accounts for the same range of facts as the MPARSE analysis in (56) proposed by Raffelsiefen (1996):

(56) PU[stress] ⫸ *CLASH ⫸ MPARSE ⫸ *LAPSE

As discussed in §3.2, the descriptions in (55) and (56) differ in terms of predictive power. By reversing the order of HEAD-ID and *LAPSE in the CONTROL model in (55), a hypothetical suffix *-ise′* can be described which differs from actual *-ise* in that it 'repairs' *LAPSE violations by stress shift (e.g. *hóspital* + *íse′* ⇒ *hóspitalìse*) but has gaps for *CLASH violations (e.g. *corrúpt* + *íse* ⇒ ∅). No such suffix could be described in the MPARSE model, and no such suffix exists in English.

4.2 SUBCAT effects in *-ise* formations

The CONTROL model not only fails to express the correlations between gaps and stress neutrality exhibited by *-ise*-suffixation. Additional data to be reviewed in this section, namely systematic SUBCAT effects, are easily accommodated within the MPARSE model, but entail a constraint-duplication problem within the CONTROL model.

4.2.1 *Stress-related gaps and* SUBCAT *effects*. The claim that *Jápanìse* does not involve stress shift (with respect to the putative base *Jápan*) is based on the observation that for all *-ise* formations which appear to violate PU[stress] there exist alternative potential base words for which PU[stress] is satisfied. Consider first the attested *-ise* formations in (57a), which violate PU[stress] with respect to the nouns in (57b), but satisfy it with respect to the adjectives in (57c). The dates given in brackets are the earliest attested occurrences in the *OED*:[38]

(57) a. Jápanìse [1890] Víetnamìse [1957] b. Japán Vietnám c. **Jàpan**ése [1588] **Vìetnam**ése [1947]

The analysis of the *-ise* formations in (57a) on the basis of the boldfaced stems in (57c) captures the generalisation that familiarity with the trochaic stem is a necessary condition for acceptability. That is, for speakers who know *Sùdanése* the formation *Súdanìse* may be acceptable, while for those who know only *Sudán* it is unacceptable. The *-ise* formations in (58) are accordingly unacceptable for all speakers, since there are no attested forms

[38] While prior existence of the words which supply the relevant stems (e.g. *Japanese*) enhances the plausibility of an analysis in terms of stem selection, it is not crucial for maintaining the claim that novel *-ise* formations always satisfy PU[stress]. That is, *Japanise* could have been (exceptionally) coined with a stress clash based on *Jápan*, with subsequent stress shift under the influence of stem stress in *Jàpanése*.

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which 'license' the stress shift ('∈ L' means 'exists in the lexicon'; '∉ L' means 'does not exist in the lexicon'):

(58) *Tíbetìse *because* Tibét ∈ L, Tibétan ∈ L, *but* Tìbetése ∉ L
*Brázilìse *because* Brazíl ∈ L, Brazílian ∈ L, *but* Bràzilése ∉ L
*Péruìse *because* Perú ∈ L, Perúvian ∈ L, *but* Pèruése ∉ L

Ranking SUBCAT(Wd) in (10) below MPARSE describes the data in (57)–(58):

(59) PU[stress] ⫸ *CLASH ⫸ MPARSE ⫸ SUBCAT(Wd)

A major empirical issue raised by the description in (59) concerns the recognition of stems such as those in (57c). As stated above, stems are the parts of words which remain after affix-stripping. Stems defined in this manner have 'surface' prosodic properties, including stress and syllable structure, as is illustrated by the boldfaced stems in (60).

(60) a. [[**Jàpan**]$_{\text{STEM}}$ [ése]$_{\text{SFX}}$]$_{\text{WD}}$ + ísе ⇒ Jápanìse
[[**óstrac**]$_{\text{STEM}}$ [ism]$_{\text{SFX}}$]$_{\text{WD}}$ + ísе ⇒ óstracìse
[[**sánit**]$_{\text{STEM}}$ [àry]$_{\text{SFX}}$]$_{\text{WD}}$ + ísе ⇒ sánitìse
b. [[**sátell**]$_{\text{STEM}}$ [ìte]$_{\text{SFX}}$]$_{\text{WD}}$ + ísе ⇒ sátellìse
[[**sácchar**]$_{\text{STEM}}$ [ìne]$_{\text{SFX}}$]$_{\text{WD}}$ + ísе ⇒ sáccharìse
[[**nícot**]$_{\text{STEM}}$ [ìne]$_{\text{SFX}}$]$_{\text{WD}}$ + ísе ⇒ nícotìse

All *-ise* formations in (60) are native coinages, but those in (60b) are likely to have a particularly low acceptability rate. This is a direct consequence of the poor recognisability of the relevant suffixes, perhaps mainly due to the fact that they almost never occur in combination with stems corresponding to independent words (as opposed to *-ese* (e.g. *officialese*), *-ism* (e.g. *idealism*) or *-ary* (e.g. *legendary*)). Speakers who analyse any of the words in (60a) as monomorphemic because of failed affix recognition will strongly reject the corresponding *-ise* formations in (60b), because of PU violations. The observation that stem-based *-ise* formations tend to have a learned ring makes sense in view of the likely correlation between affix recognition (especially in loanwords) and level of education. But even speakers who do recognise an affix in, say *Sùdanése*, may find *Súdanìse* unacceptable. For such speakers, SUBCAT(Wd) ranks above MPARSE.

The claim is then that the formation *Jápanìse* is not exceptional but rather representative of learned word formation. The relatively low frequency of such apparent stress shifts is due to the low frequency of alternations involving words with final stress, as in (61b), and stem forms without final stress, as in (61c). All such stems precede suffixes carrying main stress: mainly *-ése* formations, which are based on geographical names, and loanwords (cf. (61c)).

(61) a.	ímmunìse	b. immúne	c. **ìmmun**ólogy
	sérenìse (*also* serénìse)	seréne	**sèren**áde
	prófanìse	profáne	**pròfan**átion
	súblimìse (*also* sublímìse)	sublíme	**sùblim**átion

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The forms in parentheses, which violate *CLASH, are preferred by speakers for whom the constraint SUBCAT(Wd) is inviolable, or who are not aware of the boldfaced stems in (61c).

To fully motivate a SUBCAT analysis it must be shown (a) that the alternation cannot be explained in terms of repair (crucial domination of a PU constraint) and (b) that SUBCAT is violated only under domination. For the first condition I refer the reader to the judgements in (52). To satisfy the second condition it must be shown that stem selection is not simply a general feature of learned *-ise* formation. Important evidence here are cases of *LAPSE violations which could have been avoided by stem selection, as in (62):

(62)

skéletonìse	léxiconìse	másculinìse	líberalìse
féderalìse	púritanìse	régularìse	sígnaturìse
tábularìse	tránsitivìse	Váticanìse	cháracterìse
cónsonantìse	sécularìse	définitìse	prímitivìse
dócumentìse	ádjectivìse	ádamantìse	rádiumìse

Native coinages like those in (63b) show that the relevant stems are selected by other affixes, but not by *-ise*. The examples in (63c) illustrate the ample stock of suitable stem forms in the English lexicon supporting the ranking SUBCAT(Wd) ⫸ *LAPSE.

(63) a. **skélet-on** + ise ⇒ skéletonìse
léxic-on + ise ⇒ léxiconìse

b. **skélet**-on + al ⇒ skéletal
léxic-on + al ⇒ léxical

c. {**pýramid**, pyrámid-al} + ise ⇒ pýramidìse
{**héxagon**, hexágon-al} + ise ⇒ héxagonìse
{**ínfinit**, infínit-ude} + ise ⇒ ínfinitìse

The generalisation that stems are selected to satisfy *CLASH, but not *LAPSE, is described by the ranking in tableau (64):[39]

(64)

	skélet-on+ise	PU[stress]	*CLASH	MPARSE	SUBCAT(Wd)	*LAPSE
a.	☞ i. skéletonìse					*
	ii. skéletìse				*!	
	iii. ⊙			*!		
b.	Jàpan-ése+ise					
	i. Jàpanésìse		*!			
	☞ ii. Jápanìse				*	
	iii. ⊙			*!		

[39] Shannon's (1991) discussion of feminine *-ster*-suffixation in Dutch suggests that *LAPSE dominates SUBCAT for that suffix. The suffix attaches regularly to agentive nouns (e.g. *kruidenier* 'grocer' + *ster* ⇒ *kruidenierster* 'female grocer', *dobbelaar* 'gambler' + *ster* ⇒ *dobbelaarster* 'female gambler'), but attaches to verbs to avoid *LAPSE violation (e.g. {*bak* 'to bake', *bákker* 'baker'} + *ster* ⇒ *bákster* (**bákkerster*)).

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While the generalisation in question is captured easily in the MPARSE model, a problem arises when the data are described in the weaker CONTROL model. Specifically, the model requires 'constraint duplication', in that *CLASH would have to be assigned to both EVAL and CONTROL, as is shown in (65):

(65)

EVAL	PU[stress]	*CLASH	SUBCAT(Wd)	*LAPSE
CONTROL	*CLASH			

*CLASH would have to be assigned to CONTROL to eliminate winning candidates from EVAL, such as *corrúptìse*. *CLASH must also dominate SUBCAT(Wd) in EVAL, to account for *CLASH-conditioned SUBCAT violations exhibited in formations like *Jápanìse*.

The sceptical reader will note that the treatment of SUBCAT(Wd) as a constraint violated only under domination is challenged by the vast number of *-ise* formations based on stems (rather than words). Below it will be shown that stem selection always serves to satisfy phonological constraints (other than *LAPSE). The picture to emerge is that, despite its sensitivity to various phonological constraints (e.g. *CLASH), the suffix *-ise* cannot 'repair' phonological structure to satisfy those constraints (e.g. stress shift, stress deletion).[40] That is, *-ise* is associated with inviolable PU constraints on both segmental and prosodic structure. The only type of 'repair' available to *-ise* is stem selection. If no suitable stem exists, there is a gap.

In §4.2.2 I discuss *V.V-related gaps, arguing that this constraint is satisfied by stem selection, but never by phonological repair (i.e. vowel deletion). Similar arguments will be put forward for OCP constraints in §4.2.3 and maximality effects in §4.2.4. In §4.2.5 I discuss evidence for 'blend effects', and argue that these should be distinguished from SUBCAT effects.

The findings argue against Orgun & Sprouse's CONTROL model in two respects. First, systematic correlations between types of effects predicted by the MPARSE model are unexplained. Second, not only *CLASH, but every phonological markedness constraint associated with gaps, would have to be assigned to both EVAL and CONTROL, clearly an undesirable outcome.

4.2.2 *V.V gaps and SUBCAT effects. The observation that *-ise* formation for the words in (66) is avoided indicates that *V.V dominates MPARSE.

[40] The claim that *-ise* does not trigger phonological repair may seem to be contradicted by the 'Velar Softening' seen in [k] ~ [s] and [ʃ] ~ [s] alternations (cf. *románti*[k] + *ìse* ⇒ *románti*[s]*ise*, *feró*[ʃ]*-ous* + *ìse* ⇒ *feró*[s]*ise*). However, there is strong evidence that such alternations are not morphophonological, but rather involve a grapheme–sound mapping (e.g. <c> → [s] / ___ <i e y>) (cf. Raffelsiefen 1993a, 2004: §8.3.2.1).

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(66) búffalò + ise ⇒ ∅ véto + ise ⇒ ∅
píccolò + ise ⇒ ∅ gíro + ise ⇒ ∅
Fígarò + ise ⇒ ∅ mótto + ise ⇒ ∅

The selection of the boldfaced base forms in (67) supports the relevance of *V.V for *-ise*-suffixation:

(67) {África, **África**n, …} Africanìse
{Ítaly, **Itálian**, …} Itálianìse
{Cánada, **Canádian**, …} Canádianìse
{**Ísrael**, Israéli, …} Ísraelìse
{**Gérman**, Gérmany, …} Gérmanìse
{**Sáxon**, Sáxony, …} Sáxonìse

In general, *V.V violators (e.g. **búffaloìse*) are clearly preferred to truncated forms (e.g. ***búffalise*) or epenthesised forms (e.g. ***búffalonìse*). This preference indicates that *V.V is dominated by PU[seg], defined in (68), which incorporates DEP (27b).

(68) PU[seg]
For every derived word and its base, all segments in the stem must correspond.

The ranking of *V.V above MPARSE, indicated by the gaps in (66) and the ranking of MPARSE above SUBCAT(Wd) established in §4.2.1, imply that the constraint *V.V can be satisfied by stem selection. The cases of stem selection in (69) are presumably uncontroversial since satisfaction of *V.V could hardly result from phonological repair. This is because *V.V would also be satisfied by simple, rather than multiple, truncation in (69a) (that is, we would expect forms like *sánitarìse*). Assuming epenthesis in (69b) is equally implausible, because the choice of the boldfaced consonant serving as hiatus buffer is not governed phonologically.

(69) a. {**sánit**-ary, …} sánitìse
{**contémpor**-ary, …} contémporìse
b. {tobácco, **tobáccon**-ist, …} tobácco**n**ìse
{égo, **égot**-ism, …} égo**t**ìse
{Pláto, **Pláton**-ism, …} Plátò**n**ìse
{Néro, **Néron**-ism, **Néron**-ist, …} Néro**n**ìse
{náphtha, **náphthal**-ene, …} náphtha**l**ìse

Unlike the cases in (69a), those in (70) are likely to be analysed as PU[seg] violations. However, the observation that apparent vowel truncation is grammatical only if consonant-final stem allomorphs exist argues

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against phonological repair. The earliest attested dates of the stem-suppliers are given in the lefthand column:[41]

(70) {propagánda, **propagánd**-ism [1800], …} propagándìse [1844]
{pátina, **pátin**-ate [1880], **pátin**-ous [1848], …} pátinìse [1904]
{álgebra, **álgebr**-ist [1673], …} álgebrìse [1841]

Perhaps the stiffest challenge to the inviolability of PU[seg] concerns the cases of apparent final [i]-deletion in (71):

(71)

apólog-y + íse	⇒ apólogìse	scrútin-y + íse	⇒ scrútinìse
epítom-e + íse	⇒ epítomìse	súbsid-y + íse	⇒ súbsidìse
ecónom-y + íse	⇒ ecónomìse	párod-y + íse	⇒ párodìse
mémor-y + íse	⇒ mémorìse	fántas-y + íse	⇒ fántasìse
jéopard-y + íse	⇒ jéopardìse	psychíatr-y + íse	⇒ psychíatrìse
apóstroph-e + íse	⇒ apóstrophìse	plágiar-y + íse	⇒ plágiarìse

What is the evidence that the constraint *V.V is satisfied by stem selection, rather than vowel deletion? Some evidence that word-final [i] in abstract nouns is analysed as a suffix comes from stress. Consider the regular stress on the closed penults in (72b, c). Antepenultimate stress in (72a) indicates morphological complexity: final [i] is apparently excluded from the domain of stress assignment (cf. Chomsky & Halle 1968: 39ff).

(72)

a.	b.	c.
hìerarchy	flaménco	polénta
májesty	fiásco	canásta
guáranty	commándo	babúshka
énergy	crescéndo	mazúrka
índustry	calýpso	enígma
gálaxy	embárgo	chiásma
ámnesty	tabásco	jinrícksha

The recognition of word-final [i] as a suffix is supported by the words in (73), where [i] attaches to a stem which corresponds to an independent word:[42]

(73)

jéalous-y	módest-y
difficult-y	félon-y
báron-y	inquír-y

[41] Analysing *V.V satisfaction in terms of stem selection rather than truncation raises the question of where the relevant stem suppliers come from. First, while *-ise* does not allow for phonological repair, there are other affixes which do. Recall that the 'stress shifts' induced by the suffix *-ese* (*Jápan* + *ése* ⇒ *Jàpanése*) are one of the sources for *Clash-satisfying stem allomorphs for the suffix *-ise*. Second, stems may be supplied by loanwords which include a recognisable affix (e.g. French *propagandisme* → English *propagandism*, French *algebriste* → English *algebrist*).

[42] The phonology of non-cohering affixation supports the claim that occurrence with independent stems enhances recognition of affixes when they occur with bound stems. For instance, *-less*-suffixation exhibits the same type of phonetic boundary effects in *réckless*, *háples*s as in *lúckless*, *gápless*, where the suffix attaches to an independent stem (for detailed discussion of this point, cf. Raffelsiefen 2004, to appear).

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Word-final [i] is analysable as a suffix only in abstract nouns. The fact that [i] truncates neither in concrete nor in proper nouns refutes any type of strictly phonological approach to '[i]-loss' in (71). For concrete or proper nouns, *-ise* formation yields a gap, where *V.V violators are preferred to truncated forms.[43]

(74) célery + íse ⇒ ∅ *céleryìse **célerìse
bróccoli + íse ⇒ ∅ *bróccoliìse **bróccolìse
Kénnedy + íse ⇒ ∅ *Kénnedyìse **Kénnedìse

The analysis of final [i] in abstract nouns as a suffix is supported by the morphophonology of agentive *-er*-suffixation. Again, proponents of a phonological account will have to explain why final [i] is lost in the abstract nouns in (75a), but not in the verbs in (75b). The suffix *-er* differs from *-ise* in that it freely attaches to vowel-final words if no consonant-final stem allomorph exists. This sort of behaviour indicates that for *-er*, MPARSE dominates *V.V, which in turn dominates SUBCAT(Wd).

(75) a. **philósoph**-y]$_N$ philósopher b. **accómpany**]$_V$ accómpan**i**er
geógraph-y]$_N$ geógrapher **rémedy**]$_V$ rémed**i**er
astrónom-y]$_N$ astrónomer **cárry**]$_V$ cárr**i**er

Additional evidence for a morphological description in terms of stem selection in (71) concerns words where [i] is part of a suffix.[44] An analysis in terms of phonological repair raises the question of why final [i] is not deletable in (76).[45]

(76) obés-ity + íse ⇒ ∅ cóok-ery + íse ⇒ ∅
absúrd-ity + íse ⇒ ∅ róbb-ery + íse ⇒ ∅
equál-ity + íse ⇒ ∅ prúd-ery + íse ⇒ ∅
fratérn-ity + íse ⇒ ∅ móck-ery + íse ⇒ ∅

[43] The analysis of word-final [i] as a suffix in abstract nouns, but not in concrete nouns or names, is supported by comparative evidence. Final [i] in abstract nouns attracts main stress in the corresponding cognates in German or Swedish (e.g. German *Phantas*[i], *Hierarch*[i]; Swedish *fantas*[i], *hierark*[i]). Other instances of word-final [i] do not attract main stress (e.g. German *Séller*[i], *Kénned*[i]; Swedish *séller*[i], *Kénned*[i]).

[44] By contrast, there is no gap when [i] is part of a so-called semi-suffix (characterised by a root-initial consonant), as in (i). Indeed, there is no evidence that 'semi-suffixes' are recognised by learners, as the putative boundaries are never referred to by (morpho)phonological rules.

(i) -log-y mythólog-y + ise ⇒ mythólogìse
-tom-y dichótom-y + ise ⇒ dichótomìse
-path-y telépath-y + ise ⇒ telépathìse
-soph-y philósoph-y + ise ⇒ philósophìse
-nym-y synónym-y + ise ⇒ synónymìse

[45] The two exceptions, *mediocritise* and *prioritise*, are based on somewhat idiosyncratic *-ity* formations. *Mediocrity* exhibits a rare schwa ~ zero alternation in relation to its base *medioc*[ə]*r* (cf. regular *prosp*[ə]*r* ~ *prosp*[ɛ]*rity*, *vulg*[ə]*r* ~ *vulg*[æ]*rity*). *Priority* shows semantic drift: the noun often connotes a sense of urgency (e.g. *priority mail*) which is lacking from its base *prior*.

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To conclude, final [i] in abstract nouns is analysed as a suffix unless it is part of a suffix. A few additional examples are given in (77), where stems suitable for *-ise*-suffixation are again in bold:

(77) {**sánit**-ary, …} + íse ⇒ sánitìse
{sán-ity, …} + íse ⇒ ∅
{**mémor**-y, …} + íse ⇒ mémorìse
{célery, …} + íse ⇒ ∅
{Bóvary, **bóvar**-ism} + íse ⇒ bóvarìse
{Kénnedy} + íse ⇒ ∅

It follows then that *sánitìse* is related to *sanitary*, but not to *sanity*. The meaning of *sanitise* (i.e. 'make sanitary') supports this analysis. The well-formedness of *bovarise*, as opposed to **Kennedise*, does not indicate that truncation occasionally applies in *-ise* formations based on proper nouns, but rather highlights the importance of stem paradigms. There is a word which supplies a consonant-final stem *bóvar-* (i.e. *bovarism*, a French loanword; cf. *bovarysme*), but there is no word which supplies a suitable stem **kénned-*.

4.2.3 *OCP-related gaps and* SUBCAT *effects*. Many cases of seemingly unmotivated stem selection seen in *-ise*-suffixation are analysable as OCP effects. In (78), stem selection satisfies SHELL (22):

(78) **gelátin**-ous + íse ⇒ gelátinìse
Sócrat-ès + íse[46] ⇒ Sócratìse
tubèrcul-ós-is + íse ⇒ tubérculìse
sýphil-is + íse ⇒ sỳphilìse
tétan-us + íse ⇒ tétanìse
péndul-ous + íse ⇒ péndulìse
mirácul-ous + íse ⇒ miráculìse
metrópol-is + íse ⇒ metrópolìse

The existence of SHELL, prohibiting syllables such as [sVz], is supported by the occurrence of a gap when no suitable stem for *-ise*-suffixation exists:[47]

(79) óffice + íse ⇒ ∅ súbstance + íse ⇒ ∅
círcus + íse ⇒ ∅ súrface + íse ⇒ ∅

The systematic gap in (80) is arguably also an OCP effect, to avoid adjacent syllables with similar coda segments. Systematic stem selection in (80b) can then be explained in morphophonological terms.

[46] See also the formation *Socratic*, which supports the analysis of *Socrat-* as a stem.

[47] Interestingly, SHELL violations are fairly common in stem-based *-ise* formation (e.g. *criticise*, *emphasise*). However, Goldsmith's (1990) claim that constraints like *CLASH apply only to word-based formations (across open juncture) is in general too strong.

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(80) a. éarnest + ísе ⇒ ∅
hónest + ísе ⇒ ∅
módest + ísе ⇒ ∅
fórest + ísе ⇒ ∅
índustr-y + ísе ⇒ ∅
májest-y + ísе ⇒ ∅
dýnast-y + ísе ⇒ ∅
ámnest-y + ísе ⇒ ∅

b. **sátir**-ist + ísе ⇒ sátirìse
álchem-ist + ísе ⇒ álchemìse
Bólshev-ist + ísе ⇒ Bólshevìse
hérbal-ist + ísе ⇒ hérbalìse
álgebr-ist + ísе ⇒ álgebrìse
péssim-ist + ísе ⇒ péssimìse
sýnerg-ist + ísе ⇒ sýnergìse
áthe-ist + ísе ⇒ átheìse

The equally common pattern of stem selection for words ending in *-ism* also lends itself to an OCP analysis (*/zVCVz/).

(81) **mésmer**-ism + ísе ⇒ mésmerìse
cathólic-ism + ísе ⇒ cathólicìse
crític-ism + ísе ⇒ críticìse
metábol-ism + ísе ⇒ metábolìse
Brític-ism + ísе ⇒ Bríticìse
émbol-ism + ísе ⇒ émbolìse
méchan-ism + ísе ⇒ méchanìse
sýncret-ism + ísе ⇒ sýncretìse

An OCP analysis is also plausible to account for stem selection in (82) (cf. Raffelsiefen 1996: 200). That is, stem selection in (82a) serves to satisfy the constraint OCP-Onset, which prohibits adjacent syllables with identical onsets. In (82b), the same ranking of constraints rules out stem selection, requiring attachment to words instead.

(82) a. **phenómen**-on + ísе ⇒ phenómenìse
máxim-um + ísе ⇒ máximìse
áppet-ìte + ísе ⇒ áppetìse

b. **léxic-on** + ísе ⇒ léxiconìse
rádi-um + ísе ⇒ rádiumìse
páras-ìte + ísе ⇒ párasìtìse

In monomorphemic words, OCP-Onset violations yield gaps, for which the best filler necessarily satisfies PU[seg] (e.g. **parallelise* is better than ***parallise*; **cardamomise* is better than ***cardamise*).

In contrast to the patterns (82a), stem selection is not resorted to in (83a). Instead there is a gap (cf. the corresponding well-formed examples in (83b)).

(83) a. cánd-id + ísе ⇒ ∅
hórr-or + ísе ⇒ ∅
Hítt-ìte + ísе ⇒ ∅

b. **ác-id** + ísе ⇒ ácidìse
tút-or + ísе ⇒ tútorìse
Sém-ite + ísе ⇒ Sémitìse

There is evidence that the primary reason for avoiding stem selection in (83a) is not the potential *Clash violation (as asserted by Plag 1999: 178, 179, 186), but rather the violation of the minimality constraint defined in (84).[48]

[48] A possible functional motivation for this constraint concerns the fact that a successful coinage must be relatable to a base, in terms of which it is interpreted (e.g. *áppetìse* 'stimulating the *appetite*'). Recognition of a base is plausibly easier if the base is a word than if the base is a stem. It is also plausible that base recognition is

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(84) MIN-STEM

Stems must be minimally disyllabic.

One reason for invoking MIN-STEM, rather than referring to the independently motivated constraint *CLASH, is the fact that the *CLASH violations involving monosyllabic stems in (85a) are considerably worse than those involving monosyllabic words in (85b):

(85) a. cánd-id + ise ⇒ ∅ **cándìse
cán-ìne + ise ⇒ ∅ **cánìse
Ír-ish + ise ⇒ ∅ **Írìse
b. bláND + ise ⇒ ∅ *blándìse
váin + ise ⇒ ∅ *váinìse
Gréek + ise ⇒ ∅ *Gréekìse

The judgements in (85), if correct, would be remarkable in that constraint violation involving stems is usually met with greater lenience than corresponding constraint violation involving words. The judgements are supported by the fact that all native *-ise* formations based on monosyllables are word-based, rather than stem-based (e.g. *Serbise*, *mythise*, but ***fúrìse* (based on *fúry*), ***pítìse* (based on *píty*)). Reference to *CLASH alone would also fail to account for the observation that *-ise* formations based on monosyllabic stems, as in (86a), are considerably worse than *-ise* formations based on iambic disyllabic stems, as in (86b). In fact, all *CLASH violators in (86b) are attested.

(86) a. crís-is + ise ⇒ ∅ **crísìse
pélv-is + ise ⇒ ∅ **pélvìse
fásc-ist + ise ⇒ ∅ **fáscìse
páuc-ity + ise ⇒ ∅ **páucìse
b. psychós-is + ise ⇒ ∅ *psychósìse
synóps-is + ise ⇒ ∅ *synópsìse
Locárn-ist + ise ⇒ ∅ *Locárnìse
etérn-ity + ise ⇒ ∅ *etérnìse

Reference to MIN-STEM is also indispensable for describing the patterns of *-able*-suffixation. In the native coinages in (88a) we see that the constraint informally referred to as *WEAKFINAL, defined in (87), is satisfied by stem selection.

(87) *WEAKFINAL (cf. Aronoff 1976)

The last branching foot in a phonological word must be strong.

This option is shunned for the monosyllabic stems in (88b).[49] The crucial argument in favour of MIN-STEM lies in the fact that from a strictly

easier if two (or more) syllables serve as an 'anchor' for recognition than in cases like (85a), where the association would have to be made based on a single syllable.

[49] The *-able* forms in (88b) are not acceptable, despite the alternations among loanwords such as *mútàte* ~ *mútable*, *plácàte* ~ *plácable*. For the speakers I have consulted

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phonological perspective the ungrammatical dactylic *-able* formations in (88b) are better than the attested coinages in (88a), which end in three unstressed syllables. A strictly phonological account is also refuted by the perfect acceptability of coinages based on monosyllabic *words* (e.g. *réadable*, *válkable*, *wrítable*).[50]

(88) a. **precípit**-àte + able ⇒ precípitable
váccin-àte + able ⇒ váccinable
mítig-àte + able ⇒ mítigable
déleg-àte + able ⇒ délegable
dévi-àte + able ⇒ déviable
réleg-àte + able ⇒ rélegable
lítig-àte + able ⇒ lítigable
ségreg-àte + able ⇒ ségregable

b. **díl-àte** + able ⇒ **dílable dílàtable
nárr-àte + able ⇒ **nárrable nárràtable
vác-àte + able ⇒ **vácable vácàtable
hýdr-àte + able ⇒ **hýdrable hýdràtable
dón-àte + able ⇒ **dónable dónàtable

The patterns of '*-ate*-truncation' in *-ee* formation support both the notion of phonologically conditioned stem selection and the relevance of MIN-STEM. Consider the data in (89a), which show that *-ee* selects stems to satisfy OCP-ONSET. Otherwise stem selection is ungrammatical, as is seen in (89b):

(89) a. **ámput**-àte + ée ⇒ àmputée
rèhabílit-àte + ée ⇒ rèhabìlitée

b. **déleg-àte** + ée ⇒ dèlegàtée *dèlegée
éduc-àte + ée ⇒ èducàtée *èducée

The relevance of MIN-STEM is seen in (90a), where *-ee* formation yields a gap. In contrast to the cases in (89a), the truncated forms are unacceptable (cf. (90b)), and worse than the respective OCP-ONSET violators in (90c). A strictly phonological account is out of the question, as is seen by the impeccable word-based coinages in (90d).

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the judgements of the stem-based adjectives in (88a) varied, but there was general agreement that these adjectives are much better than the stem-based adjectives in (88b). The type of stress pattern given there is found in *Webster's* (1990).

[50] The description of the contrast in (88a, c) in terms of MIN-STEM differs from Aronoff's, who writes that truncation of + *at* 'is blocked only when there is reason for not analysing At as a morpheme' (1976: 124). Some examples he gives are *debáte* ~ **debable*, *abáte* ~ **abable*, *state* ~ **stable*, *reláte* ~ **relable*. Aronoff's analysis is questioned by Anderson (1992: 280), who proposes an alternative generalisation in strictly phonological terms: *-ate* can be deleted only when carrying secondary stress, regardless of its morphological status. While Anderson's phonological account successfully deals with Aronoff's examples of ungrammaticality, it fails to explain the cases in (88b). Here reference to the constraint MIN-STEM is indispensable to account for the difference between ungrammatical coinages based on monosyllabic stems (e.g. **dónable*) *vs.* grammatical coinages based on monosyllabic words (e.g. *wrítable*).

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(90) a.	rót-àte + ée ⇒ ∅	b. **ròtée	c. *ròtàtée	d. brìbée
	díct-àte + ée ⇒ ∅	**dìctée	*dìctàtée	tràinée
	mút-àte + ée ⇒ ∅	**mùtée	*mùtàtée	dràftée

I conclude that the constraint MIN-STEM dominates MPARSE for the suffixes *-ise*, *-able* and *-ee* (but not for adjectival *-al*, *-ify*; see below). Assuming that the judgements in (86) and (87) are correct, MIN-STEM also dominates *CLASH for the suffix *-ise*. Needless to say, there is no claim that these suffixes cannot be found in combination with monosyllabic stems in loanwords (e.g. *baptise*, *capsize*, *Dorise*; *possible*, *capable*, *probable*, *potable* and many others). The ranking MIN-STEM ≫ MPARSE for the suffixes *-íse*, *-able* and *-ée* is not about what can be pronounced or analysed by native speakers of English. The ranking describes what English speakers can do when forming new words.

4.2.4 *Maximality-related* SUBCAT *effects*. The claim that violation of SUBCAT(Wd) always serves to satisfy phonological constraints (other than *LAPSE) is also consistent with the data in (91). Specifically, those cases differ from the *LAPSE violations listed in (53) with respect to the total number of syllables in the word. That is, stem selection in (91) serves to satisfy the constraint MAX-4σ, which prohibits more than four syllables in the derived (phonological) word.[51]

(91) a.	**alúmin**-um + íse	⇒ alúminìse
	avúncul-ar + íse	⇒ avúnculìse
	efémin-ate + íse	⇒ efféminìse
	presérvat-ive + íse	⇒ presérvatìse
	attitúdin-al + íse	⇒ attitúdinìse
	platitúdin-al + íse	⇒ platitúdinìse
	rejúven-ate + ìse	⇒ rejúvenìse
	equílibr-ate + íse	⇒ equílibrìse
	autómat-on + íse	⇒ autómatìse
b.	**polític**-al + íse	⇒ políticìse, polític**al**ìse
	legítim-ate + íse	⇒ legítimìse, legítim**at**ìse
	equíval-ent + íse	⇒ equívalìse, equíval**ent**ìse
	grammátic-al + íse	⇒ grammáticìse, grammátic**al**ìse

The constraint MAX-4σ distinguishes the cases in (92a), where stem selection is found, from the cases in (92b), where stem selection is ungrammatical:[52]

[51] A related constraint plays a role in German morphophonology: in inflected adjectives with stem-final *-r*, schwa is always deleted to satisfy a constraint prohibiting more than three syllables in the prosodic word, but not otherwise (e.g. *makáb*[ə]*r* 'macabre' ~ *makáb*[∅]*rer*, but *sáub*[ə]*r* 'clean' ~ *sáub*[ə]*rer*).

[52] The only counterexample I know of is *sensitise* (from *sensitive*). The candidate *ámbìse* is independently eliminated as a result of violating MIN-STEM.

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(92) a. **consérvat**-ive + ise ⇒ consérvatise
intélligi-ent + ise ⇒ intélligise
epíscop-al + ise ⇒ epíscopise
còal-ítion + ise ⇒ cóalise (có[ə]lise)
b. **prímit-ive** + ise ⇒ prímitivise
cónson-ant + ise ⇒ cónsonantise
rádic-al + ise ⇒ rádicalise
amb-ítion + ise ⇒ ambítionise

MAX-4σ violations cause no gaps, which means that the constraint ranks below MPARSE. The ranking in relation to SUBCAT(Wd) varies, as is indicated by the doublets in (91b).

4.2.5 *BLEND *effects vs.* SUBCAT *effects*. The claim that for *-ise*-suffixation *CLASH or *V.V violations can be 'repaired' only by stem selection raises the question of how the verbs in (93) are formed:

(93) a.	b.	c.
dógmatise	dógma	dogmát-ic
stígmatise	stígma	stigmát-ic
cínematise	cínema	cinemát-ic
óperatise	ópera	òperát-ic
arómatise	aróma	àromát-ic
Ásiatise	Ásia	Àsiát-ic

On the assumption that the *-ise* formations in (93a) are based on the nouns in (93b) it would follow that the constraint PU[seg], which prohibits epenthesis, is violated. On the assumption that the verbs are based on the adjectival stems in (93c) it would follow that the constraint PU[stress] is violated. Yet, rather than showing that phonological repair is possible in *-ise*-suffixation, the formations in (93a) indicate the violability of the constraint *BLEND in (94):

(94) *BLEND
Each candidate must satisfy all PU constraints (e.g. PU[seg], PU[stress]) with respect to a single member of the paradigm.

Like the constraint SUBCAT(Wd), the constraint *BLEND is violated only under domination, as is illustrated in (95).

(95)

{dógma, dogmát-ic, …}+ise	PU [stress]	PU [seg]	*CLASH	*VV	MPARSE	*BLEND	SUBCAT (Wd)
a. dógmaise				*!			
b. dogmátise			*!				
☞ c. dógmatise						*	*
d. ⊙					*!		

In (95) the winning candidate *dógmatise* satisfies *PU[stress] with respect to the base *dógma*, whereas PU[seg] is satisfied with respect to the base *dogmát-*. The basic generalisation expressed in (95) is that the stem in

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dogmatise is some sort of blend, where *dógma* 'supplies' the stress, while the stem *dogmát-* 'supplies' the hiatus buffer.[53] The claim that PU[seg] is not violated in (95) is supported by the fact that a gap results if the paradigm includes no consonant-final stem. Examples are given in (96):

(96)	*panorámatìse	panoráma ∈ L	pànoramát-ic ∉ L
	*pyjámatìse	pyjáma ∈ L	pỳjamát-ic ∉ L
	*énematìse	énema ∈ L	ènemát-ic ∉ L

The claim that PU[stress] is also satisfied in (95) is supported by the data in (97a). These examples show that the stress patterns of the derived verbs cannot be predicted on the basis of the adjectival stem with final stress in (97b) (even if stress shift were allowed), but are determined by the corresponding noun with no final stress in (97c):

(97)	a. cínematìse	b. cìnemát-ic	c. cínema
	arómatìse	àromát-ic	aróma

The claim that the surface prosody of the *-ise* formations under consideration is contributed by the noun, rather than the base adjective, is further supported by the correspondence of the stem vowels in (98). In the base adjectives the relevant vowel distinctions are often neutralised as a result of stresslessness (cf. (98c)).

(98)	a. dr[á]matìse	b. dr[á]ma	c. dr[ə]mátic
	tr[ɔ́ː]matìse	tr[ɔ́ː]ma	tr[ə]mátic

The ranking of *BLEND below MPARSE entails that not only *CLASH and *V.V, but also other combinations of phonological markedness constraints associated with gaps, can exhibit split licensing of phonological material, provided that the relevant base forms exist. The *-ise* formations in (99a) can be analysed as *BLEND effects, where the stems in (99b) contribute the prosodic form to satisfy *CLASH, while the stems in (99c) supply a final consonant other than [s] to satisfy SHELL:[54]

(99)	a. páncrea**t**ìse	b. **páncrea**s	c. pàncreá**t**-ic
	diplóma**t**ìse	**diplóma**c-y	dìplomá**t**-ic
	demócra**t**ise	**demócra**c-y	dèmocrá**t**-ic
	àristócra**t**ìse	**àristócra**c-y	àristrocrá**t**-ic
	áphe**t**ìse	**áphe**s-is	aphé**t**-ic

[53] Plag (1999: 174) recognises the relevance of stem-allomorphy (only!) in these cases but does not mention that the formations in question exhibit a blending of phonological structure. Instead he claims that the relevant verbs are based on the *t*-final allomorphs (1999: 175). In addition, Plag claims that the selection of these allomorphs is lexically conditioned (i.e. the feature Greek associated with certain words) and explicitly distinguishes them from phonologically conditioned allomorphs. By contrast, I claim that while the *existence* of stem allomorphs is a fact about the lexicon their *selection* is phonologically conditioned.

[54] Steriade (1999: 248) analyses the form *buréaucratism* as a split-base effect, where *buréaucracy*, which supplies the stress, is selected for phonological reasons, and *búreaucrat*, which supplies the stem-final *-t*, is selected for semantic reasons. No such semantic account is plausible for the relevant cases of *-ise*-suffixation.

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However, there is no systematic explanation for why stem-final *t* is used in (99a) to satisfy SHELL, but not in (100a). Although the *OED* insists that *sýnthetìse*, not *sýnthesìse*, is the 'correct' form and *hypóthetìse* is also attested, it is clear that speakers do not resolve the relevant conflicts in a consistent manner.

(100)	a.	b.	c.
	sýnthe**s**ìse	**sýnthes**-is	synthét-ic
	hypóthe**s**ìse	**hypóthes**-is	hỳpothét-ic
	parénthe**s**ìse	**parénthes**-is	parenthét-ic
	émpha**s**ìse	**émphas**-is	emphát-ic

In (100) we see plain SUBCAT(Wd) effects to satisfy OCP-ONSET, even though 'blending' would have yielded further phonological improvement (e.g. *sýnthetìse*). This observation suggests that speakers are more reluctant to violate *BLEND than to violate SUBCAT(Wd). The separation of the two constraints is supported by the fact that in English *-ise* formation *BLEND is never violated if violation of SUBCAT(Wd) would yield comparable results, as illustrated in (101). The candidates *écstasìse* and *écstatìse* are comparable in that one violates OCP-SHELL and the other violates OCP-ONSET. Also, both *fántasìse* and *fántastìse* violate OCP constraints.

(101)	a. *violates only* SUBCAT(Wd)	b. *also violates* *BLEND
écstas-y, ecstátic	écstasìse	*écstatìse
metástas-is, metastát-ic	metástasìse	*metástatìse
fántas-y, fantást-ic	fántasìse	*fántastìse

The formations in (101b) are ungrammatical despite the licensing of all of their surface properties by potential base forms. This is because the boldfaced forms in (101) make blending superfluous. This generalisation is accounted for by ranking *BLEND above SUBCAT(Wd).

The separation of the two constraints is further supported by the fact that for some affixes (e.g. *-ify*, *-ee*) there are regular SUBCAT(Wd) violations, but no violations of *BLEND.

4.2.6 *A summary of the description of* -ise-*suffixation.* The data reviewed here suggest that *-ise* formation is restricted by an interaction of constraints which can be divided into three blocks, according to the 'violability' patterns shown in (102). I have ranked MPARSE between the last two blocks.

(102)	a. *strictly inviolable*		b. *rarely violated*		c. *regularly violated under domination*
	PU[stress] PU[seg] MIN-STEM	⩥	*CLASH *V.V *OCP-ONS SHELL	⩥ MPARSE ⩥	MAX-4σ *BLEND SUBCAT(Wd)

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The first block, (102a), includes all PU constraints and MIN-STEM. The second block, (102b), contains phonological markedness constraints. The third block, (102c), contains miscellaneous constraints, including *BLEND and SUBCAT(Wd).

The claim that the constraints in (102a) are strictly inviolable is supported by the complete absence of counterexamples among the attested *-ise* formations. More importantly, coinages involving violations are strongly rejected by native speakers.

(103)	abrúpt + ise	⇒ **ábruptìse	PU[stress]
	búffalo + ise	⇒ **búffalìse	PU[seg]
	zéro + ise	⇒ **zéronìse	PU[seg]
	fúr-y + ise	⇒ **fúrìse	MIN-STEM

(102b) contains the markedness constraints, which are occasionally violated. Some examples of attested violations are given in (104):

(104)	cocáin + ise	⇒ *cocáinìse	*CLASH
	strýchn-ine + ise	⇒ *strýchninìse	*OCP-ONSET
	dilettánt + ise	⇒ *dilettántìse	*CLASH, *OCP-ONSET
	líbr-ary + ise	⇒ *líbraryìse	*V.V

It is this batch which I have referred to as 'miscoinages' in this paper. In §2.3 I suggested that these coinages indicate that for some speakers the ranking between MPARSE and individual phonological markedness can be reversed. The most important generalisation about these coinages is that they cannot be improved upon. Any type of phonological repair would render them utterly ungrammatical (e.g. ***cócainìse*). For inputs including monosyllabic stems it holds that stem selection would entail a drastic further deterioration (***strýchnìse*, ***líbrìse*).[55] This observation can perhaps be explained by some sort of ban on the reversal of non-adjacent constraints (i.e. MPARSE and the first block of constraints in (102)). Yet, as was noted earlier, different degrees of ungrammaticality are not easily expressed in the MPARSE model, which in my view is the main weakness of this approach.

Returning to the CONTROL model, we can show that *all* morphological markedness constraints from the second block in (102) would have to be ranked between the constraints from the first block and SUBCAT(Wd) in EVAL (to describe phonologically conditioned stem selection) and in addition be included in CONTROL (to describe phonologically conditioned gaps). The severity of the constraint-duplication problem for the CONTROL model is seen in (105):

[55] It is true of course that many of the cases of stem selection presented above are also rejected by native speakers. But there rejection has entirely different causes. As was noted above, speakers who analyse *nícotìne* as a simplex will be appalled by the formation *nícotìse*, because of the massive violation of PU[seg]. Other speakers are generally reluctant to resort to blending or stem selection, which indicates that for them *BLEND and SUBCAT(Wd) dominate MPARSE.

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(105)

Eval	PU[stress], PU[seg], Min-Stem	*Clash, *V.V, OCP-Ons, Shell	Subcat(Wd), *Blend	*Lapse
Control	*Clash, *V.V, OCP-Ons, Shell			

Conceptually, the ranking of the strictly inviolable constraints in Eval rather than Control might be undesirable, but is necessary both for selecting the best candidate (to be carried out in Eval) and for describing certain PU effects (e.g. the *Lapse violations discussed in (54)).

The sort of constraint-duplication problem for the Control model seen in (105) is not specific to *-ise*-suffixation. For *-ee*-suffixation, too, the constraint OCP-Onset must dominate Subcat(Wd) in Eval (to describe (89a) *vs.* (89b)) and also be assigned to Control (to describe the gap in (90c)). A careful investigation shows that all English affixes exhibiting phonologically conditioned gaps suffer from the constraint-duplication problem when described in the Control model. The evidence from *-ify*-suffixation, also important for supporting the claim that constraint ranking is affix-specific, is reviewed in the next section.

4.3 Subcat effects in *-ify*-suffixation

A comparison of the native verb formations in (106a, b) illustrates why *-ise* is often classified as a stress-neutral suffix, thereby contrasting with 'stress-shifting' *-ify*.

(106)

a.	b.	c.
rígidìse ~ rígid	rigídifỳ [1842]	rigíd-ity [1624]
flúidìse ~ flúid	fluídifỳ [1837]	fluíd-ity [1603]
ídolìse ~ ídol	idólifỳ [1838]	idól-atry [1250]
héroìse ~ héro	heróifỳ [1812]	heró-ic [1549]
Énglishìse ~ Énglish	Énglifỳ [1829]	Éngl-ish [880]
sólemnìse ~ sólemn	solémnifỳ [1780]	solémn-ity [1290]
eléctricìse ~ eléctric	eléctrifỳ [1745]	eléctr-ic [1646]
équalìse ~ équal	equálifỳ [1679]	equál-ity [1400]
tránquilìse ~ tránquil	tranquílifỳ [1683]	tranquíl-ity [1374]
métalìse ~ métal	metállifỳ [1887]	metáll-ic [1567]
próbabilìse ~ próbable	probabílifỳ [1936]	probabíl-ity [1551]
mágnetìse ~ mágnet	magnétifỳ [1650]	magnét-ic [1634]
vírilìse ~ vírile	virílifỳ [1849]	viríl-ity [1586]
húmanìse ~ húman	humánifỳ [1629]	humán-ity [1382]
ángelìse ~ ángel	angélifỳ [1653]	angél-ic [1485]

On close examination, *-ify* is like other verbal affixes in that word formation always satisfies PU[stress]. Specifically, for every case of apparent stress shift there is a plausible supplier of the relevant stem, given in (106c). The dates in brackets, which refer to the first citation in the *OED*, have been added to support the analysis in terms of stem selection. The main argument for stem selection concerns the utter ungrammaticality of

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'stress shift' in cases where no suitable stem form exists. The optimal outcome here is a gap, such that PU[stress] violators are worse than *LAPSE violators:[56]

(107)

rándom + ifý	⇒ ∅	*rándomifỳ	**randómifỳ
prívat + ifý	⇒ ∅	*prívatifỳ	**privátifỳ
túnnel + ifý	⇒ ∅	*túnnelifỳ	**tunnélifỳ
stúbborn + ifý	⇒ ∅	*stúbbornifỳ	**stubbórnifỳ

The true generalisations indicated in (106) and (107) are expressed by the rankings in (108a, b). Like *-ise*, the suffix *-ify* does not attach to stems freely, but only under constraint domination.

(108) a. *-ify* PU[stress] ≫ *LAPSE ≫ MPARSE ≫ SUBCAT(Wd)
b. *-ise* PU[stress] ≫ MPARSE ≫ SUBCAT(Wd) ≫ *LAPSE

The by now familiar constraint-duplication problem for a description of *-ify*-suffixation in the CONTROL model is shown in (109):

(109)

EVAL	PU[stress]	*LAPSE	SUBCAT(Wd)
CONTROL	*LAPSE		

The violability of SUBCAT(Wd) for *-ify*-suffixation can be demonstrated independently by the 'trisyllabic laxing' patterns in (110). Informally speaking, the constraint TRISYLLABICLAXING prohibits the occurrence of long vowels or diphthongs before two syllables, the first of which is stressless (cf. recent historical changes such as [éɪ]*pricot* > [æ]*pricot*, *t*[iː]*nable* > *t*[ɛ]*nable*). Significantly, for native *-ify* formation TRISYLLABIC LAXING is satisfied whenever the relevant stem forms with lax vowels are included in the respective paradigms, as in (110a). In (110b) it can be seen that unavailability of such forms results neither in repair nor in gaps, but rather in a violation of TRISYLLABICLAXING to satisfy the constraint PU[seg], which also requires identity of stem vowels.

(110) a.

opacify	{op[éɪk], **op[æs]-ity**, …}
sanify	{s[eɪ]n, **s[æ]n**-itary, …}
typify	{t[aɪ]p, **t[ɪ]p**-ical, …}
divinify	{div[aɪ]ne, **div[ɪ]n**-ity, …}
Spanify	{Sp[eɪ]n, **Sp[æ]n**-ish, …}
metrify	{m[iː]tre, **m[ɛ]tr**-ic, …}

[56] Analogous to the rare *CLASH violations in *-ise* formations when no suitable stem exists (*cocáinìse*, *propagándìse*), there are also sporadic cases where *-ify* violates *LAPSE because of the lack of suitable stem forms:

(i)

étherifỳ	{**éther**, éther-ic, …}
álkalifỳ	{álkali, **álkal**-ine, **álkal**-oid, …}

The etymologically related adjective *ethérial* is semantically too distant to supply a more suitable stem form (i.e. *ether* 'a colourless liquid produced by the action of acids on alcohol' *vs*. *ethereal* 'light and delicate, especially in appearance'). Here, too, inviolable PU[stress] prohibits stress shift to the stem-final syllable, despite the fact that the remaining 200 or so *-ify* formations do exhibit stem-final stress.

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b. neatify {**n[iː]t**}
steelify {**st[iː]l**}
grossify {**gr[oʊ]ss**}
stonify {**st[oʊ]ne**}

The patterns in (110) are described by the ranking in (111a):[57]

(111) a. *-ify* PU[seg] ⩥ MPARSE ⩥ TRISYLLABICLAXING ⩥ SUBCAT(Wd)
b. *-ise* PU[seg] ⩥ MPARSE ⩥ SUBCAT(Wd) ⩥ TRISYLLABICLAXING

The reversal between TRISYLLABICLAXING and SUBCAT(Wd) posited for *-ise*-suffixation in (111b) is based on the observation that the suffix *-ise* never selects stems to satisfy TRISYLLABICLAXING. Instead, the suffix attaches to the words in (112):

(112) naturise {**n[eɪ]ture**, n[æ]tur-al, …}
vapourise {**v[eɪ]pour**, ev[æ]por-ate, …}
penalise {**p[iː]nal**, p[ɛ]nal-ty, …}

In view of the fact that the acceptance of my arguments for the MPARSE model and against CONTROL is likely to depend considerably on the acceptance of affix-specific constraint rankings I will end this section by noting the ranking differences in (113). Recall that for the suffixes *-ise*, *-able* and *-ee*, violation of MIN-STEM is strictly ungrammatical (e.g. *crís-is+ísе*, ***crísìse*), which indicates the ranking in (113a). By contrast, for *-ify*, attachment to monosyllabic stems is unobjectionable (e.g. *sanify*, *typify* in (110a)), which indicates the reverse ranking. The same holds for the adjectival suffixes *-al*, *-ic* and *-oid*.

(113) a. *-ise*, *-able*, *-ee* MIN-STEM ⩥ MPARSE
b. *-ify*, *-al*, *-ic*, *-oid* MPARSE ⩥ MIN-STEM

To summarise, a careful comparison of *-ise* and *-ify* formations shows that both suffixes are associated with inviolable PU constraints (PU [stress] and PU[seg]), and both allow for phonologically conditioned stem selection (i.e. MPARSE dominates SUBCAT(Wd)). However, they differ systematically with respect to the ranking of other constraints, which supports the claim that each (cohesive) affix is associated with an individual ranking of constraints.

4.4 A note on SUBCAT(Wd) effects

The central argument against the CONTROL model rests on the existence of the constraint SUBCAT(Wd), based on Aronoff's hypothesis of word-based word formation cited below (1976: 21):

> All regular word-formation processes are word-based. A new word is formed by applying a regular rule to a single already existing word. Both

[57] A similar effect is seen in agentive *-er*-suffixation, where *V.V is satisfied whenever the relevant stem form exists (e.g. *philósoph-y+er* ⇒ *philosópher*), but violated otherwise (e.g. *accómpany+er* ⇒ *accómpani.er*).

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the new word and the existing one are number of major lexical categories.

Cases where affixes do attach to derivational stems, rather than words, are explained by Aronoff in terms of morphological truncation. That is, formations like *relegable* are formed by first attaching the suffix to the word *relegate* to yield *releg+ate+able* and by subsequently truncating the morpheme *ate*. This analysis has been much criticised, because there is no evidence for the stage prior to truncation. This particular weakness in Aronoff's analysis is eliminated in the OT analyses presented here, where the constraint SUBCAT(Wd) is associated with each rule of affixation, but is, like all constraints, violable under domination. That is, given the input *réleg+àte+able*, the candidate *rélegable* is preferred to *rélegàteable* because it satisfies *WEAKFINAL in (87), which dominates SUBCAT(Wd). Basically, the demands on syntax (i.e. word-basedness) are sacrificed to specific demands on euphony. The observation that affixes such as *-ise* or *-ify* do not freely combine with derivational stems, but only to satisfy phonological constraints, supports Aronoff's hypothesis of word-based morphology.

There is one additional point in need of clarification here. While it is central to my description that there is always a word which plays a decisive role in the *genesis* of each coinage I would not claim that this word necessarily remains in the picture in subsequent use. For example, according to the *OED*, *óptimìse* is historically based on *óptimìsm*, where OCP violation (**óptimìsmìse*) is avoided by stem selection. Once formed, *óptimìse* is no longer tied to *óptimìsm*. Rather, learners will assign an interpretation to *óptimìse* based on their preferred (for whatever reasons) associations with the stem *óptim-*. That is, while *óptimìse* was presumably (only the coiner knows for sure) based uniquely on *óptimìsm* when first coming into existence, other words (e.g. *óptim-um*, *óptim-al*), or perhaps the bare stem *óptim-*, might serve as a subsequent semantic base.[58]

The analysis of English morphophonology crucially referring to SUBCAT(Wd) differs from Steriade's (1999) analyses in terms of split-base effects. On her view, a word can have distinct syntactic, semantic and phonological bases. For instance, she claims that the verbs in (114b) are the syntactic bases on the *-able* formations in (114a), whereas the adjectives in (114c) function as their phonological base, supplying the superior stress pattern (cf. Steriade 1999: 244ff).

(114) a. remédiable
demónstrable

b. rémedy]$_{V}$
démonstràte]$_{V}$

c. re**mé**dial]$_{A}$
de**món**strative]$_{A}$

The theoretical significance of the claim lies in the fact that the adjectives in (114c) are excluded from the morphosyntactic domain of

[58] When specifying for instance *fémin-ine+ise* as an input for the formation *féminise*, I am not claiming that *fémin-ine* (rather than *fémin-ism*, *fémin-ist*, *fémin-in-ity*) is the authentic historical base. Rather, the ranking describes the optimal output, given such an input.

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-able-suffixation. However, it appears that the two *-able*-suffixations given in (114) differ in that *remédiable* is always pronounced with stress on the second syllable, whereas, according to Wells (1990), *demónstrable*, preferred by 63% of British English speakers, is in competition with *démonstrable*, preferred by the other 37%. Preference for the phonologically awkward *démonstrable* is remarkable in that this is the innovative form, where initial stress clearly serves to satisfy PU[stress] with respect to the relatively recently shifted stress in the verb stem *démonstr-àte* (from earlier *demónstràte*). It apears then that the innovative form exhibits a SUBCAT(Wd) effect to satisfy *WEAKFINAL, rather than a split-base effect. Given the existence of the verb *remédi-àte*, the exceptionless stress in *remédiable*, which means 'can be remediated', lends itself to the same analysis. The data in (114) are accordingly in line with a more restricted model, according to which phonological bases are regularly supplied by words with the proper syntactic category.[59]

4.5 A critique of Plag (1999)

My description of English *-ise*-suffixation differs markedly from Plag's (1999) description, in which phonological repair plays a major role, regular stem selection is explicitly denied and phonologically conditioned gaps are not recognised. The recognition of regular repair and the non-recognition of gaps are connected, because the availability of repair eliminates gaps. In this section I will review Plag's evidence and argue that his conclusions are based on a dubious analysis of the relevant data.

As the data reviewed above lead one to expect, phonological repair is often better analysed as stem selection. The *-ise* formations in (115a) are claimed to be formed 'on the basis of schwa-final bases' (1999: 176). In the first three words, satisfaction of the constraint *ə.V, which prohibits

[59] Whether or not there are genuine 'split-base effects', the evidence for 'Priscian rules' illustrated in (i) is indisputable. For instance, Matthews (1991: 195) notes that in Latin the 1st singular imperfect subjunctive is regularly derived by attaching *-m* to the present infinitive active form, a rule devoid of any semantic justification (cf. (i.a)). Clear evidence for the 'reality' of this rule is seen in (i.b), where the correspondence, especially in highly in irregular forms such as *esse*, could hardly be accidental:

(i) a. Present infinitive active [X] → 1st singular imperfect subjunctive → [Xm]

b.	vocáre	vocárem	'I would call'
	monére	monérem	'I would admonish'
	péllere	péllerem	'I would push'
	ésse	éssem	'I were'

The Latin example differs from Steriade's analysis of *remédiable* in that a specific slot in the paradigm supplies the regular phonological base (rather than being determined on a case-by-case basis). Moreover, while that member functions as the phonological base there is no other member of the paradigm which functions as the syntactic or semantic base. It appears that Priscian rules exist only in inflectional morphology, perhaps precisely because the concept of base does not exist there.

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schwa–vowel sequences (cf. Plag 1999: 177), is achieved by violating PU[seg], as shown in (115b):

(115) a. judaise, Mithraise, hebraise, Utopia-ise
b. Júd[ə] + íse ⇒ Júd[èɪ]ìse

Evidence that the alternation in (115b) results not from repair, but from stem selection, is presented in (116a). The dates given in brackets are again the earliest attested occurrences in the *OED*. The claim that *-ise* is simply not capable of the repair depicted in (115b) is illustrated in (116b), where the relevant stem forms do not exist.

(116) a.	{Júd[ə] *Judah*, Júd[èɪ]-ism *Judaism* [1251], …}	Júd[èɪ]ìse [1582]
	{Míthr[ə] *Mithra*, Míthr[èɪ]-ism *Mithraism* [1822], …}	Míthr[èɪ]ìse [1890]
	{hébr[èɪ]-ism *hebraism* [1570], …}	hébr[èɪ]ìse [1645]
b.	{Chín[ə] *China*, …}	**Chín[èɪ]ìse]
	{vaníll[ə] *vanilla*, …}	**vaníll[èɪ]ìse]

The patterns in (116) are described by the constraint ranking in (117):

(117) *ə.V ⩥ *V.V ⩥ MPARSE ⩥ SUBCAT(Wd)

For the remaining formation in (115a), *Utopia-ise*, the constraint *ə.V is claimed to be satisfied by glottal stop insertion, at the expense of violating DEP:

(118) Utopi[ə] + íse ⇒ Utopi[əʔ]ìse

The problem with this analysis concerns the illicit mixing of levels of representation. The occurrence of the glottal stop is an automatic result of phonetic implementation, which cannot give rise to phonological contrast. As a result, a minimal pair such as (119) is impossible in English:

(119) X[əàɪ]Y ~ X[əʔàɪ]Y

Treating the sort of low-level phonetic epenthesis seen in (118) in the same way as lexical DEP violations (there are no examples in English) destroys the basis for morphophonological explanation. That is, it is precisely the irreparability of the *ə.V violation which is responsible for the systematic gap in *-ise* formation based on schwa-final stems. Assuming that words are formed in the lexicon, the availability of subphonemic automatic 'repair' mechanisms cannot affect the speaker's choice of whether to coin or not to coin. *Utopia-ise*, listed as a nonce word in the *OED*, is the exception that proves the rule: the use of the hyphen again betrays the fact that schwa-final stems and *-ise* simply do not go together. These observations are described by ranking DEP (or the more comprehensive constraint PU[seg]) and *ə.V above MPARSE, such that the Null

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Parse emerges as the winner. They are obscured by analysing the DEP violator *Utopi*[əʔ]*ìse* as the optimal candidate.

Other cases of alleged repair in *-ise* formation presented by Plag fall in the same category. Plag describes a rule of glide insertion to break up hiatus in (120) by ranking DEP below ONSET (1999: 181, 200):

(120) dandy + íse ⇒ dandy[j]ise
radio + íse ⇒ radio[w]ise

It is unclear if Plag intends to claim that *radio-ise* is (or can be) homophonous to *radio-wise*. It appears that speakers of English do not have a systematic phonetic contrast between *-ise* formations with stem-final vowels and other phonemically comparable strings within phonological words. That is, there is no rule of glide insertion which distinguishes the bracketed strings in (121), thereby resulting in systematic phonetic contrast:

(121) dand[i$^{(j)}$àɪ]z *dandyise* ~ nucl[i$^{(j)}$àɪ] *nuclei*
radi[əu$^{(w)}$àɪ]z *radioise* ~ astr[əʊ$^{(w)}$áɪ]te *astroite*

The unavailability of contrast is a direct consequence of the inviolability of DEP in the lexical phonology of English. Again, it is precisely the unavailability of a hiatus buffer in the lexicon which explains the gaps in (66) above.[60]

To summarise the discussion up to this point, Plag's cases of phonological repair fall into two categories: non-recognition of the evidence for stem selection and failure to properly separate the lexical from the phonetic level of description. Possible reference to internal morphological structure is occasionally considered but rejected. For instance, Plag argues that *metáthesìse*, based on *metáthesis*, can only be explained by strictly phonological repair, adding 'unless one assumes that *-is* is a nominal suffix in English, which would be a truly innovational but nevertheless unconvincing claim' (1999: 192).[61] This assumption is neither innovative (reference to a nominal suffix *-is* is standard in detailed descriptions of English stress; cf. Chomsky & Halle 1968, Fudge 1984) nor unconvincing. Consider the native formations in (122a), which exhibit '*-is*-deletion'. The question is: why is '*-is*-deletion' possible in (122a), but not in (122b)?

[60] The fact that there are several attested coinages based on [i] or [o]-final stems, but none on schwa-final stems (*Utopia-ise* aside), indicates that for some speakers the ranking between *V.V and MPARSE can be reversed, whereas the ranking between *ə.V and MPARSE is irreversible. A possible reason for this difference is that *ə.V dominates *V.V and is therefore non-adjacent to MPARSE.

[61] After dismissing the possible analysis of *metathes-is* as consisting of stem + suffix *-is* Plag continues: 'to complicate the situation, the only bound stem allomorph that does exist ends in *-t-* (as in *metathetical*), and it is mysterious why *-ise* would not select this stem allomorph if it prefers bound stems with these kinds of base lexemes' (1999: 192). My claim is that *-ise* never *prefers* to select bound stems, but it can do so if the selection of the complete word violates certain phonological constraints. In this case phonology warrants stem selection. Plag's 'mystery' is explained by the stress pattern of the bound stem *mètathét-ical*: *-ise* prefers *metáthes-is* with non-final stress.

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(122) a. **glótt**-is + al ⇒ glóttal **sýphil**-is + óid ⇒ sýphilòid
clítor-is + al ⇒ clítoral **oás**-is + al ⇒ oásal
pélv-is + ic ⇒ pélvic **cánnab**-is + ic ⇒ cannábic

b.

tennis	*tennal	*tennoid	*tennic
missis	*missal	*missoid	*missic
Paris	*Paral	*Paroid	*Paric

A possible answer is that words classified as scientific borrowings associated with the fields of anatomy, geography, etc. are likely to be analysed in terms of stem + suffix, as is illustrated in (122a).[62] This excludes both the words in (122b) and words like *oasis* and *cannabis*, in their more ordinary usage.[63]

Plag's strongest evidence to support phonological repair in *-ise* formation is the case of apparent secondary stress deletion shown in (123):

(123) a. fémàle + ise ⇒ fém[ə]lìse
ánòde + ise ⇒ án[ə]dìse
sílàne + ise ⇒ síl[ə]nìse
pódzòl + ise ⇒ pódz[ə]lìse
mícròn + ise ⇒ mícr[ə]nìse

b.

sátìre + ise	⇒ sát[ə]rìse	cf.	**sát[ə]r**-ist
nómàd + ise	⇒ nóm[ə]dìse		**nóm[ə]d**-ism
róbòt + ise	⇒ rób[ə]tìse		**ròb[ə]t**-ology
péptòne + ise	⇒ pépt[ə]nìse		**pépt[ə]n**-àte
ázòte + ise	⇒ áz[ə]tìse		**áz[ə]t**-ine
kétòne + ise	⇒ két[ə]nìse		?**kèt[ə]n**-émia

For the verbs in (123b) an analysis in terms of phonologically conditioned stem selection is conceivable, but not always plausible (e.g. *nomadise* is attested earlier than *nomadism*, according to the *OED*). For the five cases in (123a) the paradigms include no suppliers of the suitable stem forms. However, Plag's claim that secondary stress deletion before the suffix *-ise* is entirely regular is incorrect. In the *OED*, the cases of stress deletion as in (123) are outnumbered by cases with faithful stress retention, as in (124). Secondary stress is always retained if a stressless syllable precedes (cf. (124b)):

(124) a.

prótèin + ise	⇒ prótèinìse	cápsùle + ise	⇒ cápsùlìse
créòle + ise	⇒ créòlìse	prélùde + ise	⇒ prélùdìse
cóncrète + ise	⇒ cóncrètìse	ózòne + ise	⇒ ózònìse
fínìte + ise	⇒ fínìtìse	hórmòne + ise	⇒ hórmònìse
díphthòng + ise	⇒ díphthòngìse	cómmùne + ise	⇒ cómmùnìse

[62] Cf. also *nícot-ine*, potentially analysed as complex, *vs.* simplex *mágazìne* or *márgarìne*.

[63] Non-recognition of the proper role of stems in morphophonology also prevents explanation of the MIN-STEM effects discussed in (106)–(108). Plag's claim that candidates like ***crísìse* (based on *crís-is*) and ***fúrìse* (based on *fúr-y*) are ruled out by *CLASH violations raises the question of why other *CLASH violators, including stem-based *synópsìse* (based on *synóps-is*) or word-based *Sérbìse* (based on *Sérb*), could come into existence.

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b. cátalògue + ise	⇒ cátalòguìse	ábsolùte + ise	⇒ ábsolùtìse
áerosòl + ise	⇒ áerosòlìse	párallèl + ise	⇒ párallèlìse
álcohòl + ise	⇒ álcohòlìse	prótocòl + ise	⇒ prótocòlìse
chóriàmb + ise	⇒ chóriàmbìse	álphabèt + ise	⇒ álphabètìse
épidòte + ise	⇒ épidòtìse	vágabònd + ise	⇒ vágabòndìse

More importantly, when confronted with nonce formations speakers invariably prefer the candidate in which secondary stress is retained, as in (125a), to the one with deleted stress, as in (125b):

(125) ásphàlt + ise	⇒	a. ?*ásphàltìse	b.	**ásph[ə]ltìse
ínsèct + ise	⇒	?*ínsèctìse		**íns[ə]ctìse
trómbòne + ise	⇒	?*trómbònìse		**trómb[ə]nìse
pérfùme + ise	⇒	?*pérfùmìse		**pérf[ə]mìse

The preferences in (125) indicate that deletion of secondary stress in (123a) is not a fact about the suffix *-ise*. Rather, stress deletion results from the phonological markedness of three adjacent stressed syllables. Once words with this pattern exist, they are prone to be adjusted to the more regular stress patterns in English. The important observation is that *-ise* formations probably cannot 'start out' with deleted stress as in (125b), but only with retained stress, as in (125a). That is, while the data in (124b), with stable secondary stress (as opposed to (123), with (historically) deleted secondary stress), may call for a break up of the markedness constraint *Clash into several fine-grained constraints (whose ranking with respect to MParse will be difficult to decide), the ranking of PU[stress] above MParse stands up.

In contrast to cases like *Utopia-ise, metástasise* or *femalise*, where Plag posits regular phonological repair, there is one case where an analysis in terms of allomorphy is proposed. Specifically, the absence of *-ise*-suffixation to stems with final main stress is analysed in terms of a suppletive relation between the suffixes *-ise* and *-ify*. Specifically, Plag claims that both suffixes are associated with a unique ranking of constraints, which results in a systematic preference for stems with final stress for the suffix *-ify* and stems with non-final stress for the suffix *-ise*. The non-occurrence of ***kárstìse*** or ***rándomifỳ*** is then captured without referring to MParse (1999: 199). The intended effect is illustrated in (126). (Plag uses somewhat different constraints.)

(126)

		*Clash	*Lapse
a.	random+ise/ify		
	☞ i. rándomìse		
	ii. rándomifỳ		*!
b.	karst+ise/ify		
	i. kárstìse	*!	
	☞ ii. kárstifỳ		

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Plag concedes that phonologically conditioned suppletion is rare in derivational morphology (1999: 204). The analysis in (126) is refuted by the fact that *-ise* and *-ify* cannot in fact be described by a unique ranking of constraints, as was shown in §4.3.[64]

5 Conclusion

In this paper I have presented evidence that absolute ungrammaticality can be described in terms of ranked and violable constraints, crucially involving the constraint MPARSE, as originally envisaged by Prince & Smolensky (1993). In fact, it can be shown that the remarkable predictions regarding specific correlations between morphophonological effects entailed by this model are supported by the English data. The MPARSE model is therefore superior to the weaker CONTROL model proposed by Orgun & Sprouse (1999), which is moreover flawed by the need to have systematic constraint duplication to account for SUBCAT effects.

While supporting the central tenet of OT that grammar can be described in terms of ranked and violable constraints, the data reviewed here do not support the idea that a language exhibits a unique ranking of constraints. In fact, there is clear evidence that every (cohering) affix in English is associated with a distinct ranking of universal constraints, although specific subrankings hold for all affixes (e.g. PU[seg] ≫ MPARSE), or for all affixes with a specific property (e.g. PU[stress] ≫ MPARSE for all verbal morphology). The often repeated claim that morphophonology exhibits stratal organisation is not supported.

REFERENCES

Anderson, Stephen (1992). *A-morphous morphology*. Cambridge: Cambridge University Press.

Aronoff, Mark (1976). *Word formation in generative grammar*. Cambridge, Mass.: MIT Press.

Aronoff, Mark (1983). Potential words, actual words, productivity and frequency. In Shirô Hattori & Kazuko Inoue (eds.) *Proceedings of the 13th International Congress of Linguists*. Tokyo: CIPL. 163–171.

Becker, Thomas (1990). *Analogie und morphologische Theorie*. Munich: Fink.

Beckman, Jill N. (1998). *Positional faithfulness*. PhD dissertation, University of Massachusetts, Amherst.

[64] For additional evidence against the analysis in (126) I refer the reader to Raffelsiefen (2004: ch. 11). In general, there is no good evidence for phonologically conditioned suppletion in derivational morphology, including the alleged optimisation of the zero allomorph, rather than a gap, in *corrúpt + íse* suggested by a reviewer. The irrelevance of the verb *to corrupt* to the gap in *-ise* formation is demonstrated by the fact that CLASH-related gaps are equally systematic if no corresponding verb is attested (**absúrd + íse* ⇒ ∅ even though *absúrd*]$_V$ ∉ L; **compléx + íse* ⇒ ∅ even though *compléx*]$_V$ ∉ L, etc.). In fact, as pointed out by Anthony Dubach Green (personal communication), conversion of polysyllabic adjectives to verbs is rare in English, where apparent counterexamples, including the verb *corrupt*, are typically borrowed as verbs.

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Brown, A. F. (1963). *Normal and reverse English word list*. Philadelphia: University of Pennsylvania.
Chomsky, Noam & Morris Halle (1968). *The sound pattern of English*. New York: Harper & Row.
Fanselow, Gisbert & Caroline Féry (2002). Ineffability in grammar. In Gisbert Fanselow & Caroline Féry (eds.) *Resolving conflicts in grammar: Optimality Theory in syntax, morphology, and phonology*. Hamburg: Buske. 265–307.
Fudge, Erik (1984). *English word-stress*. London: George Allen & Unwin.
Giegerich, Heinz (1999). *Lexical strata in English: morphological causes, phonological effects*. Cambridge: Cambridge University Press.
Goldsmith, John (1990). *Autosegmental and metrical phonology*. Oxford & Cambridge, Mass.: Blackwell.
Inkelas, Sharon & Cemil Orhan Orgun (1995). Level ordering and economy in the lexical phonology of Turkish. *Lg* **71**. 763–793.
Itô, Junko & Jorge Hankamer (1989). Notes on monosyllabism in Turkish. In Junko Itô & Jeff Runner (eds.) *Phonology at Santa Cruz 1*. Santa Cruz: Linguistics Research Center. 61–69.
Janda, Richard (1998). Comments on the paper by Perlmutter. In Lapointe *et al*. (1998). 339–359.
Kristoffersen, Gjert (1991). *Aspects of Norwegian syllable structure*. PhD dissertation, University of Tromsø.
Lapointe, Steven G., Diane K. Brentari & Patrick M. Farrell (eds.) (1998). *Morphology and its relation to phonology and syntax*. Stanford: CSLI.
Lees, Robert (1961). *The phonology of Modern Standard Turkish*. Bloomington: Indiana University.
McCarthy, John J. (2002). *A thematic guide to Optimality Theory*. Cambridge: Cambridge University Press.
McCarthy, John J. (2003). OT constraints are categorical. *Phonology* **20**. 75–138.
Matthews, Peter H. (1991). *Morphology*. 2nd edn. Cambridge: Cambridge University Press.
Morin, Yves-Charles (1992). Un cas méconnu de la déclinaison de l'adjectif français: les formes de liaison de l'adjectif antéposé. In André Clas (ed.) *Le mot, les mots, les bons mots*. Montreal: Presses de l'Université de Montréal. 112–128.
OED (1992). *The Oxford English Dictionary*. 2nd compact disc edn. Oxford: Oxford University Press.
Orgun, Cemil Orhan & Ronald L. Sprouse (1999). From MPARSE to CONTROL: deriving ungrammaticality. *Phonology* **16**. 191–224.
Perlmutter, David (1998). Interfaces: explanations of allomorphy and the architecture of grammars. In Lapointe *et al*. (1998). 307–338.
Plag, Ingo (1999). *Morphological productivity: structural constraints in English derivation*. Berlin: Mouton de Gruyter.
Prince, Alan & Paul Smolensky (1993). *Optimality Theory: constraint interaction in generative grammar*. Ms, Rutgers University & University of Colorado, Boulder.
Raffelsiefen, Renate (1993a). Relating words: a model of base recognition. *Linguistic Analysis* **23**. 3–164.
Raffelsiefen, Renate (1993b). *Liaison im Französischen: eine Analyse im Rahmen der Optimalitätstheorie*. Paper given at the Optimality Workshop, Düsseldorf.
Raffelsiefen, Renate (1996). Gaps in word formation. In Ursula Kleinhenz (ed.) *Interfaces in phonology*. Berlin: Akademie Verlag. 194–209.
Raffelsiefen, Renate (1999). Phonological constraints on English word formation. *Yearbook of Morphology 1998*. 225–287.
Raffelsiefen, Renate (2004). *Phonological effects in word formation*. Habilitationsschrift, Free University of Berlin.

https://doi.org/10.1017/S0952675704000144 Published online by Cambridge University Press

Raffelsiefen, Renate (to appear). Paradigm uniformity effects versus domain effects. In Laura Downing, T. A. Hall & Renate Raffelsiefen (eds.) *Paradigms in phonological theory*. Oxford: Oxford University Press.
Rice, Curt (2003). Dialectal variation in Norwegian imperatives. *Nordlyd* (*Tromsø University Working Papers on Language and Linguistics*) **31**. 372–384.
Sezer, E. (1981). The k/∅ alternation in Turkish. In G. N. Clements (ed.) *Harvard studies in phonology*. Vol. 2. Bloomington: Indiana University Linguistics Club. 354–382.
Shannon, Thomas (1991). On the relation between morphology and syllable structure: universal preference laws in Dutch. In Thomas Shannon & Johan Snapper (eds.) *The Berkeley conference on Dutch linguistics 1989*. Lanham, Md.: University Press of America. 173–205.
Smolensky, Paul (1995). On the internal structure of the constraint component *Con* of UG. Ms, Johns Hopkins University. Available as ROA-86 from the Rutgers Optimality Archive.
Steriade, Donca (1999). Lexical conservatism in French adjectival liaison. In J.-Marc Authier, Barbara E. Bullock & Lisa A. Reed (eds.) *Formal perspectives on Romance linguistics*. Amsterdam: Benjamins. 243–270.
Tranel, Bernard (1981). *Concreteness in generative phonology : evidence from French*. Berkeley & Los Angeles: University of California Press.
Tranel, Bernard (1990). On suppletion and French liaison. *Probus* **2**. 169–208.
Tranel, Bernard (1994). French liaison and elision revisited: a unified account within Optimality Theory. Paper given at the 24th Linguistic Symposium on Romance Languages, Los Angeles.
Tranel, Bernard (1999). Suppletion and OT: on the issue of the syntax/phonology interaction. *WCCFL* **16**. 415–429.
Vennemann, Theo (1988). *Preference laws for syllable structure and the explanation of sound change*. Berlin: Mouton de Gruyter.
Webster's Ninth New Collegiate Dictionary (1990). Springfield, Mass.: Merriam-Webster.
Wells, J. C. (1990). *Longman pronunciation dictionary*. Harlow: Addison Wesley Longman.
Zimmer, Karl & Barbara Abbott (1978). The k/∅ alternation in Turkish: some experimental evidence for its productivity. *Journal of Psycholinguistic Research* **7**. 35–46.

https://doi.org/10.1017/S0952675704000144 Published online by Cambridge University Press