THE CONSTRAINT ON PROXIMATE REPETITION AND PHONOLOGICAL EXPLANATION IN ENGLISH*

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In this paper, we show that proximate repetition of similar elements is maximally constrained in English (morpho)phonology. We specifically demonstrate that, other things being equal, the more similar, the more proximate, and the more numerous the repeated elements are, the more constrained the repetition tends to be.

This constraint on proximate repetition of similar elements is seen to manifest itself in five different ways. They are:

1. *Deletion/Suppression,* as in the derivation of *can't* from *"can + -n't,"* where one *n* gets suppressed.
2. *Replacement,* as in the use of *irides* as an alternative to *irises,* where *d* replaces the stem-final *s.*
3. *Insertion,* as in the use of the so-called intrusive *"r,"* as in "Ida *r* and John" for "Ida and John."
4. *Phonotactic Constraint,* as exemplified by the scarcity of the high-front vocalic sequence /yi(y)/ or of the high-back vocalic sequence /wu(w)/, especially post-consonantally.
5. *Stress/Vowel Alternation,* as in the derivation of *dèclărátiŏn* from *"dĕcláre + -átiŏn."*

Of these five devices, all but insertion are used quite pervasively in English phonology. We also see that replacement, among other devices, is frequently resorted to as a stylistic device.

Although the focus of this paper is on English phonology, we contend that the constraint on proximate repetition discussed here is not peculiar to English or, for that matter, to English phonology only. On the contrary, we suggest that it is a universal constraint operative at all levels of all human languages.

1. Introduction

I have claimed elsewhere (Park 1977a, 1977b, 1980, 1981, 1982a, 1982b, and 1983) that proximate repetition of similar elements is maximally constrained on all levels of linguistic structure. I have specifically argued that, other things being equal, *the more similar, the more proximate, and the more numerous the repeated elements are, the more constrained the repetition tends to be.*

I have also suggested that proximate repetition of similar elements is thus

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constrained evidently because it causes some sort of processing difficulty of either a productive or a receptive nature. The so-called *doubl-ing* constraint of Ross falls under the explanatory umbrella of the *c*onstraint on *p*roximate *r*epetition or CPR for short. So does the *like-case* constraint of Fillmore. Celebrated as they may be, these two constraints are a mere two special cases of our CPR and thus represent only a tiny tip of the CPR iceberg, as it were.

In fact, pressure on human language to keep away from proximate repetition of similar elements is so powerful and pervasive that no theory of language would be complete without an adequate account thereof. It appears that reduplication and repetition for emphasis are the only major types of repetition of similar elements allowed in human language.

The present paper is a continuation of my effort to demonstrate that an adequate theory of language should incorporate in one form or another something like the CPR, as summarized in the first paragraph of this paper. Focusing on the phonology of English, I will devote much of this paper to refining and expanding on points of phonological relevance that I have made in the papers cited above, especially Park (1977b, 1980, 1982b, and 1983).

2. CPR in English Phonology

In the remainder of this paper, I will show that proximate repetition of similar elements is indeed maximally constrained in English phonology. We will do this, specifically concerning ourselves with a number of different devices that English (phonology) employs in order to comply with the CPR. The devices to be discussed here are deletion and suppression, replacement, insertion, phonotactic constraints, and stress and vowel alternation in that order.

2.1. Deletion and Suppression

Deletion is one of the most frequently used devices for avoiding proximate repetition of similar elements in human language. The alternation between the two forms of the indefinite article provides us with an interesting case in point. As is well known, the form *an* occurs prevocalically while the form *a* occurs preconsonantally. Thus English allows the first, but not the second, sentence in either pair of sentences below.

(1) a. He is *an A*merican teacher.
b. *He is *a A*merican teacher.

(2) a. He is *a K*orean teacher.
b. *He is *an K*orean teacher.

The alternant *an,* originally the only form of the indefinite article, has lost its *n* preconsonantally, giving rise to the kind of complementary distribution between the two alternants that we have in present-day English. What is significant for our purposes is that the deletion of *n* here helps us circumvent the awkward cluster of consonants that we would otherwise have between the indefinite article and the

noun that follows.[1]

A similar explanation is applicable to the archaic alternation found in such determiner pairs as *mine/my, thine/thy,* and *none/no.* Here again the original forms *mine, thine,* and *none* have lost their word-final *n* preconsonantally. Here again the deletion of *n* serves to help us stay away from the clumsy contiguous repetition of consonants that would otherwise occur between the determiner in question and the noun that follows.

Note in this connection that only the derived forms *my* and *no* survive in present-day English while the original forms *mine* and *none* have become obsolete. They may have survived partly because they end in glides, which can occur either prevocalically or preconsonantally without violating the CPR too seriously. This is because glides are conveniently ambiguous in that they may be viewed either as vocalic or as consonantal.[2]

A similarly motivated deletion of *n* is involved in the derivation of *aboard* from *on board.* Needless to say, the suffix *a-* in such words as *abed, afoot, ashore,* and *aside* also derives from *on* via this *n*-deletion.

Consonants other than *n* also get deleted under the pressure of the CPR. The diachronic deletion of the word-final *g* in such words as the following may be cited as an example.

(3) sing /siŋ/ ← */siŋg/[3]

The old pronunciation /siŋg/ involved a proximate repetition of similar consonants, i.e. of the velar nasal /ŋ/ and the velar stop /g/. We may thus argue here that the tension created by this clustering of the two velar consonants was largely responsible for the ultimate deletion of one of them, i.e. /g/.

Note in this connection that some people drop /g/ in such words as *England, language, linguistic,* and *distinguish.* The deletion of /g/ here is similar in nature to that in *sing* except that the sequence /ŋg/ is followed by a consonantal sound here while it is followed by silence in *sing.* Since silence is voiceless and hence more consonantal than vocalic, however, the deletion of /g/ may in fact be considered to be identical in both cases.

[1] The indefinite article *an* derives from the numeral *one.* Unlike *an, one* has not lost its /n/ (preconsonantally) probably because, as a numeral, it carries more semantic weight than does the article *an.* I have argued elsewhere (Park 1982a) that weight, be it semantic or structural, is a crucial variable in various linguistic phenomena.

Note also that the indefinite article carries less weight, semantic or otherwise, than the noun that follows. This is why *an* loses its *n* when the noun that follows begins with a consonant while this noun does not lose its initial consonant.

[2] It is interesting that *mine* and *none* survive in present-day English as absolute genitives. With these absolute genitives, we need not worry as much about their word-final /n/ clashing head on with a consonant that may follow, for, unlike their determiner cousins, they are not proclitic and hence not as proximately tied to the word that may follow. This, plus the fact that they carry more semantic weight than their determiner cousins, must have contributed to the retention of their word-final /n/ here.

[3] We use the Trager-Smith system of phonemic transcription in this paper with slight modifications where necessary.

It is interesting that the velar stop /k/ does not delete in comparable positions, that is, in such words as *sink* and *relinquish*. We may contend here that the sequence /ŋk/ involves a less serious violation of the CPR than does the sequence /ŋg/ in that the former is a cluster of a voiced velar followed by a voiceless one while the latter is a cluster of two voiced velars.

The loss of /b/ in such words as the following may also be accounted for along similar lines.

(4) lamb /læ*m*/ ← */læ*mb*/

The old pronunciation /læmb/ involved a cluster of two similar sounds, i.e. two bilabial consonants. This cluster /mb/ has eventually simplified to /m/ with /b/ getting lost under the pressure of the CPR.

Note here that the sequence /mp/ in words like *lamp* has not lost its /p/ because it does not violate the CPR as seriously as does the sequence /mb/. Note that /p/ is less similar to /m/ than /b/ is, that is, with respect to voicing.

Words ending in /nd/ may be going the way of words ending in /ŋg/ or /mb/. Unmistakable indications of this possibility are observable in the rapid, casual pronunciation of such words as *hand* and *friend*. Similar observations apply to words ending in /ld/ such as *old*. Should /d/ in words like *hand* and *old* end up getting deleted, we should be able to explain it in terms of the CPR. Note that either /l/ or /n/ is similar to /d/ in that they are all voiced alveolar consonants.[4]

The loss of /w/ in words such as the following may also be explained as resulting from the CPR.

(5) a. *wr*ite, *wr*estle, *wr*ong
b. *who*, *who*m, *who*se

Let us consider words of the (5a) type first. Observe here that /w/ and /r/ are similar to each other, which is attested to by the fact that children often substitute /w/ for /r/, as in /k*w*ay/ for /k*r*ay/ '*cry*.' We may thus claim that the sequence /wr/ has simplified to /r/ under the pressure of the CPR.

The loss of /w/ in words like *conquer* (as opposed to *conquest*) and *answer* (as opposed to *swear*) may be similar in nature at least in part to that in (5a) above. We may speculate here that /w/ has deleted from these words partly because it was in proximate repetition with the /r/ that follows.

Note that the vowel between /w/ and /r/ here is rather short since it is unstressed. As a result /w/ and /r/ must have been more proximate to each other, say, in *answer* than in *swear*. Thus the CPR must have exerted more pressure on the /w/ of *answer* than on that of *swear* with the result that /w/ has deleted in the former, but not in the latter.

Likewise, the high degree of similarity and proximity between /w/ and /r/ is arguably responsible for the loss of /w/ in *conquer* while the replacement of /r/

[4] It is worth noting here that the post-nasal stops under discussion delete more readily when they are non-coronal than when they are coronal.

by /s/ has led to its retention in *conquest*. Note here that, in *conquest*, /s/ is proximate, but not similar enough, to /w/ so that the CPR is not violated as seriously as it is in *conquer*.

Perhaps similarly accountable for is the deletion of /w/ in the derivation of *innards* from *inwards* as well as in the typical American pronunciation of *towards*. We will have occasion to come back to the question of this /w/ in 2.4

Let us now turn our attention to words of the (5b) type. We may begin by observing that /h/, /w/, and /uw/ are all high-back sounds and are thus highly similar to each other. Of the three sounds, /w/ and /uw/ are further alike in that they are both rounded, high back sounds.[5] Thus the "proto-sequence" /hwuw/ at the beginning of each word in (5b), especially the subsequence /wuw/, must have violated the CPR quite seriously so that it has eventually simplified to /huw/, losing /w/ in the process. Incidentally, the deletion of this /w/ must have occurred in words like *whole* and *how* when the vowel was still /uw/.[6]

Now given the fact that /h/ and /w/ are both high-back sounds, we may argue that the CPR is responsible for the deletion or weakening of /h/ in some varieties of English in words such as the following.

(6) *wh*en, *wh*y, *wh*eat, *wh*ale, *wh*ack

Admittedly also conducive to the deletion of /h/ here is the fact that the sequence /CwV/, where /C/ and /V/ stand for *c*onsonant and *v*owel respectively, tends to be avoided (See 2.4.). Still another contributory factor here is the inherent weakness of /h/, as is attested to by its frequent loss in Cockney, for example.

It is perhaps in order here to mention that the degree of repetition is a crucial factor in many instances of deletion due to the CPR. Let us take the following for example.

(7) a. hand /hæ*nd*/ vs. handsome /hǽ*ns*əm/, */hǽ*ndsə*m/
b. Christ /kray*st*/ vs. Christmas /krí*sm*əs/, */krí*stm*əs/
c. ask /æ*sk*/ vs. asked /æ*s(k)t*/

The first word in each pair here ends in a two-member consonant cluster while the second word contains this cluster followed by an additional consonant, i.e. a three-member consonant cluster. Note that a three-member consonant cluster here almost always simplifies to a two-member cluster while a two-member cluster generally remains intact. Note further that, in our terms, this is because a three-member cluster violates the CPR more seriously than does a two-member one.

At any rate, it does seem that consonant clusters with more than two members

[5] /uw/ in the Trager-Smith system of phonemic transcription corresponds to the so-called long or tense /u/, i.e. /u:/ or /ū/, with the result that it may be treated as a single segment. By the same token, Trager-Smith's /iy/, which corresponds to the long or tense /i/, i.e. /i:/ or /ī/, may be regarded as a single segment.

[6] We are assuming here that *how* derives from something like **whow*. Note that the loss of the word-initial *w* here is reflected orthographically also.

are generally intolerable. It is also noteworthy that we normally cope with this problem by deleting cluster-medial consonants. In light of these comments, let us examine the following data.

(8) a. lunch /lʌ*nč*/, /lʌ*nš*/
b. belch /be*lč*/, /be*lš*/
c. range /rey*nǰ*/, /rey*nž*/

The words cited here normally end in the so-called affricate /č/ or /ǰ/ preceded by /n/ or /l/. However, some pepole replace /č/ and /ǰ/ here with /š/ and /ž/ respectively so that what is normally an affricate is rendered in their pronunciation as a fricative. We can quite neatly account for these divergent pronunciations if we posit for the words of (8) the following underlying forms.

(8′) a. lunch /lʌ*ntš*/
b. belch /be*ltš*/
c. range /rey*ndž*/

These are highly plausible underlying forms since an affricate begins as a stop and ends as a fricative. According to these underlying forms, each word here ends in a three-member consonant cluster. As a result, the CPR comes into force, simplifying the cluster in each word in one of two ways. We may collapse the final two members of the cluster here into an affricate, which gives us the first alternative pronunciation. We may alternatively delete the medial member of the cluster, which results in the second alternative pronunciation.

We may observe here that the derivation of /č/ and /ǰ/ from /tš/ and /dž/ involves palatalization, i.e. the palatalization of the alveolar stops /t/ and /d/ under the influence of the alveolopalatal sibilants /š/ and /ž/ respectively. Later in 2.2., we will have more to say about this palatalization employed as a means of avoiding proximate repetition of similar elements.

It is significant that we get the second alternative pronunciations of (8) by deleting the medial members of the three-member consonant clusters of (8′). In fact, consonant clusters do not appear to be the only clusters of sounds subject to this type of cluster simplification. The simplification of the proto-sequence /hwuw/ to /huw/, as in *who,* for example, involves deleting the medial member of a cluster of three high-back sounds, not all of which are consonants. It is worth noting here that the medial member of a cluster gets deleted probably because it is flanked by the other two members of the cluster and thus under the double pressure of the CPR while this is not the case with either of the other two members.

If silence represented by pre- or post-lexical pause is indeed (weakly) consonantal, as suggested earlier in the paper, then the silent *g* and *b,* as in *sing* and *lamb,* may count as deleted medial members of three-member consonant clusters. If this is correct, the deletion of the word-final *g* and *b* here will not be entirely different in nature from the deletion of *d* from *handsome* or of *t* from *Christmas.*

Our comments on cluster simplification here are also applicable to clusters with more than three members. Thus *promptly,* for one, often simplifies from /prámptliy/ to either /prámtliy/ or /prámpliy/. We may delete either of the two medial members of the cluster here, but not both. Note here that a cluster normally simplifies by just one member no matter how large the cluster may be. A four-member cluster such as the one in *promptly,* for example, simplifies to a three-member cluster, not usually to a two-member cluster.

It is interesting that the CPR can throw much light on how and why we get the second alternative pronunciation for each of the following words.

(9) a. tune /*tyuw*n/, /*tuw*n/
b. dune /*dyuw*n/, /*duw*n/
c. news /*nyuw*z/, /*nuw*z/
d. lure /*lyuə*(r)/, /*luə*(r)/
e. suit /*syuw*t/, /*suw*t/
f. resume /ri*zyúw*m/, /ri*zúw*m/

Every word here begins its tonic syllable with an alveolar sound, which is a high-front sound. In the first alternative pronunciation, this high-front sound is followed immediately by another high-front sound, i.e. the glide /y/, which in turn is followed by a high-back sound, i.e. /uw/. Thus the first alternative pronunciation for every word here begins with a cluster of three high sounds. The medial member of this cluster, i.e. /y/, often gets deleted under the pressure of the CPR, especially in American English, giving rise to the second alternative pronunciation. Note here that *enthuse* may be pronounced as either /inθyúwz/ or /inθúwz/. Thus we can see that /y/ deletion may occur after a dental also. Since both alveolars and dentals are apical, we may say that the glide /y/ here deletes optionally in immediate (pretonic) post-apical position.

The so-called silent *l* in words such as the following affords us still another example of the medial member of a cluster getting deleted under the pressure of the CPR.

(10) ch*alk,* t*alk,* w*alk,* f*olk,* y*olk*

In all the words here, the silent *l* is preceded by a non-low back vowel and followed by /k/, which is also a non-low back sound. Being preconsonantal, the silent *l* here must have been a dark *l*, which is also a non-low back sound in that the back of the tongue is considerably raised in its articulation. Incidentally, that a dark *l* is back and non-low is amply attested to by the fact it is often replaced by /u/ in some idiolects for words like *silk* and *film.*[7]

If what we have said here is correct, all the words of (10) must have involved a contiguous repetition of three non-low back sounds when the silent *l* was not yet silent. Thus we may argue that this *l,* the medial member of this three-sound cluster,

[7] Dark varieties of /l/ typically have dorsovelar coarticulation, which lends further credence to our suggestion that a (typical) dark /l/ is a non-low back sound.

has become silent under the pressure of the CPR.

Note that the silent *l* in words such as the following may also be explained in a similar manner.

(11) c*alm,* ps*alm,* b*alm,* p*alm,* *alm*s

Here again the silent *l* is preceded by a back vowel; it is followed by the labial /m/, which is arguably also a back sound.[8] If so, all the words of (11) must have ended in a cluster of three back sounds when the silent *l* was not yet silent. We may thus contend that the silent *l,* the medial member of the cluster here, has become silent under the pressure of the CPR.

If we are correct in assuming that labials are indeed back sounds, then we can easily explain why the letter *l* often gets silent immediately before /f/ and /v/, as in *half* and *salve* as well as in the derivation of *save* from ME. *salven.* The silencing of the letter *l* here may be attributed to the juxtaposition of two or three back sounds depending on how the vowel is pronounced.

Incidentally, the labials may be less back than /k/, which may be part of the reason why the *l* in question is silenced more obligatorily in words of the *chalk* type than in those of the *calm* type. Note in this connection that the letter *l* may or may not be silent in words like *Holmes, golf,* and *Ralph,* while it is always silent in words like *folk, yolk,* and *caulk.*[9]

Note also that here we normally silence /l/ before /m/ while we often retain it before /f/ or /v/. Thus /howmz/ is more common for *Holmes* than /howlmz/ is while /gɔlf/ is more common for *golf* than /gɔf/ is. This may be because /m/ is more similar to /l/ than is either /f/ or /v/ in that /l/ and /m/ are sonorants while neither /f/ nor /v/ is.

It is significant that the vowel preceding the silent *l* usually has to be a back vowel in words of both the *chalk* type and the *calm* type. When a non-back vowel substitutes this vowel, the *l* here is normally not silenced, as we can see quite clearly in the following data.

(12) a. falcon /fɔ́*(l)k*ən/, /fǽ*lk*ən/[10]
b. psalmody /sá*m*ədiy/, /sǽ*lm*ədiy/
c. almonry /á*m*ənriy/, /ǽ*lm*ənriy/

[8] The dorsum is typically raised toward the velum in the articulation of /m/ so that /m/ may be said to have dorsovelar coarticulation of sorts. The same may be said of the other labials such as /v/ and /f/. In support of this contention, we may also cite the /v/-/u(w)/ alternation observable in such word pairs as *solve/soluble* and *resolve/resolute.*

[9] The word *polka* may be pronounced with or without *l* while *Polk* always drops its *l.* Note here that the consonant cluster *-lk* is followed by post-lexical silence, a 'latent' consonant, in *Polk* and by a mere vowel in *polka.* Thus the CPR operates much more forcefully on *Polk* than on *polka,* which is why *l* drops obligatorily in *Polk* while it does so only optionally in *polka.*

[10] The optional deletion of *l* in *falcon* /fɔ́(l)kən/, as opposed to its obligatory deletion in *chalk,* is accountable for along the lines of Note 9 above.

Note here that the letter *l* does not normally become silent when the vowel preceding it is not a back vowel while it almost always does when a back vowel precedes it. This may be cited as additional evidence that the degree of repetition is a factor relevant to the operation of the CPR and that a sound cluster begins to be truly troublesome when it comprises more than two members.

Similar in some respects to the silent *l* here is the weak or silent *r* that occurs in such words as *car, cur, core, poor, cart, curt,* and *cork*. Note here that, as suggested earlier, pre- or post-lexical silence may arguably count as weakly consonantal so that all tokens of *r* here may be regarded as preconsonantal. Thus we may say that this *r* is in proximate repetition with another consonant that follows. What is perhaps equally important here is the fact that this *r* follows a non-front vowel. Since this post-vocalic *r* is also a non-front, usually a back, sound, we may argue that the *r* under consideration here has become weak or silent under the double pressure of the CPR from the non-front vowel that precedes and from the consonant that follows. Viewed in this way, here again it is the medial member of the cluster that is affected.[11]

Needless to say, vowels also get deleted under the pressure of the CPR, as can be seen from the following data.

(13) a. Japa*n* + *-ese* → Japa*nese*
b. Chi*na* + *-ese* → Chi*nese*, *Chi*naese*

(14) a. hexago*n* + *-al* → hexago*nal*
b. infer*no* + *-al* → infer*nal*, *infer*noal*

The stem-final vowels here delete before the suffix-initial vowels evidently because their retention would lead to the formation of vowel clusters, which would violate the CPR rather seriously.

Note in this connection that learned prefixes ending in a vowel generally delete the vowel prevocalically, as is shown by the following data.

(15) a. ho*mo*- + -geneous → ho*mog*eneous
b. ho*mo*- + *o*rganic → ho*mo*rganic, *ho*moo*rganic

(16) a. mo*no*- + *t*one → mo*not*one
b. mo*no*- + *o*cular → mo*no*cular, *mo*noo*cular

Again the deletion of the prefix-final vowel here is clearly due to the CPR. Suppose that *hom*- and *mon*- were posited as the base forms here instead of *homo*-

[11] It appears that the variety of /r/ under consideration here involves a fair degree of dorsovelar (co)articulation. It is in this respect similar to the so-called dark /l/. Recall in this connection our earlier remark that /r/ is often replaced by the dorsovelar /w/, especially in children's speech.

Note also that the liquids /l/ and /r/ are highly similar to vowels, probably almost as much as the glides /w/ and /y/ are. Thus the /l/ and /r/ under consideration here are highly similar to the vowels that precede them. Since they are just as much consonantal as they are vocalic, they are also similar to the consonants that follow them. We may thus argue that this ambivalent nature of /l/ and /r/ adds to the pressure of the CPR on the /l/ and /r/ in question here to get deleted or suppressed.

and *mono-* . We could then argue that *-o-* is inserted in (15a) and (16a) above so as to avoid the contiguous repetition of consonants that would otherwise result. Either way, the above data can be used in support of our contention that the CPR is in force here.

Not just individual sounds but also sequences of sounds delete under the pressure of the CPR. The following data may be cited in support of this contention.

(17) a. interpre*tati*ve → interpre*ti*ve
b. sylla*bifi*cation → sylla*bi*cation

Note that the second form in either pair here avoids the contiguous repetition of similar sound sequences that the first form involves. Although both forms are standard, the second form is often preferred. Needless to say, we would claim here that the first form optionally deletes one of the repeated sequences under the pressure of the CPR, thus giving rise to the second form. Note in passing here that we treat *-bi-* as a sound sequence similar to *-fi-* for the reason that /f/ and /b/ are both labial.

This type of deletion occurs rather frequently in rapid, casual speech, as is attested to by the following pairs of forms, in each of which the second form derives from the first under the pressure of the CPR.

(18) a. preven*tati*ve → preven*ti*ve
b. presen*tati*ve → presen*ti*ve
c. quali*tati*ve → quali*ti*ve
d. cons*titu*te → cons*tu*te
e. Mi*ssissi*ppi → Mi*ssi*ppi
f. femi*nini*ty → femi*ni*ty
g. nar*cissi*sm → nar*ci*sm

Deletion occurs even when the repetition in question is much less proximate than in the cases thus far considered, as we can see from the following data.

(19) a. Arctic /ártik/, /árktik/
b. Connecticut /kənétəkət/, */kənéktəkət/

Note that (19a) and (19b) would involve two and three tokens of /k/ respectively if one of them did not get deleted. Note further that the deletion of one token of /k/ is optional in (19a) while it is obligatory in (19b). This is apparently reflective of the fact that the CPR is considerably less tolerant of three adjacent tokens of the same sound than it is of two such tokens. Incidentally, this may count as another piece of evidence that the degree of repetition is a crucial factor in the operation of the CPR.

Note also that the token of /k/ that deletes in either (19a) or (19b) is a member of a consonant cluster while the other token(s) are not. This is not surprising, however, since this token of /k/ is in proximate repetition with not just the other token(s) of /k/ but also with the other member(s) of the consonant cluster in question. Thus this token of /k/ is under double pressure from the CPR, so to speak,

which is one reason why it, rather than the other token(s), gets deleted.

Incidentally, *cognac* and *cognoscenti* must have had their *g* silenced under the pressure of the CPR. The occasional deletion of *g* in *recognize* and *cognizance* is similarly explainable. Note that /g/, not its voiceless counterpart /k/, deletes here. /g/, but not /k/, is a member of a consonant cluster here so that the CPR exerts more pressure on /g/ than on /k/. Note also that this /g/ gets deleted obligatorily in *cognac* and *cognoscenti* and only 'optionally' in *recognize* and *cognizance*. This is because *cognac* and *cognoscenti* originally contain three velar stops while *recognize* and *cognizance* contain only two. Observe here also that *Connecticut, cognac,* and *cognoscenti* drop their medial velars.

The deletion of /l/ exemplified by the following data may also be accounted for along similar lines.

(20) a. ophthalmology /àfθə*l*má*l*əǰiy/, /àfθəmá*l*əǰiy/
b. Guadal Canal /gwàd(ə)*l*kənǽ*l*/, /gwàd(ə)kənǽ*l*/

Since there are only two tokens of /l/ in either case here, the deletion here is not obligatory but optional. However, it is significant that only the first token of /l/ may get deleted here. Note that this first token of /l/ is a member of a consonant cluster while the second token is not. Thus the CPR operates twice on the first token of /l/ here and just once on the second token, which is why the former may delete while the latter may not.

Let us now consider the following interesting example.

(21) Wilhelmina /vi*l*he*l*míynə/, /vi*l*hemíynə/

Either token of /l/ here occurs as a member of a consonant cluster, but only the second token may get deleted. One reason for this is that /l/ is more similar to /m/ than it is to /h/ in that both /l/ and /m/ are sonorants while /h/ is not. Also /m/ involves a high degree of occlusion just as /l/ does while /h/ does not. Thus the CPR apparently operates with much more force on the second token of /l/ here than on the first.

The derivation of *lectureship* involves an interesting case of suppression due to the CPR. The derivational history of this word may roughly be represented as follows.

(22) a. lect*ure* + -*er* → lect*urer*
b. lect*urer* + -*sh*ip → lect*uresh*ip, *lect*urersh*ip

The word *lecturer* contains two tokens of /r/, but neither is a member of a true consonant cluster. Thus the CPR is not too seriously violated here so that the proximate repetition of these two tokens of /r/ is tolerable.

Now when the word *lecturer* as a stem comes before the suffix -*ship,* the second token of /r/ here forms a consonant cluster with the *sh* of -*ship*. This second token of /r/ is now in proximate repetition with not just the first token of /r/ but also with the *sh* that follows. Thus the CPR operates on the second token of /r/ twice, not just once, so that it ends up getting deleted. Thus given the CPR,

the derivation of *lectureship,* rather than **lecturership,* from *"lecturer + -ship"* is anything but idiosyncratic.

The following data illustrates another interesting case of suppression due to the CPR.

(23) a. It is *probable* that he will support us.
b. He will *probably* support us.

(24) a. It is very *likely* that he will support us.
b.*He will very *likelily* support us.
c. He will very *likely* support us.

According to this data, we cannot derive **likelily* from *likely* although we do derive *probably* from *probable.* Instead we get the adverb *likely* from the adjective *likely,* suppressing the typical adverbial suffix under the pressure of the CPR.

The derivation of *can't* illustrates still another interesting case of suppression due to the CPR. Let us consider the derivation of negative contractions attached to auxiliary verbs, as shown below.

(25) a. is + -*n*'t → is*n*'t
b. coul*d* + -*n*'t → coul*dn*'t
c. ca*n* + -*n*'t → ca*n*'t, *ca*nn*'t

The contractions *isn't* and *couldn't* are formed in a straightforward manner by attaching the negative contraction -*n't* to *is* and *could* respectively. The derivation of *can't* is slightly more complicated in that one token of /n/ gets suppressed when -*n't* is attached to *can.* This is the way it should be because the CPR would be seriously violated if /n/ were allowed to repeat itself contiguously here. The suppression of one /n/ here is similar in nature to that of one /t/ in the derivation of *eighteen* from *"eight + -teen"* or of one /l/ in the derivation of *probably* from *"probable + -ly."*

Inflectional suffixes are often suppressed under the pressure of the CPR. As our first example here, let us consider the following data.

(26) a. *One* little Chin*ese, two* little Chin*ese*
b.**One* little Chin*ese, two* little Chin*eses*

(27) a. *One* little Sw*iss, two* little Sw*iss*
b.**One* little Sw*iss, two* little Sw*isses*

The use of the regular plural suffix here would result in a proximate repetition of alveolar sibilants, which would rather seriously violate the CPR. Thus we suppress the regular plural suffix, resorting to the zero plural morph instead.

Note here that all nationality adjectives ending in a sibiliant allow generic plural nominalizations of the form *"the + adjective,"* but not of the form *"the + adjective + -(e)s."* Thus we have *the English, the French, the Swiss,* and *the Japanese,* but not **the Englishes, *the Frenches, *the Swisses,* and **the Japaneses.* At least

part of the reason for this may be found in the desire to avoid such sibilant clusters as would result if the regular plural suffix were not suppressed here.[12]

Narcissus provides us with another example of *"s"* getting suppressed under the influence of the CPR. *Narcissus* is sometimes invariant between singular and plural. The irregular plural *narcissus* involves one less *"s"* sound than the regular plural *narcissuses* so that the former is in less serious violation of the CPR than the latter is. Note at this point that the nouns *series* and *species* are normally also invariant between singular and plural. In our terms, this invariance is also due to the CPR and is designed to circumvent the creation of a word-final sibilant cluster that regular pluralization would inevitably entail.

We also suppress the genitive suffix *-s* where its use would give rise to an awkward juxtaposition of sibilants. The absolute genitive pronoun *his* affords us an interesting example of this. Let us examine the following data concerning the derivation of the absolute genitive *his* and a few other absolute genitive pronouns.

(28) a. his + *-s* → his, *hiss, *hises
b. her + *-s* → hers
c. their + *-s* → theirs
d. your + *-s* → yours

The pronouns *hers, theirs,* and *yours* are formed in a straightforward manner by adding the genitive suffix *-s* to *her, their,* and *your* respectively. The derivation of the absolute genitive *his,* in contrast, is not so straightforward in that the genitive suffix *-s* is suppressed here. If we did not suppress the genitive suffix in the derivation of the absolute *his,* we would end up getting something like the starred forms of (28a). Needless to say, the attributive *John's* is identical to the absolute *John's* for exactly the same reason that the attributive *his* is identical to the absolute *his.*

The use of the zero genitive morph in the following noun phrases may also be accounted for in a similar manner.

(29) a. Socrates' wife
b. ?Socrates's wife

(30) a. Pericles' speeches
b. ?Pericles's speeches

Here again we normally suppress the genitive suffix *-s* because we would otherwise end up with an awkward proximate repetition of sibilants such as those in (29b) and (30b).

Examples such as the following may appear to pose something of a problem for us.

(31) a. Pete *Rose's* 4000th career hit
b. John *Ross's* theory of language
c. *Liz's* hubby No. 7

[12] The plural form *Englishes,* for one, has recently come into use in linguistic circles to refer to varieties of English. However, plural forms like *Englishes* may sound rather awkward and artificial to non-linguists.

Why is it that we suppress the genitive suffix in (29) and (30), but not in (31)? The answer to this question may be found in the number of syllables of the stem to which the suffix in question is to be added. We may speculate that a cluster of syllables also violates the CPR with the number of syllables translating into the degree of (proximate) repetition.

If this is indeed the case, then a word with more syllables will violate the CPR more seriously than a word with fewer syllables. If this is correct, then a syllabic suffix will be more tolerable with a less polysyllabic stem than with a more polysyllabic one. This is arguably part of the reason why the genitive suffix is suppressed in (29) and (30), but not in (31). Note here that (29b) and (30b) would violate the CPR far more seriously than (31) would.[13]

Note at this point that, although the stems are monosyllabic both in (31) above and in (32) below, the genitive suffix is usually not suppressed at all in (31) while it may be suppressed in (32).

(32) a. Burn*s'(s)* poems
b. Jone*s'(s)* phonetics

Note here that the stems in (32) end in a consonant cluster while those in (31) do not. Thus the stem-final *s* is in proximate repetition with just the suffixal *-s* in (31) while it is in proximate repetition not just with the suffixal *-s* but also with the other stem-final consonant(s) in (32). As a result, the pressure of the CPR for suppression is apparently greater on (32) than on (31). This, if correct, should explain why the genitive suffix is usually not suppressed at all in (31) while it may be in (32).[14]

Note at this point that the genitive suffix is obligatorily suppressed when the stem ends in the regular plural morph *-s*. Thus (33b) is not acceptable while (33a) is.

(33) a. Girl*s'* shoes are expensive.
b.*Girl*s's* shoes are expensive.

Note here that (33b) involves proximate repetition not just between the two tokens of *s* but also between two inflectional morphemes, i.e. the plural morpheme and

[13] There does seem to be rather strong resistance to polysyllabicity in English. Based on an examination of the first one hundred words of text each from Page 70 of Francis, Hofstadter et al., and Kemeny et al., I have found that polysyllabic words tend to be avoided. Roughly speaking, 65% of the words are monosyllabic, 20% disyllabic, 10% trisyllabic, 4% quadrisyllabic, and 1% pentasyllabic. On the basis of this finding, we may conclude that the more polysyllabic a word is, the less likely it is to occur. This tendency will be even more salient in spoken language.

Incidentally, this popular resistance to polysyllabicity may also be at the root of the syllable-deletion phenomenon discussed earlier in connection with examples such as *interpretative* → *interpretive*. For more examples of this syllable-deletion phenomenon, refer back to (17) and (18).

[14] Quirk et al. (p.197) note that written English appears to prefer the zero genitive form for (32) while spoken English appears to prefer the regular genitive form. This may indicate that the CPR operates not just on the aural-oral plane but also on the visual plane. In fact, I have already shown elsewhere (Park 1982b and 1983) that orthography is also subject to the CPR.

the genitive morpheme. Thus we may say that the genitive suffix is obligatorily suppressed here because the CPR is violated not just once but twice.[15]

The genitive suffix is also suppressed in a number of set phrases such as "for convenien*ce' s*ake" (← "*for convenien*ce's s*ake") and "for good*ness' s*ake" (← "*for good*ness's s*ake"). If we did not suppress the suffix *-'s* /əz/ here, it would end up getting sandwiched between the two tokens of /s/ that are already there. Thus the desire to avoid too heavy a cluster of alveolar sibilants is clearly at the root of the suppression of the genitive suffix here. The tendency, especially in rapid speech, to suppress the same genitive suffix in phrases like "for Chri*st's s*ake" can also be similarly accounted for in terms of the CPR.

As our final example of CPR-conditioned "*s*" deletion/suppression, let us consider the following.

(34) a. tran*s*- + *s*pire → tran*s*pire, *tran*ss*pire
b. tran*s*- + *s*cribe → tran*s*cribe, *tran*ss*cribe
(35) a. tran*s*- + *S*iberian → tran*s*-*S*iberian
b. tran*s*- + *s*onic → tran*ss*onic, tran*s*onic

We may contend here that the prefix and the stem are more proximate to each other in (34) than in (35) in that they are less transparently discrete meaningwise in the former than in the latter. Thus the two tokens of "*s*" arguably violate the CPR more seriously in (34) than in (35). This is apparently why one token of "*s*" here, most likely the prefix-final one, deletes obligatorily in (34) while it may only optionally delete in (35). We can similarly account for the contrast in "*s*" deletability between *dissent/dissident* and *dissatisfy/disservice.* In the case of *trans-* words at least, we may also argue that (34)-type words are generally older than their (35)-type counterparts so that the CPR has had longer to operate on the former than on the latter. This may explain why the derivation of *transubstantiate* (c. 1533) involves the obligatory loss of one "*s*" while that of *trans-subjective* (c. 1887) does not although the prefix and the stem are semantically rather discrete in both.

[15] The contiguously repeated suffixes in (33b) are both inflectional. For one reason or another, the CPR is much less tolerant of proximately repeated inflectional suffixes than it is of similarly repeated derivational suffixes. In fact, inflectional suffixes are never contiguously repeated. Although *winningest,* for one, may appear to be a counterexample, the suffix *-ing* here is really a derivational suffix, not a genuine inflectional suffix.

Incidentally, the inflectional suffixes *-er* and *-est* may not be tacked with impunity onto words ending in productive derivational suffixes such as *-ent, -ant, -al, -ic(al), -ous, -ful,* and *-like.* The juxtaposition of the suffixes *-er/-est* with these clearly recognizable, derivational suffixes may violate the CPR on one count. Note also that words ending in the derivational suffixes in question here tend to be polysyllabic. Thus the use of *-er/-est* here would only serve to render these already polysyllabic words even more polysyllabic, which would lead to an additional violation of the CPR. See Note 13 for comments on polysyllabicity as it relates to the CPR.

Note here that adverbs in *-ly* tend to be more polysyllabic than adjectives in *-ly* and that the adverbial *-ly* is felt to be more of a suffix than the adjectival *-ly.* This is probably why adjectives in *-ly,* but not adverbs in *-ly,* allow inflected comparatives and superlatives. Thus we have *lovelier* and *loveliest,* but not **carefullier* and *carefulliest.

Our next example of suppression comes from the past (participial) forms of irregular verbs such as the following.

(36) a. spread + -*ed* → spread, *spread*ed*
b. let + -*ed* → let, *let*ted* (let ≠ "hinder")
c. put + -*ed* → put, *put*ted*
d. hit + -*ed* → hit, *hit*ted*

These are verbs, whose base, past, past-participial forms are identical. They are typically monosyllabic Anglo-Saxon verbs of high frequency and have a simple vowel nucleus. What is more significant for our purposes here is that they end in either /t/ or /d/, mostly the former. Note here that we would get in these verbs a proximate repetition of alveolar stops if we allowed the regular past (participial) suffix here. We may thus argue here that the suppression of the suffix for verbs of the (36) type serves the useful purpose of keeping (verb-final) clusters of alveolar stops from being formed.

Needless to say, a similar account is applicable to the suppression of the past (participial) suffix exemplified by the following data.[16]

(37) a. feed + -*ed* → fed, *feed*ed*
b. read + -*ed* → read, *read*ed*
c. sit + -*ed* → sat, *sit*ted*
d. hold + -*ed* → held, *hold*ed*
e. find + -*ed* → found, *find*ed*
f. send + -*ed* → sent, *send*ed*
g. build + -*ed* → built, ?build*ed*

From data such as (36) and (37), we can see quite clearly that high-frequency, non-derived, monosyllabic verbs of Anglo-Saxon origin in /t/ and /d/ tend to suppress the regular past (participial) suffix under the pressure of the CPR.

Suffixed contractions of the verb *be* tend to be suppressed when the resulting forms would seriously violate the CPR. Let us take the following for example.

(38) a. Wh*ere is* he going? → Wh*ere's* he going?
b. Wh*ere are* you going? → (?) Wh*ere're* you going?

The portion *-re're* in the questionable contraction above involves a proximate repetition of a phonological and orthographic nature. As a consequence, one of two things happens: (a) the contraction in question is disallowed, or (b) the *-'re* portion is often suppressed or deleted in speech even when the contraction itself is allowed orthographically.[17]

[16] See (49) in 2.2. for a discussion of the vowel gradation shown in (37a) and (37b).

[17] A similar account is applicable to the fact that the contractions *there're* and *here're* tend to be avoided and that, when they are used, the suffixed portion *-'re* often drops from their pronunciations.

That *this is* is not usually contracted to *this's* may indicate that not just phonological considerations but also visual or orthographic ones are relevant to the operation of the CPR. Note also that *this is* in non-final position is often rendered in rapid speech as *this* ϕ, again evidently on account of the CPR.

2.2. Replacement

The problem of proximate repetition of similar elements is often resolved by replacing one or more of the repeated elements with something else. As we shall see, the replacing element normally differs sufficiently from, yet bears an unmistakable resemblance to, the replaced element phonologically or otherwise.

Palatalization provides us with an interesting example of replacement employed as a means of avoiding proximate repetition of similar elements. Let us take the following data as an example.

(39) a. Did you? /di*d* + *y*u(w)/ → /diǰu(w)/
b. Didn't you? /didn*t* + *y*u(w)/ →/didnču(w)/

Since both the glide /y/ and the alveolar stops /t/ and /d/ are high-front sounds, we have in both (39a) and (39b) a proximate repetition of similar sounds at the boundary between the two constituent words. This rather awkward proximate repetition is often avoided by replacing the problematic sequence of high-front sounds with the palatalized version of the alveolar stop in the sequence.

Note that, from our point of view, the palatalization here occurs as a consequence of the CPR. Note also that the vowel that follows the sequence of high-front sounds here is, at least underlyingly, a high-back vowel so that, in fact, we normally have a sequence of three high sounds prior to palatalization. Thus the pressure for replacement here may actually be greater than it was made out to be in the preceding paragraph.

We have seen in 2.1. that a morpheme-internal sequence of sounds similar to the one under consideration here often drops its medial member, i.e. the glide /y/. In fact, replacement via palatalization may also take the place of this /y/ deletion here so that words like *tune* and *dune* may have three alternative (American) pronunciations, as shown below.

(40) a. tune /tyuwn/, /tuwn/, /čuwn/
b. dune /dyuwn/, /duwn/, /ǰuwn/

In immediate pretonic position, as in (40) above, the alternative of /y/ deletion is more common than that of /y/ retention, which in turn is more common than that of palatalization. Thus in either (40a) or (40b) the second alternative pronunciation is more common than the first, which in turn is more common than the third, that is, in American English.[18]

In non-pretonic position, however, palatalization is far more common than /y/ retention, which in turn is far more common than /y/ deletion. In fact, /y/ deletion is virtually non-existent in this position. Thus, of the three conceivable pronunciations for *màturátion* shown below, the first is far less common (in American English) than the third while the second is either questionable or unacceptable.

[18] It is to be understood that the order of preference here may vary across dialects or even idiolects although it appears to be favored by most dialects of American English.

(41) maturation / mǽtyuréyšən/, *?/mǽturéyšən/, /mǽčuréyšən/

Note here that exactly the opposite order of preference applies to *mature,* where the sequence in question is immediately pretonic.[19] Note in this connection that the tendency for the alveolar consonants to palatalize before a non-pretonic /y/ is responsible for such Americanisms as the following.

(42) a. In*j*un ← In*di*an
b. Ca*j*un ← Arka*di*an

Note also that palatalization may occur more readily when the alveolar stop and the /y/ that follows are both in the same word than when they are in separate words. This is because the two sounds in question are closer to each other intralexically than interlexically so that the CPR exerts more pressure in the former case than in the latter. This should explain why /t/ and /d/ get palatalized far more obligatorily in *nature* and *procedure* than in *can't you* and *could you,* for example.

One might wonder at this point why /y/ deletion is not available as an option for (39). Firstly, we may argue that the sequence /ty/ or /dy/ in (39) is normally non-pretonic. Secondly, we may speculate that we do not delete the glide /y/ lest the second constituent word in either phrase alter its shape too drastically.

Note parenthetically that replacement via palatalization could also be involved in the derivation of the affricates /č/ and /ǰ/. Recall that we have posited in (8') of 2.1. /tš/ and /dž/ as the underlying forms for /č/ and /ǰ/ respectively. Since /š/ and /ž/ are not only alveolopalatal like /y/ but also obstruent like /t/ and /d/, /tš/ and /dž/ would violate the CPR more seriously than /ty/ and /dy/. It is for this reason that /tš/ and /dž/ get replaced by the palatalized versions of /t/ and /d/, i.e. /č/ and /ǰ/, far more readily than /ty/ and /dy/ do.

Bilabialization is sometimes used as an instrument of replacement under the pressure of the CPR, as in the following data.

(43) a. obvious /ábviəs/, /ábiəs/
b. cupful /kʌ́pfəl/, /kʌ́pəl/

Both /bv/ and /pf/ here are clusters of labial sounds so that they violate the CPR rather seriously and are thus rather difficult of articulation. In an effort to

[19] Note that *continue* is always /kəntínyuw/, never /kəntínuw/, while *continuity* is more often /kàntinúwətiy/ than /kàntinyúwətiy/, that is, in American English. Thus /y/ deletion is available here only when the /y/ in question is immediately pretonic. This comment applies even to British English when the /y/ glide in question follows /l/. Thus, even in British English, this /y/ deletion is optional in *solúti*on while it is disallowed in *sóluble.* This phenomenon is identical to that discussed in connection with (40) and (41).

Note also that the /y/ in question here is more apt to delete when the stress that follows is stronger. Thus although both *còntinúity* and *ávenùe* may drop this /y/ from their third syllables, the former is more apt to do so than the latter is, for the stress on the third syllable is stronger in *continuity* than in *avenue.*

Incidentally, /ny/ in *continue* /kəntínyuw/, for example, is often rendered as a palatalized *n* so that /n/ tends to palatalize here just as /t/ and /d/ do in comparable position. In fact, /l/ and /s/ also behave similarly with respect to palatalization. Thus they tend to palatalize non-pretonically, as in *famíliar* (as opposed to *familiárity)* and *sócial* (as opposed to *socíety*).

overcome this difficulty, we often replace these clusters with the bilabialized versions of the fricatives here or, equivalently, the fricativized versions of the stops. As a result, the sequences /bv/ and /pf/ often get replaced by /ƀ/ and /ƥ/ respectively. Note in this connection that the same problem may be resolved by deleting the bilabial stop from either cluster, i.e. by simplifying /bv/ and /pf/ to /v/ and /f/ respectively. Needless to say, this second alternative solution could have been dealt with in connection with our discussion of deletion/suppression in 2.1.

Our next set of supportive data comes from nouns of Greek origin ending in *-sis*. These nouns form their plurals in a rather idiosyncratic manner, as is shown below.

(44) a. oa*sis* + *-(e)s* → oa*ses*, *oa*sises*
b. cri*sis* + *-(e)s* → cri*ses*, *cri*sises*

These nouns form their plurals not by taking the regular plural suffix *-(e)s*, but by replacing the *-is* of *-sis* with *-es* /iyz/. Note that the use of the regular plural suffix here would result in a proximate repetition of three alveolar sibilants, which would violate the CPR quite seriously. We cope with this potential problem by resorting to a rather irregular, but highly plausible mode of pluralization, i.e. by replacing *-is* with *-es*. In this way, we manage to keep the number of alveolar sibilants at a manageable two.

Nouns of Greek origin ending in *-xis* behave in exactly the same way, as is shown below.

(45) a*xis* + *-(e)s* → a*xes*, *a*xises*

This should come as no surprise, however, since *-xis* is phonologically /ksəs/ and thus contains "-sis" /səs/ as a subsequence.

Note in this connection that nouns of Greek origin ending in just *-is* normally form their plurals in the regular manner, as shown below.

(46) metropol*is* + *-(e)s* → metropol*ises*, *metropol*es*

Observe here that this regular pluralization of nouns in just *-is* involves one less alveolar sibilant than would that of those in *-sis*. Thus the regular pluralization of nouns in just *-is* does not violate the CPR quite as seriously as would that of those in *-sis*. This is apparently why nouns of the *metropolis* type usually take the regular plural suffix while those of the *oasis* type do not.

We can see quite clearly from (44), (45), and (46) above that a proximate repetition of three (alveolar) sibilants is far less acceptable than one of just two such sounds is. This may count as additional evidence supportive of our observation in 2.1. that a sound cluster begins to be intolerable when it comprises more than two members.

However, even nouns in just *-is* may pose something of a problem when they take the regular plural suffix. Notice that *iris* has two alternative plural forms, as shown below.

(47) ir*is* + *-(e)s* → ir*ises*, ir*ides*

That the irregular plural form *irides* exists at all is interesting. Note that this irregular form, by replacing the stem-final *-s* with *-d*, steers clear of the proximate repetition of alveolar sibilants with which the regular form *irises* is burdened. Those who favor *irides* over *irises* may find the said proximate repetition in *irises* at least mildly intolerable, and their resistance to *irises* may be explained as stemming from the CPR.

Interestingly enough, a number of other disyllabic nouns in *-is* are also resistant to regular pluralization evidently on account of the CPR. They include *fortis*, *lenis*, and *testis*, which form their plurals by replacing *-is* /is/ with *-es* /iyz/. *Mantis, pelvis,* and *penis* are ambivalent in that they form their plurals either regularly or by replacing *-is* with *-es*. This may be taken as an indication that *-is* nouns are generally less resistant to regular pluralization than *-sis* nouns are.

The disyllabic nouns *series* and *species* pluralize much as the *fortis*-type nouns do, that is, for those to whom the second vowel in either noun is not invariant between singular and plural. Note in this connection that learned nouns in *-us* may be very much like the *-is* nouns under discussion here in that they also appear to resist regular pluralization, possibly under the influence of the CPR. In support of our contention here, we may cite the survival, for example, of *cacti* as a plural form for *cactus* as an alternative to the more common *cactuses*.

Our next set of examples comes from the "laxing of tense vowels" illustrated by the following data.

(48) a. heal /h*iyl*/ + *-th* → health /h*elθ*/, */h*iylθ*/
b. deep /d*iyp*/ + *-th* → depth /d*epθ*/, */d*iypθ*/
c. mean /m*iyn*/ + *-t* → meant /m*ent*/, */m*iynt*/
d. clean /kl*iyn*/ + *-ly* → cleanly (adj) /kl*é*n*l*iy/, */kl*íynl*iy/

All the stems here end in the "tense" vowel /iy/ and a consonant. This tense stem vowel becomes lax when a (suffixal) consonant is added to the stem-final consonant. In other words, the tense vowel of the stem here becomes lax before a consonant cluster. Note at this point that a tense vowel is really a vocalic cluster comprising a vowel nucleus and a glide, as is shown by the phonemic representation adopted here. If so, a tense vowel followed by a consonant cluster would constitute a contiguous repetition of two clusters, one vocalic and the other consonantal.

It may then very well be the case that the laxing of tense vowels before consonant clusters, as in the words of (48), is motivated by a desire to reduce such tension as would result if this cluster of clusters were not somehow simplified. In other words, the replacement of the tense vowel /iy/ by the lax vowel/e/ in (48) is the work of the CPR operating on a cluster of clusters.

Note in this connection that in (48) above the two members of the vocalic cluster are more similar to each other than are those of the consonant cluster. Thus the CPR must exert more pressure on the vocalic cluster than on the consonant cluster. This is evidently why it is the vocalic cluster, rather than the consonant cluster, that gets replaced and simplified.

Note here that *cleanly* /klénliy/ is an adjective and is thus to be distinguished from *cleanly* the adverb, which is pronounced /klíynliy/. It is interesting that the stem vowel /iy/ does not get laxed when *cleanly* is an adverb. It is probably because the adverb-forming suffix *-ly* is less closely tied to the stem than is the adjective-forming suffix *-ly*. Thus /nl/ here may be less of a consonant cluster when *-ly* is adverb-forming than when it is adjective-forming. Note also in this context that the laxing here is by no means obligatory when the second member of the consonant cluster is voiced, as in *means* and *demeaned* (as well as in the adverb *cleanly*).

It is intriguing that tense vowels occasionally get laxed even when they are followed by a single consonant, not by a consonant cluster, as in the data below.

(49) a. feed /f*iyd* / + -e*d* → fed /f*ed*/
b. read /r*iyd*/ + -e*d* → read /r*ed*/

The past (participial) form of either verb here may be said to end in an invisible cluster of alveolar consonants comprising the stem-final /d/ and the suffixal consonant. From the way that the stem vowel gets laxed here, we may quite plausibly argue that the stem-final consonant is underlyingly followed by the suffixal consonant without an intervening vowel.

Using the archiphoneme /T/ for the suffixal consonant here, we may posit /fiydT/ and /riydT/ as the underlying forms for the past (participial) forms of *feed* and *read* respectively. The tense stem vowel /iy/ thus gets laxed to /e/ before the consonant cluster that follows just as it does in (48). Following this laxing of the stem vowel, the consonant cluster /dT/ simplifies to /d/. Needless to say, the loss of /T/ here is attributable to the pressure of the CPR just as the laxing of the vowel is. Viewed in this way, the laxing of the tense stem vowel /iy/ to /e/ in (49) is probably identical in nature to that in (48).

Incidentally, the laxing of the tense stem vowel /uw/ to /ʌ/, as in the derivation of *product* /prádʌkt/ from *produce* /prəd(y)úws/, can be accounted for in exactly the same way.

The Great English Vowel Shift provides us with still another fascinating example of replacement serving to resolve the problem of proximate repetition. That part of the Vowel Shift which has affected the vowels in words like *wife* and *house* may be thought of as comprising roughly the stages shown below (Pyles: 184).

(50) a. w*i*fe /ī/ → /iy/ → /əy/ → /ay/
b. h*ou*se /ū/ → /uw/ → /əw/ → /aw/

The vowels in question here started as long high vowels, /ī/ and /ū/, which later developed into their respective diphthongs, /iy/ and /uw/. These diphthongs must have posed something of a problem because either involved a proximate repetition of similar sounds in the form of a cluster of either high-front or high-back vocalic sounds.

At the next stage, the nucleus portion of either diphthong lowered to /ə/ before finally lowering to /a/, while the glide portion has remained more or less constant.

Thus the two portions of either diphthong have become progressively less similar to each other, which has rendered it more tolerable from the point of view of the CPR.

Note at this point the similarity between this Vowel Shift and the laxing of tense vowels that we have discussed earlier. Both serve to help resolve the problem of proximate repetition of similar sounds posed by a vocalic cluster such as /iy/. The two are also similar in that they both resort to the device of replacement in resolving this problem.

The liquids /l/ and /r/ frequently replace each other under the pressure of the CPR. As our first example here, let us consider the phonological history of the following word.

(51) co*l*one*l* /kʌ́*r*n(ə)*l*/

From the way it is spelt, we can infer that it originally comprised three syllables with two tokens of /l/. Main stress falling on the first syllable, the vowel in the second syllable, which was immediately post-tonic, must have weakened until it finally zeroed out. Thus the first token of /l/ now came to form a medial consonant cluster with the /n/ that followed. Now the third syllable having become the second syllable and thus immediately post-tonic, its vowel gradually weakened to near extinction, bringing the two tokens of /l/ closer together.

As a result of all this, the first token of /l/ came into proximate repetition not just with the second token of /l/ but also with another alveolar sonorant, /n/, with which it formed a consonant cluster. Thus the CPR exerted double pressure on the first token of /l/ here so that this token, not the other one, ended up getting replaced by /r/.

The following data illustrates another interesting case of replacement of /l/ by /r/ that occurs on account of the CPR.

(52) a. ti*dal*, glo*bal*, cho*ral*, natio*nal*, colo*ssal*
b. circu*lar*, popu*lar*, regu*lar*, titu*lar*, singu*lar*

Observe here that *-ar* is a variant of the suffix *-al* and that it is used when the stem ends in /l/. Observe further that we would get the word-final sound sequence *-lal* if we used *-al* with stems ending in /l/. The vowel in this *-lal* being unstressed and thus weak, the distance between the two tokens of /l/ here would be very short so that these two tokens of /l/ would violate the CPR quite seriously. To cope with this problem, we replace the second token of /l/ with /r/ and thus get *-ar* as a variant of *-al*.

It is significant that the second token of /l/ here, not the first one, gets replaced by /r/. Recall our suggestion in 2.1. that pre- or post-lexical silence may be regarded as weakly consonantal. In light of this suggestion, we may say that the second token of /l/ here forms a consonant cluster with the post-lexical silence that follows. Thus this second token of /l/ would be in proximate repetition not only with the first token of /l/ but also with this post-lexical silence, while the first token

of /l/ would be in proximate repetition with the second token of /l/ only. As a result, the CPR would operate twice on the second token of /l/ and just once on the first token. This is perhaps why it is the second, not the first, token of /l/ that gets replaced by /r/ here.

The following data exemplifies replacement in the opposite direction, i.e. the replacement of /r/ by /l/.

(53) i*rr*ep*r*oachable → i*rr*ep*l*oachable

The example of replacement cited here is to be found in rapid, careless speech. Note that the second token of /r/ here is in proximate repetition not just with the first token of /r/ but also with another consonant, /p/, with which it forms a consonant cluster. On the other hand, the first token of /r/ is in proximate repetition with the second token of /r/ only. Thus the CPR operates twice on the second token of /r/ here and just once on the first token. As a result, the second token of /r/ may get replaced by /l/ here while the first token remains intact.

The derivation of *purple* (from *purpure*), *turtle* (from *turture*), etc. also involves replacement of /r/ by /l/ under similar conditions. Note that the vowel in the second syllable of *purpure* and *turture* must have practically zeroed out because they were immediately post-tonic and thus unstressed. This must have given rise to something like *pur-pre* and *tur-tre,* the word-final *e* here sooner or later having become silent on account of lack of stress. Thus the second token of /r/ here must have come into proximate repetition with not just the first token of /r/ but also with the consonant /t/ or /p/ with which it now formed a cluster. In fact, we may argue that the consonant cluster here involved a third member in the post-lexical silence that followed. Thus this second token of /r/ got replaced by /l/ under the kind of double pressure from the CPR already referred to in connection with (51), (52), and (53).

The derivation of "g*l*amou*r*" from "g*r*amma*r*" illustrates another interesting instance of /l/ replacing /r/ under the pressure of the CPR. Note that the /r/ that got replaced here was a member of a consonant cluster so that it must have been under the double pressure of the CPR from the other token of /r/ and from the other member of the consonant cluster as well.

Note at this point that the frequentative suffixal morphs *-le* and *-er* are often in complementary distribution with each other (Marchand: 273), as shown below.

(54) a. c*l*atte*r*, f*l*itte*r*, f*l*utte*r*, g*l*imme*r*, g*l*itte*r*
b. d*r*izz*le*, p*r*att*le*, spa*r*k*le*, spi*r*t*le*, w*r*igg*le*

Note that a stem with /l/ in it excludes *-le* while a stem with /r/ in it excludes *-er* with the result that neither /l/ nor /r/ is allowed to repeat itself adjacently. We thus have here a case of /l/ and /r/ replacing each other, as it were, in suffixal position under the influence of the CPR.

It is noteworthy here that the stem-internal /l/ and /r/ are constant while the suffixal consonant varies between /l/ and /r/. The lesser weight of the suffix relative

to the stem (see Note 1) may account for the variability of the suffixal consonant here, as opposed to the constancy of the same consonant in the stem. Parenthetically, a similar account is probably applicable to the fact that the suffixal /l/ changes to /r/ while the stem-internal /l/ remains constant in (52) above.

Another interesting case of replacement is provided by the derivation of *goldarn(ed)* from *goddamn(ed)*. Here the first of the two tokens of /d/ in *goddamn(ed)* gets replaced by /l/ under the pressure of the CPR. Note here that the /d/ that gets replaced is in *god* –, which is semantically less weighty than *damn(ed)* is. We may incidentally speculate here that *golly* may originate in this *gol-* of *goldarn(ed)*.

The derivation of *marble* from Latin *marmor* involves double replacement with the second tokens of /m/ and /r/ in *marmor* getting replaced by /b/ and /l/ respectively. Needless to say, this derivation involves replacement in exactly the same way as does the derivation of *purple* from *purpure* or of *turtle* from *turture*. Also the loss of the second vowel in *marmor* may be rationalized in exactly the same way as that in *purpure* or *turture*.

Whole affixes sometimes get replaced under the pressure of the CPR. Let us consider the following example (Marchand: 169).

(55) *unin*telligible, **inin*telligible

Adjectives in *-ible* typically take the negative prefix *in-*, rather than *un-*. Thus we have *invisible, impossible, illegible,* etc., but not **unvisible,* **unpossible,* **unlegible,* etc. We would thus expect to get **inintelligible* as the negative form of *intelligible*. However, **inintelligible* contains an awkward contiguous repetition of /in/ in *inin-* . To resolve this problem, we replace the negative prefix *in-* with its cousin *un-* and thus get *unintelligible* instead.

Suffixes may also get replaced when they are formally similar to the final portions of the stems to which they are to be attached. The following is a case in point.

(56) a. She is mod*est*.
b. She is mod*ester*./She is *more* mod*est*.
c.*She is the mod*estest*./She is the *most* mod*est*.

We can see from (56) that *modest* takes only the periphrastic superlative while it may take either the periphrastic or inflected comparative. We may say that the periphrastic superlative always replaces the inflected superlative here because the latter would lead to an awkward contiguous repetition of *-est* in *-estest,* which would violate the CPR quite seriously. Needless to say, other adjectives in *-est,* e.g. *honest* and *earnest,* behave in exactly the same way with regard to superlative formation.

This kind of periphrastic replacement is often resorted to in solving stylistic problems arising from proximate repetition of similar elements. For example, the periphrastic genitive often replaces the inflected genitive for stylistic improvement, as in the following data.

(57) a. Axel ignored his brother's suffering and his brother'*s* wife'*s* suffering.
b. Axel ignored his brother's suffering and the suffering *of* his brother'*s* wife.

(58) a. ?John was my sister*s*-in-law'*s* teacher.
b. John was the teacher *of* my sister*s*-in-law.

In either pair of sentences here, the second sentence is preferable to the first. This is because the first sentence contains at least two proximate tokens of the suffix -*s* while the second sentence contains just one token of the same. Note here that one token of the suffix -s in the first sentence is replaced by *of* in the second.

The following data also illustrates the use of periphrastic replacement for stylistic improvement.

(59) a. (?)He acted *manlily.*
b. He acted *like a man.*

(60) a. (?)He behaved *cowardlily.*
b. He behaved *in a cowardly manner.*

Adverbs in -*lily* are possible English words, but they are for the most part extremely clumsy stylistically and hence seldom used. Needless to say, the juxtaposition of -*li*- and -*ly* is responsible for this stylistic clumnsiness. Thus *manlily* and *cowardlily* in the above examples are often better replaced by *like a man* and *in a cowardly manner* respectively.

It is interesting to note at this point that adjectives in -*ly* such as *manly* and *cowardly* may also be used as adverbs. This is to circumvent the problem of having to use such awkward forms as *manlily* and *cowardlily,* which violate the CPR rather seriously. Incidentally, the derivation of adverbs of the *manly* type involves the suppression (2.1) of the adverbial suffix -*ly* under the pressure of the CPR.

The CPR is also instrumental in explaining why the first sentence below is often better replaced by the second.

(61) a. (?)He managed the program *enviably successfully.*
b. He managed the program *with enviable success.*

The rather low acceptability of (61a) stems from the juxtaposition of two adverbs in -*ly*. This kind of problematic juxtaposition can be avoided by using paraphrases that are free of it, as when we use (61b) instead of (61a).

Let us now consider the following two sets of sentences, in each of which a negative element is contiguously repeated.

(62) a. ?Such books are *not not* necessary.
b. *Such books are *unun*necessary.
c. Such books are *not un*necessary.

(63) a. ?We can*not not* obey him.
b. *We can *disdis*obey him.
c. We can*not dis*obey him.

Each questionable or unacceptable sentence here contains two contiguous tokens of one and the same negative element, which violates the CPR quite considerably. Either of the two acceptable sentences here replaces one of the two identical negative elements with one that has a different surface form. Note in this connection that either of the following two sentences is a stylistic improvement upon either (63a) or (63b) just as (63c) is.

(63) d. We can*not but* obey him.
e. We can*not help* obeying him.

It is important to realize here that *but* and *help* are negative elements that differ from *not* mostly in surface form only.

It is worth noting that in either (62) or (63) the second sentence is marked as less acceptable than the first. We may argue here that this difference in acceptability is the result of the difference in distance between the two tokens of the negative in question. Note that the two tokens of the negative are more proximate to each other in the second sentence than in the first; they occur in one and the same word in the second sentence while they are two separate words in the first. This is a rather interesting piece of evidence that relative distance (or proximity) is a crucial factor in the operation of the CPR.

Note also that "We ca*n't not* obey him" is a considerable stylistic improvement upon (63a) and that this improvement is due to the replacement of "*not not*" by "*-n't not.*" Since the elements proximately repeated are more similar in "*not not*" than in "*-n't not,*" this is another interesting piece of evidence that the degree of similarity is crucial to the operation of the CPR.

As our next case of CPR-conditioned replacement, let us consider the following data.

(64) a. (?)The wall will *be be*ing painted.
b. The wall will *be get*ting painted.

(65) a. (?)The wall has *be*en *be*ing painted.
b. The wall has *be*en *get*ting painted.

The first sentence in either pair here is stylistically clumsy because of the proximate repetition of *be* while the second sentence removes this clumsiness by replacing the second token of *be* with *get*. Thus popular preference for the second sentence over the first in either (64) or (65) is accountable for in terms of the CPR.

It is also under the pressure of the CPR that the relative pronoun *that* is better replaced by a *wh*-relative pronoun when the antecedent contains either *that* or *those,* as in the following examples.

(66) a. ?I love *that that* is beautiful.
b. I love *that which* is beautiful.

(67) a. (?)*Those that* believe in Jesus will go to heaven.
b. *Those who* believe in Jesus will go to heaven.

(68) a. (?)*That* book *that* I bought yesterday is interesting.
b. *That* book *which* I bought yesterday is interesting.

Note here that (66a) is less acceptable than (67a) because the relative pronoun is more similar to its antecedent in the former than in the latter. Note also that (66a) is less acceptable than (68a) because the relative pronoun *that* is closer to the antecedent *that* in the former than in the latter.

We have seen in 2.1. that nationality adjectives ending in sibilants, especially in alveolopalatal sibilants, do not readily convert into full-fledged nationality nouns. It is interesting that a large subset of these adjectives, mostly those ending in alveolopalatal sibilants, have separate nationality nouns. Thus we have adjective-noun pairs such as the following.

(69) a. Fren*ch*: Frenchman/Frenchmen
b. Dut*ch*: Dutchman/Dutchmen
c. Spani*sh*: Spaniard(s)
d. Briti*sh*: Briton(s), Britisher(s)
e. Engli*sh*: Englishman/Englishmen/Englander(s)

Suppose that the adjectives here converted into nouns and took the regular plural suffix. Then, as pointed out in 2.1., their plural forms would be burdened with proximately repeated sibilants. The separate nationality nouns listed above may thus serve the useful function of taking the place of such troublesome forms as would result if the nationality adjectives in question were allowed to convert into nouns and take the regular plural suffix.

Note in this connection that we need not worry about deriving nouns from such *-ish* nationality adjectives as *Danish, Swedish, Finnish,* and *Polish;* they themselves derive from their respective nationality nouns, i.e. *Dane, Swede, Finn,* and *Pole* respectively.

2.3. Insertion

We sometimes resort to the device of insertion as a means of avoiding proximate repetition of similar elements. As our first example of insertion used in this way, let us consider the following data.

(70) a. want + -ed → wanted /wánt*əd*/
b. add + -ed → added/ǽd*əd*/

(71) a. pass + -ed → passed /pæst/
b. pop + -ed → popped /pɑpt/
c. beg + -ed → begged /begd/

Note here that /ə/ is inserted between the stem and the suffix only when the stem-final sound is an alveolar stop, i.e. only when the stem-final alveolar stop would otherwise clash head on with the alveolar stop of the suffix. Thus we may argue that the insertion of /ə/ here serves the purpose of breaking up an awkward cluster of alveolar stops that would otherwise result.

The insertion of /ə/ exemplified by the following data may also be accounted for in a similar manner.

(72) a. pa*ss* + *-s* → passes /pǽ*s*ə*z*/
b. ama*ze* + *-s* → amazes /əméy*z*ə*z*/
c. bri*dge* + *-s* → bridges /bríǰə*z*/
d. ba*tch* + *-s* → batches /bǽčə*z*/
e. mirage + *-s* → mirages /mirážə*z*/
f. Bu*sh* + *-s* → Bush's /búšə*z*/

(73) a. Pe*te* + *-s* → Pete's /piy*ts*/
b. Bo*b* + *-s* → Bob's /ba*bz*/
c. bo*y* + *-s* → boy's /bɔ*yz*/
d. pu*ff* + *-s* → puffs /pʌ*fs*/

Note here that we insert /ə/ only when the stem ends in a sibilant, i.e. only when we would otherwise end up with a head-on clash between this stem-final sibilant and the suffixal sibilant. Thus this insertion of /ə/ is also undoubtedly the work of the CPR.

It is interesting that /ə/ gets inserted in the *b* and *c* words below while it does not in the *a* words.

(74) a. marked /mar*kt*/
b. markedly /már*kə*d*l*iy/
c. markedness /már*kə*d*n*əs/

(75) a. confused /kənfyúw*zd*/
b. confusedly /kənfyúw*zə*d*l*iy/
c. confusedness /kənfyúw*zə*d*n*əs/, /kənfyúw*z(d)n*əs/

(76) a. assumed /əsúw*md*/
b. assumedly /əsúw*mə*d*l*iy/

If we exclude the weak, post-vocalic /r/ from consideration, all the *a* words here end in a two-member consonant cluster. Note that this two-member consonant cluster would become a three-member consonant cluster in the *b* and *c* words if /ə/ were not inserted. Recall our earlier observation that a sound cluster begins to be intolerable when it comprises more than two members. Given this observation, we may contend here that the insertion of /ə/ in the *b* and *c* words above serves to prevent the creation of consonant clusters with more than two members.[20]

We sometimes resort to deletion/suppression, rather than insertion here. Thus alongside of /kənfyúwzədnəs/, we have /kənfyúwz(d)nəs/, where /d/ may be

[20] This insertion is also observable in the derivation of *avowedly* /əváwədliy/ from *avowed* /əváwd/. Note that this may be used as an argument for the claim that the glide /w/ is consonantal. This is because the insertion in question typically occurs when the stem verb ends in a consonant and is followed by the suffixal cluster *-edly* or *-edness*. Needless to say, similar comments apply to the derivation of *renewedly* from *renewed*.

deleted. The CPR, of course, is responsible for this deletion/suppression just as it is for the insertion discussed above.

We may observe in passing here that non-native speakers of English sometimes insert /ə/ between members of a consonant cluster. For example, they sometimes (mis)pronounce *strike* /strayk/ as /sətəráykə/. Superfluous as it may be, this insertion of /ə/ may be viewed as the work of the CPR in essentially the same way that the insertion of /ə/ in (70)-(76) may be. Note incidentally that /ə/ gets "inserted" word-finally after /k/ here probably because this /k/ forms a consonant cluster with the post-lexical silence that follows. Recall our suggestion in 2.1. that pre- or post-lexical silence may be treated as weakly consonantal.

The superfluous /ə/ insertion of this sort is sometimes observable in the careless speech of (less well educated) native speakers of English. Thus *athlete* /ǽθliyt/, *film* /film/, *smile* /smayl/, and *every* /évriy/ are often (mis)pronounced by such native speakers as /ǽθəliyt/, /fíləm/, /səmáyl/, and /évəriy/ respectively.

The so-called intrusive /r/ and intrusive /ʔ/ afford us another interesting example of insertion used as a device for coping with the problem of proximate repetition of similar elements. Let us consider the following data.

(77) a. Id*a* *a*nd John /âydə*(r)*ən(d)ǰán/
b. tr*iu*mphant /tra*y(ʔ)*ʌ́mfənt/

It goes without saying that we insert the intrusive /r/ and /ʔ/ here in order to avoid the contiguous repetition of vowels that would otherwise result. Note parenthetically that vowel clusters appear to be as much of a strain on language users as consonant clusters. Thus vowel clusters tend to be constrained as much as their consonantal counterparts do.

It is interesting to note in this connection that the intrusive /r/ is usually disallowed in instances such as the following.

(78) a. Cla*ra* *er*ased the whole thing.
b. ?Cla*ra* *r* *er*ased the whole thing.

(79) a. Liz and Ve*ra* *are* here already.
b. ?Liz and Ve*ra* *r* *are* here already.

(80) a. The ope*ra* *is* good.
b. (?) The ope*ra* *r* *is* good.

Note that the intrusive /r/, if used here, would be flanked by /r/ on one or both sides, which would violate the CPR quite seriously. This is evidently why the intrusive /r/ is usually disallowed in the kind of context exemplified above. In the light of examples like (78)-(80), we should add to the intrusive-/r/ rule the proviso that its application be blocked in the close vicinity of one or more tokens of /r/.[21]

[21] Note that the probability of the intrusive *r* in *"The window is open,"* for example, is contingent upon how *window* is pronounced. The intrusive *r* is more apt to occur when *window* is pronounced as /wíndə/ than when it is pronounced as /wínd*ow*/. Note here that the glide /w/ is arguably consonantal (see Note 20 above) so that /wínd*ow* + *iz*/ involves far less of a clash of vowels than /wində + *iz*/ does.

The so-called linking /r/ is functionally analogous to the instrusive /r/ in that it also serves to keep vowels from being contiguously repeated. If it were not for this linking /r/, we would get clumsy vowel clusters in such expressions as the following.

(81) a. W*ar a*nd Peace
b. f*ar a*nd wide

2.4. Phonotactic Constraint

The CPR also seems to be capable of making possible a principled explanation as to why certain sound sequences rarely or never occur in English. Let us begin our discussion here by considering the following data.

(82) a. wood /*wu*d/, woman /*wú*mən/, wool /*wu*l/, wound /*wuw*nd/
b. yin /*yi*n/, yipee /*yí*piy/, yield /*yiy*ld/

Both /wu(w)/ and /yi(y)/ are rather rare sequences of sounds in English because they are clusters of similar sounds and thus violate the CPR rather seriously. Note here that /w/ and /u(w)/ are both high back while /y/ and /i(y)/ are both high front.

It is interesting that non-native speakers of English often have difficulty with either sequence here. They are often heard to simplify /wu(w)/ and /yi(y)/ to /u(w)/ and /i(y)/ respectively, mispronouncing *wood* /wud/ and *yin* /yin/ as /ud/ and /in/ respectively, for example. These simplifications, misguided as they may be, may count as an additional example of CPR-motivated deletion (2.1.).

The derivation of *wonder* from the Old English *wundor* is also apparently reflective of the desire to give /wu/ a "wide berth." *Wundor* must have begun with something like /wu/, which rather seriously violated the CPR and was thus unstable. The /u/ of this /wu/ must have been replaced by /ʌ/ to make the sequence in question more tolerable from the point of view of the CPR and thus more stable. Incidentally, this may count as one more example of CPR-conditioned replacement (2.2.).

Notice at this point that both /wu(w)/ and /yi(y)/, especially the latter, are rarely preceded by a consonant. One reason for this may be the fact that consonants are (maximally) close or constricted sounds, so to speak, much as high vowels and glides are. In other words, /Cwu(w)/ or /Cyi(y)/, where /C/ stands for consonant, is a cluster of three similar sounds so that it violates the CPR quite seriously and thus tends to be maximally constrained.

In fact, *swoon, swoop, swoosh, whoop, whoops, whoopee,* and *whoosh* just about exhaust the list of commonly used words containing the problematic sequence /Cwu(w)/. Even here the sequence is so unstable that either /C/ or /w/ sometimes deletes as in *whoop,* which may be pronounced as /hwuwp/, /wuwp/, /huwp/, or /wup/. The other problematic sequence /Cyi(y)/ is virtually non-existent. The only English word with /Cyi(y)/ that I would ever have occasion to use is perhaps the name of the Russian river *Yenisei* /yìnyisyéy/. Even this, however, is a Slavism

and more often than not gets replaced by the Anglicized /yèniséy/.[22]

Let us now turn our attention to the fact that not just /Cwu(w)/ and /Cyi(y)/ but also /CwV/ and /CyV/ are on the rare side, where /V/ is a vowel other than /i(y)/ or /u(w)/. Admittedly /CwV/ and /CyV/ are not as rare as /Cwu(w)/ and /Cyi(y)/ respectively. This is precisely the way it should be because /CwV/ and /CyV/ violate the CPR less seriously than /Cwu(w)/ and /Cyi(y)/ do. Note here that /CwV/ or /CyV/ contains a cluster of just two constricted sounds while /Cwu/ or /Cyi/ contains one of three such sounds.

Note at this point that the dual nature of the glide /w/ or /y/ may be another reason why /CwV/ and /CyV/, including /Cwu(w)/ and /Cyi(y)/, are on the rare side. Either glide in question here is both vocalic and consonantal so that its occurrence immediately after a consonant violates the CPR on one count and its occurrence immediately before a vowel does so on another count. Thus /CwV/ or /CyV/ violates the CPR at least on two additional counts with the result that it tends to be avoided.

Speaking of the sequence /CwV/, where /V/ is not /u(w)/, we find that the following tokens of this sequence seldom occur.

(83) a. /fwV/, /vwV/, /mwV/
b. /pwV/, /bwV/

All the prevocalic sequences of sounds here are clusters of labials so that they all violate the CPR on this additional count. This in our terms is largely why the sound sequences of (83) either do not occur or occur only rarely. Note here that the sequences of (83a) occur more rarely than those of (83b), which occur only very rarely. This may stem in part from the fact that stops are more consonantal and thus less vocalic than non-stops. If stops are indeed less vocalic than non-stops, /f/, /v/, and /m/ are more similar to /wV/ than /p/ and /b/ are. If so, the sequences of (83a) violate the CPR more seriously than do those of (83b). This is probably the main reason why the sequences of (83a) are normally less tolerable than those of (83b).

Even the sequences of (83b) are confined for the most part to words of (relatively recent) foreign origin such as the following.

(84) a. *Pue*blo
b. Zimba*bwe*

Note here that the sequences /pwV/ and /bwV/ in these words have been borrowed from other languages and are thus slightly alien to English phonology. There

[22] Note here that not just /Cyi/ but also /Cyey/ gets Anglicized. That is, /nyi/ and /syey/ get Anglicized to /ni/ and /sey/ respectively, losing the troublesome /y/ glide in the process. The loss of /y/ here is not unlike the loss of the same glide in some non-native speakers' mispronunciation of *yin* /yin/ as /in/, for example. Observe here the change of the initial /yi/ to /ye/, which may indicate that /yi/ also constitutes very much of a strain on the CPR. We may also note at this point *Nieman* /nyémen/, another Slavism, which is normally Anglicized to either /níymən/ or /némən/.

is no telling at this point whether they will become productive sequences in English or somehow Anglicize.

There appear to be some indications that these essentially alien sound sequences are in the process of getting Anglicized. We may cite the following interesting data in support of this contention.

(85) a. Puerto Rico /*pwèr*towríykow/, /*pòwr*towríkow/
b. puissant /*pwí*sənt/, /*pyúw*sənt/
c. Buenos Aires /*bwèy*nəsériyz/, /*bòw*nəsériyz/
d. Buena Vista /*bwèy*nəvístə/, /*byùw*nəvístə/

For each of the words here, English allows the second alternative pronunciation, which is less authentic but more English than the first alternative pronunciation. The second alternative pronunciation replaces the troublesome sequence here with its Anglicized version that is clear of the un-English phonotactic structure of the original sequence. Needless to say, (85) could have been cited in 2.2. in connection with our discussion of CPR-conditioned replacement.

Similar Anglicization is observable with the sequences /mwV/ and /vwV/, as can be seen from the following data.

(86) a. chamois /*šǽmwa*/, /*šǽmiy*/
b. armoire /*ár*mwar/, /*ár*mər/
(87) a. reservoir /rézər*vwàr*/, /rézər*vàr*/
b. au revoir /ðrə*vwár*/, /ðrə*wár*/

The availability of the second alternative pronunciation for each word here bears eloquent witness to its phonological Anglicization. It is interesting that the second alternative pronunciation is perhaps even more popular than the first at least for (86a) and (86b). This, if true, may mean that the essentially alien sequence /mwV/ is well on its way out.

The sequence /CwV/ is also rare when /C/ is velar or glottal. The main reason for this is perhaps that a velar or glottal sound is highly similar to /w/ in that they are both high back. In other words, /kwV/, /gwV/, and /hwV/ are not too common in English mainly because the first two segments in each sequence seriously violate the CPR. Note at this point that /gwV/ is rarer than /kwV/ probably because the voiced /g/ is more similar to the voiced /w/ than is the voiceless /k/ so that the former sequence violates the CPR more seriously than does the latter.

Recall that we have already referred in 2.1. to the tendency in some varieties of English for /h/ to delete from /hwV/ in such words as *when* and *wheat* under the pressure of the CPR. We have also mentioned in 2.1. the tendency for /g/ to delete, in some idiolects, from /gwV/ in such words as *distinguish* and *language*. Needless to say, this also goes to show how unstable the sequences /hwV/ and /gwV/ are in English.

It is interesting to note that /w/ sometimes also deletes from /kwV/ and /gwV/ in such words as the following.

(88) a. quadrille /*kw*ədríl/, /*k*ədríl/
b. quinine /*kwáy*nàyn/, /*k*əníyn/
c. harlequin /hárlə*kw*ən/, /há ɾlə*k*ən/

(89) a. Antigua /æntí*gw*ə/, /æntí*g*ə/
b. Guadaloupe /*gwà*d(ə)lúwp/, /*gà*d(ə)lúwp/

The glide /w/ deletes optionally here under the pressure of the CPR. This /w/ deletion, which could have been discussed in 2.1. under the heading of deletion/suppression, is another indication that /kwV/ and /gwV/ are unstable and thus becoming rarer. Note further in this connection that the word-initial /k/ in words such as *king* and *kiss* were originally followed by /w/. The loss of /w/ here, which is also CPR-conditioned, attests further to the inherent instability of the sequence /kwV/ and also to the fact that the sequence is currently rarer than it once was.

In fact, there is evidence that /CwV/, where /C/ is neither labial nor velar, has also become rarer (in post-tonic position) than it used to be. Let us consider the following words.

(90) a. Warwick /wórwik/, /wórik/
b. Norwich /nórwič/, /nóriič/
c. Greenwich /grí(y)*nw*ič/, /grí(y)*ni*č/

Originally, the first alternative pronunciation for each word here must have been the only pronunciation. It must have lost its post-consonantal /w/ with the passage of time under the pressure of the CPR, giving rise to the second alternative pronunciation. It is interesting that these words tend to retain the /w/ in question here when they refer to places in the United States, probably because of spelling pronunciation, while they tend to drop it when they refer to palces in the British Isles. Note that these words have a longer history as British place names than as American ones so that the CPR has had a longer time to operate on the former than on the latter. Given sufficient time, these words as American place names may eventually lose their post-consonantal /w/ also.

Note in this connection that /r/ and /n/ are like /w/ and /V/ in that they are all sonorants with the result that the sequences /rwV/ and /nwV/, as in (90), violate the CPR on this count also. In fact, not just /r/ and /n/ but also other sonorant consonants seldom occur before /wV/ syllable-internally. Thus not just/rwV/ and /nwV/ but also /lwV/ and /mwV/ seldom occur syllable-internally. Recall at this point our earlier contention (see (83a)) that the virtual non-occurrence of /mwV/ is also attributable at least in part to the fact that /m/ and /w/ are both labials.

It is interesting that the alveolopalatal consonants /č/, /ǰ/, /š/, /ž/, and /r/ seldom or never occur before /wV/ syllable-internally. Thus English does not normally allow sound sequences such as the following.

(91) /čwV/, /ǰwV/, /šwV/, /žwV/, /rwV/

As has already been pointed out, /CwV/ in general violates the CPR rather seriously and therefore tends to be avoided. Note now that the alveolopalatal consonants under consideration here are further similar to /w/ in that their articulation

also involves considerable lip rounding. Thus /čwV/, /ǰwV/, /šwV/, /žwV/, and /rwV/ violate the CPR on this additional count also, which is perhaps why they seldom or never occur in English.

Admittedly /šwV/ does occur syllable-internally, albeit in an extremely limited number of words. Since this /šwV/ occurs mostly in words of relatively recent Germanic origin and is far from productive, it could perhaps be dismissed as un-English and thus insignificant. The sequence /žwV/ also does occur, but far more rarely than the sequence /šwV/, being limited to a minority pronunciation of a few words like *usually* /yúwžwəliy/. It is interesting that even this minority pronunciation tends to get replaced by /yúwžəliy/ with /žwV/ getting simplified to /žV/ under the pressure of the CPR.

Recall our reference in 2.1. to the deletion of /w/ from *conquer* and *answer*. We have suggested that this /w/ gets deleted under the influence of the CPR because it is in proximate repetition with the /r/ that follows. We may add here that another reason for the deletion of this /w/ is its occurrence in postconsonantal position. Note in this connection that this CPR-related tendency to avoid /CwV/ has also apparently given rise to the dialectal *'(u)n'* /(ə)n/ for *one* /wən/, as in "I'm a *rich '(u)n'*" for "I'm a *rich one*."

It is worth noting at this point that the sequence /wu/ is seldom followed by /r/ in English. Let us consider the following data.

(92) worsted /*wú*stəd/, /*wə́r*stəd/, */*wúr*stəd/

Note that the /w/, /u/, and /r/ here are similar to each other in that they are all high-back and involve considerable lip rounding. Thus a cluster of these three sounds would violate the CPR quite seriously, which is why such a cluster tends to be avoided.[23]

It is significant that the sequences /wu/ and /wər/ are allowed in (92) while the sequence /wur/ is not. This is because either /wu/ or /wər/ comprises just two similar sounds while /wur/ is a cluster of more than two similar sounds. Recall our earlier observation in 2.1. that a sequence of similar sounds begins to violate the CPR very seriously and thus be intolerable when it comprises more than two members.

The following data is amenable to a similar explanation.

(93) Worcester /*wú*stər/, */*wúr*stər/

Here again we see that a sequence of two similar sounds, i.e. /wu/, is tolerable while a sequence of three such sounds, i.e. /wur/, is not.

[23] Incidentally, the sequence /u(w)rC/ seldom occurs morpheme-internally, except in a few foreignisms. This is because it is a cluster of three highly constricted sounds and also because its subsequence /u(w)r/ is a cluster of high back sounds. Note in this connection that the sequence /u(w)lC/ also seldom occurs morpheme-internally for similar reasons, again except in a few foreignisms. Note here that the problem posed by this sequence is sometimes solved by deleting the medial member of the sequence, i.e. /l/, as in *would* and *should*.

The word *wurst* marginally allows the problematic sequence /wur/, as shown below.

(94) wurst /*wər*st/, /*wu(ə)r*st/

The second alternative pronunciation here, which may contain the problematic sequence /wur/, happens to be a deliberate approximation to the original German pronunciation of the word. It is, however, less common than the first alternative pronunciation, which may be reflective of popular resistance to the weird sequence /wur/. Incidentally, even in the second alternative pronunciation, the optional schwa often comes between /wu/ and /r/ so that *wurst* is rarely pronounced as /wurst/. It is interesting that even /ur/ seldom occurs syllable-internally whereas /uər/ does, which may indicate that not just /wur/ but also /ur/ seriously violates the CPR. Note that the use of the schwa here may perhaps count as one more example of CPR-related insertion of the type discussed in 2.3.

The CPR is also instrumental in explaining why sound sequences such as the following seldom occur.

(95) /čyV/, /ǰyV/, /šyV/, /žyV/, /ryV/

The first two sounds in each sequence above are alveolopalatal. As has already been suggested, these two sounds are further alike in that they are both highly constricted. It has also been noted earlier that the glide /y/ is both vocalic and consonantal so that it is at once like the consonant that precedes and like the vowel that follows. Thus the sequences of (95) violate the CPR on multiple counts, which is why they seldom occur at least syllable-internally.

The CPR is also responsible for the dearth of sound clusters of various other types. For example, geminate vowels or consonants seldom occur, especially syllable-internally or even morpheme-internally. Clusters of either lax or tense vowels do not normally occur. When two vowels do occur one after the other, normally the first vowel becomes tense so that the two vowels get separated by /y/ or /w/, as the case may be. Since either glide here is (weakly) consonantal, the "insertion" of /y/ or /w/ here may be thought of as serving to keep the two vowels in question from being contiguously repeated.[24]

Suppose at this point that we tensed the second vowel in a cluster of two vowels instead of the first vowel. We would then get cases in which neither /y/ nor /w/ comes between the two vowels that constitute a cluster. Such a cluster would be quite problematic since it would violate the CPR quite seriously. This is perhaps why the first vowel, rather than the second one, gets tensed when we have a cluster of two vowels.

2.5. Stress and Vowel Alternation

Rules for stress assignment also obey the CPR. Thus tonic syllables tend to

[24] Note that the article *the* is pronounced as /ðiy/ prevocalically and as /ðə/ (or /ðiy/) elsewhere. Note further that here again the glide /y/ comes between two vowels and thus renders their repetition less proximate than would otherwise be the case.

alternate with atonic syllables so that either tonic or atonic syllables, especially the former, are not normally repeated contiguously.

Let us begin our discussion here by examining the following data.

(96) a. rĕfér + -ée → rèfĕrée, *rĕférée
b. găzétte + -éer → gàzĕttéer, *găzéttéer
c. Jăpán + -ése → Jàpănése, *Jăpánése
d. cĭgár + -étte → cìgărétte, *cĭgárétte

All the suffixes here bear inherently heavy stress, and so do the final syllables of the stems to which they are attached. Thus two heavy stresses would clash head on in each of the derived words above if the stem-final syllable and the suffix were allowed to retain their original stresses. As it turns out, however, the stem-final stress normally gets displaced and reassigned to the stem-penultimate syllable while the suffixal stress remains intact. Since, as a matter of convention, primary stress weakens to tertiary when it gets reassigned within a word, the penultimate syllable of the stem now bears tertiary stress. Thus we end up with primary stress on the suffix and tertiary stress on the second syllable to the left thereof. In this way, we manage to avoid the contiguous juxtaposition of two stressed syllables that would otherwise result.

It may be in order here to observe that the stress realignment under discussion here is accompanied by a comparable vowel realignment. Thus the stem-final syllable gets its originally strong vowel downgraded to an extremely weak vowel, usually /ɨ/ or /ə/, while the stem-penultimate syllable gets its originally weak vowel upgraded to a strong vowel. As a result, strong vowels are made to alternate with weak vowels in such a way that repetition of either strong or weak vowels in contiguous syllables is maximally constrained.

The suffixes *-ent* and *-able* must have formerly been inherently stressed suffixes just as the suffixes of (96) are today. This is apparently why they behave in a highly similar manner with respect to stress placement and vowel alternation in words such as the following.

(97) a. ădmíre + -able → ádmĭrable, *?ădmírable
b. rĕpúte + -able → répŭtable, *?rĕpútable

(98) a. rĕfér + -ent → réfĕrent, *rĕférent
b. rĕside + -ent → résĭdent, *rĕsídent
c. rĕvére + -ent → révĕrent, *rĕvérent

Although *-ent* and *-able* do not normally carry any significant stresss, they do displace the stem-final stress and reassign it to the stem-penultimate syllable here. Upon closer examination, we find that these suffixes do have considerable structural weight in that they end in consonant clusters. Heavy syllables, i.e. those containing either a complex vowel or a consonant cluster or both, tend to get considerable stress. It is thus not totally unlikely that these suffixes bear some latent stress.

In fact, *-ent* is often pronounced with tertiary stress in such words as *résidènt,*

cónsequènt, and *évidèntly.* The suffix *-able* also bears tertiary stress in the archaic pronunciation of words such as *cómmendàble.* This may be reflective of the tonic heritage of these suffixes. Observe here that the words cited in (97) and (98) may be viewed as apparent fossils or relics testifying to the tonic past of the suffixes in question.

If so, the pre-suffixal stress alternation with its resultant vowel alternation in (97) and (98) is similar in nature to that observed in connection with (96). The only major difference between (96) and (97)-(98) appears to be that the suffixes normally retain heavy stress in (96), which they lose in (97)-(98).[25]

Notice at this point that we have words like *computable, preferable, comparable,* and *lamentable,* in which main stress may sometimes shift from the first syllable to the second. This may be taken as an indication that *-able* in these words is apparently still in the process of changing from a tonic suffix to an atonic one.

Also going the way of *-ent* and *-able* is perhaps *-ant,* a suffix similar to *-ent* in form, function, and origin. Note that *contestant* alternates between its more common pronunciation /kə̀ntéstə̀nt/ and its less common, slightly archaic pronunciation /kə́ntěstə̀nt/. Note also that *protestant* alternates between /prə́tə̀stə̀nt/, used for all its senses, and /prə̀téstə̀nt/, restricted to the sense of either "protesting" (adj.) or "a person who protests." The stress (as well as vowel) alternation here can be neatly accounted for with the help of the CPR, if we assume that *-ant,* originally tonic and currently atonic elsewhere, is becoming atonic in words such as *contestant* and *protestant.* We may point out in passing here that *-ence* and *-ance,* of course, behave like *-ent* and *-ant* in determining the patterns of stress/vowel alternation in the stem.[26]

Data such as the following makes it quite clear that we need not confine our discussion here to words ending in (inherently tonic) monosyllabic suffixes.

(99) a. dǐvíne + -átiŏn → dìvǐnátiŏn, *dǐvínátiŏn
b. dĕcláre + -átiŏn → dèclărátiŏn, *dĕclárátiŏn
c. ăppéar + -ítiŏn → àppărítiŏn, *ăppéarítiŏn
d. ĕxpóse + -ítiŏn → èxpŏsítiŏn, *ĕxpósítiŏn

For each noun here, the stem-final syllable and the suffix-initial syllable are originally tonic. We would thus have a head-on clash between the two tonic syllables in question if we did not reassign the stresses here in some way or other. As it turns out, the stem-final stress gets displaced and reassigned to the stem-penultimate

[25] The ending *-end,* as in *dívidènd* and *réverend,* may be treated as an originally tonic suffix on a par with *-ent.* This would enable us to explain why we have the kind of stress assignment and vowel realignment that we get in the derivation of *dívidènd* and *réverend* from *"divíde + -end"* and *"revére + -end"* respectively. Note in this connection that *-end* bears tertiary stress in *dívidènd,* which may be due to its tonic past.

[26] The suffix *-ant(e),* which smacks of French, could also perhaps be treated as one of the inherently stressed suffixes under consideration here. Note that the second syllable is tonic in *commánd* and *debút* while it is atonic in *còmmandánt* and *dèbutánt*(e).

syllable, just as it does in (96). This realignment of stress is accompanied by a similar realignment of vowels, again as in (96).

Words ending in disyllabic suffixes like *-ity* and *-ian* afford us further examples supportive of our contention here. Let us consider the following data.

(100) a. aŭthéntic + -ity → aùthĕntícity, *aŭthéntícity
b. phŏnétic + -ian → phònĕtíciăn, *phŏnétíciăn

The suffixes here typically assign primary stress to the stem-final syllable. Since the stem in either case here already has primary stress on the penultimate syllable, we would end up with two contiguous tonic syllables if we did not do something about it. It so happens that the stem-penultimate stress gets displaced and moved one syllable to the left. The vowels affected by the movement of stress here are, of course, realigned in familiar, largely predictable ways. Again the avoidance of contiguously repeated tonic syllables here is the work of the CPR.

Parenthetically, we may reanalyze *-ation* and *-ition* into "*-at-* + *-ion*" and "*-it-* + *-ion*" respectively. Under this reanalysis, we may treat *-ion* as a disyllabic suffix of the *-ian/-ity* type. This reanalysis is probably capable of making possible a more significant generalization, but either analysis serves our purpose equally well.

The CPR also plays a key role in determining the degree of stress on such monosyllabic prefixes as *un-*, *in-*, *mis-*, *dis-*, and *mal-*. Let us examine the following data of words beginning with some of these suffixes.

(101) a. ŭnáble, ŭnúsuăl, ŭnhápp̆y
b. ùnprĕdíctăble, ùnrĕsólved, ùnrĕlénting

(102) a. indéfinite, indécĕnt, invárĭăble
b. ìnĕxpénsive, ìndĕfénsible, ìnŏrgánic

(103) a. dislóyăl, dishónĕst, disgústing
b. dìscŏnnéct, dìsĕnchántĕd, dìsrĕspéct

The prefixes here tend to get much weaker stress when the stem begins with a tonic syllable than when it begins with an atonic syllable. Thus stress is normally assigned to these prefixes in such a way as to keep either tonic or atonic syllables from being contiguously repeated. We would claim here that stress is assigned in this manner under the pressure of the CPR.[27]

The behavior of the suffixes *-ary*, *-ory*, and *-ery* provides us with yet another interesting example of the CPR affecting stress assignment in (American) English. The first syllables of these suffixes normally get zero stress in immediate post-tonic

[27] When these prefixes are stressed in immediate pretonic position, as for contrastive emphasis, considerable pause comes between the two stresses so that there is greater distance between the suffix and the stem that follows than would otherwise be the case. Needless to say, greater distance is used here in order to render the repetition of the two stresses less proximate than would otherwise be the case. In fact, when two heavy stresses are juxtaposed, a longer than normal pause generally separates the two. This phenomenon, in our terms, is due to the CPR.

position and tertiary stress elsewhere, as is shown in the data below.

(104) a. mílitàry, tríbŭtàry
b. èlĕméntărỳ, bínărỳ

(105) a. ĕxpósĭtòry, ŏbsérvătòry
b. ădvísŏry, vàlĕdíctŏry

(106) a. cémĕtèry, cŏnféctiŏnèry
b. bákĕry, físhĕry

Here again we can see that stress is so distributed as to keep clusters of tonic syllables from being formed.[28]

One might take issue with our claim here, saying that there are in American English such counterexamples as the following.

(107) a. contrary /kántrèriy/, (?)/kántrərĭy/
b. library /láybrèriy/, /láybrərĭy/

We would expect the first vowel of the suffix *-ary* to be unstressed and thus reduced here because it is immediately post-tonic. At least in American English, however, this vowel is almost always stressed and hence unreduced. In fact, this vowel is always stressed and thus unreduced in the typical American English pronunciation of *contrary*. Thus the two words of (107) do appear to be genuine counterexamples.

On closer examination, however, we find that the first vowel of *-ary* in both words of (107) is flanked by /r/ on both sides. We thus need to cope in one way or another with the problem posed by this proximate repetition of /r/ here. One solution is to put more distance between the two tokens of /r/. This is precisely what we do here, by opting to stress and thus not weaken the vowel that comes between the two problematic tokens of /r/. Note here that we can put more distance between the two tokens of /r/ by using between them a stressed, unweakened vowel

[28] The suffix *-ative* behaves similarly with respect to stress placement. The *a* of *-ative* is unstressed and thus weak in immediate post-tonic position while it tends to be stressed and thus strong elsewhere, especially in American English. Thus this *a* of the suffix is unstressed and weak in *compárative* while it is more often than not stressed and strong in *quálitàtive*.

Note incidentally that both syllables of *-ary*, *-ory*, *-ery*, and *-ative* are typically unstressed in immediate post-tonic position, which may indicate that the CPR is more tolerant of a cluster of atonic syllables than it is of one of tonic syllables. On the other hand, it may be speculated that the final syllable of a word is always more or less stressed, especially when it is not immediately post-tonic. If this is indeed the case, then the suffixes in question here would never involve clusters of atonic syllables.

In fact, there appears to be some evidence that a word-final syllable tends to carry considerable stress, be it immediately post-tonic or not. Note that a vowel ending such a syllable is rarely a completely reduced vowel such as /ɨ/ or /ə/, i.e. a vowel commonly associated with zero stress. Even when we do get a word-final /ə/, as in *America* /əmérəkə/, it is often more prominent than a word-initial or -medial /ə/. In fact, the weakest vowel /ɨ/ apparently never occurs word-finally.

Granted that both syllables of the suffixes in question here are unstressed in immediate post-tonic position, the first syllable often loses its vowel, as in *elementary* /eləméntriy/. Needless to say, this goes to show that the cluster of atonic syllables here is fairly intolerable on account of the CPR.

than by using an unstressed, weakened one. A stressed, unweakened vowel is longer than its unstressed, weakened counterpart. Seen in this light, neither *contrary* nor *library* should count as a genuine counterexample.

Observe here the interesting fact that in typical American English the first vowel of *-ary* never gets weakened in *contrary* while it sometimes does in *library*. This difference may be due to the fact that *-ary* is preceded by a three-member consonant cluster in *contrary* and by a two-member consonant cluster in *library*. A three-member consonant cluster apparently constitutes a longer distance than does a two-member one so that *-ary* is farther from the primary-stressed, first vowel in *contrary* than in *library*. Thus we may argue that the CPR is tolerant of stress on the first syllable of *-ary* to a greater extent in *contrary* than in *library*. Also other things being equal, a vowel tends to be shorter after a longer consonant cluster than after a shorter one. Thus there may be a need to make the vowel in question stronger and longer in *contrary* than in *library*.

Note in this connection that in American English *primary* is usually pronounced as /práymèriy/ and sometimes as /práyməriy/. The second pronunciation here is what we would normally expect because the suffix *-ary* is immediately post-tonic. However, we have a rather proximate repetition of /r/ here, though not as proximate as in (107), with one token in the stem and the other in the suffix. We may thus argue that we often opt not to weaken the stress on the first vowel of *-ary* here in order to put more distance between the two tokens of /r/ and thus render the repetition less proximate than would otherwise be the case.

Note at this point that segmental considerations take precedence over suprasegmental ones in the application of the CPR here. Otherwise, the first vowel of *-ary* would always be unstressed and thus reduced in *contrary, library,* and *primary*. This is probably the way it should be because phonology may be primarily segmental and only secondarily suprasegmental.

Let us now consider the following *-ary* words with special reference to their behavior under stress assignment.

(108) a. dietary /dáyətèrǐy/, *?/dáyətə̆riy/
b. proprietary /prə̆práyətèrǐy/, *?/prə̆práyətə̆rǐy/

If the triphthong in *diet-* and *-priet-* is one vowel, as is popularly assumed, the suffix *-ary* is immediately post-tonic in either word above. Thus we should get the second alternative of the two pronunciations listed for either word here. However, we get as the only acceptable pronunciation in American English the other alternative, which we would normally expect when *-ary* is not immediately post-tonic.

This apparent anomaly disappears as soon as we think of the triphthong here as comprising a series of two vowels, i.e. /ay/ and /ə/. Under this reanalysis of the triphthong, the first segment /ay/ only is stressed so that the second segment /ə/ counts as a separate, unstressed syllable. Thus the suffix *-ary* here does not occur in immediately post-tonic position, and hence its first vowel does not get weakened.

Incidentally, based upon this sort of evidence, we may contend that a triphthong is not one vowel, as has been traditionally assumed, but a series of two vowels.

The CPR also throws light on why the vowels in such suffixes as *-ent, -ant,* and *-al* vary from (near) zero to a fuller form. Let us consider the following words, each of which ends in one of these suffixes.

(109) a. stúdĕnt, pótĕnt, fátăl, brútăl
b. résidĕnt, ímpŏtĕnt, ĭnhábĭtănt, skélĕtăl, pálătăl

The suffixes are immediately post-tonic in the *a* words here so that the CPR would normally tolerate only (near) zero stress on them. In the *b* words, on the other hand, the same suffixes are located two syllables after the main stress and thus not immediately post-tonic so that the CPR would normally allow non-zero stress on these suffixes. As a result, the suffixal vowel is normally near zero in the *a* words while it tends to be more clearly enunciated in the *b* words.

Note in this connection that the suffixal vowel is far weaker in *séquĕnt* than in *cónsĕquènt/cónsĕquĕnt*. One reason for this undoubtedly is that the suffix is immediately post-tonic in *séquĕnt* while it is only mediately post-tonic in *cónsĕquènt/cónsĕquĕnt*.

The difference in the value of the final vowel in the following words is amenable to a similar explanation.

(110) a. Dáltŏn, Snówdŏn
b. Hámĭltŏn, Wímbĭledŏn

Both *-ton* and *-don* are immediately post-tonic in the *a* words, at least more so than they are in the *b* words, so that they tend to get (near) zero stress in the *a* words and non-zero stress in the *b* words. As a result, the vowel in either *-ton* or *-don* is normally nearer zero in the *a* words than in the *b* words.

It is interesting to note in this connection that the vowel in the second syllable is nearer zero in the *a* words below than in the *b* words.

(111) a. Dáltŏn, Lýntŏn
b. Wáldĕn, Lýndŏn

The two vowels in each word here are separated from each other by a two-member consonant cluster. Both members of the cluster are voiced in the *b* words while only one member of the same is in the *a* words. Since a voiceless consonant is shorter than its voiced counterpart, the tonic first vowel here is followed by the second vowel more immediately in the *a* words than in the *b* words. The CPR thus exerting more pressure on the *a* words than on the *b* words, it is only natural that the *a* words should have a weaker second-syllable vowel than the *b* words.

It is noteworthy that many of the English stress rules proposed by linguists such as Chomsky and Halle are so formulated as to prevent the formation of stress clusters. In other words, their stress rules operate in such a way as to maximally constrain contiguous repetition of stress.

For example, Chomsky and Halle's *Alternating Stress Rule* assigns primary stress

to the antepenultimate syllable and tertiary stress to the ultimate syllable, leaving the penultimate syllable unstressed. As a result, the output string contains no clusters of either tonic or atonic syllables.

Chomsky and Halle's *Compound Stress Rule* and *Nuclear Stress Rule* are further cases in point. Both rules weaken main stress in one of the constituents so that there will be no (immediate) juxtaposition of two main stresses in the output string. The *Compound Stress Rule* weakens main stress in the second constituent to tertiary while the *Nuclear Stress Rule* weakens main stress in the first constituent to secondary. Thus given the two constituents *bláck* and *bóard,* we get *bláckbòard* via the *Compound Stress Rule* and *blâck bóard* via the *Nuclear Stress Rule.*

Note here that the distance between the two constituents is evidently shorter when the *Compound Stress Rule* applies than when the *Nuclear Stress Rule* does, for a compound word as a lexical unit is a closer-knit unit than a syntactic phrase is. Note further that this difference in distance is reflected in the extent to which the main stress in one of the two constituents is weakened. According to the CPR, the more proximate the repeated elements are, the less similar they should ideally be. Note that this is exactly what we have here. The output of the *Compound Stress Rule,* "Primary Stress + Tertiary Stress," involves two less similar stresses than does the output of the *Nuclear Stress Rule,* "Secondary Stress + Primary Stress."

Note parenthetically that the tertiary stress in the second constituent of a compound word often gets zeroed out with the passage of time. For example, the second constituent in *cúpboărd, póstmăn,* and *géntlemăn* is currently unstressed although it must have at one time carried considerable stress. This may mean that the presence of even tertiary stress in the immediate proximity of primary stress is rather intolerable here because of the close-knit nature of a compound word.[29]

Let us now consider the shift of stress often associated with such words as *Japanese* and *upstairs,* as illustrated by the data below.

(112) a. He's *Jàpănése.*
b. It's a *Jápănèse cústŏm.*

(113) a. He studies *ùpstáirs.*
b. It's in the *úpstàirs stúdy.*

Both *Japanese* and *upstairs* get primary stress on the last syllable and tertiary stress on the first syllable when they are not (immediately) pretonic, as in the *a* sentences here. When these same words are immediately pretonic, as in the *b* sentences above, their primary and tertiary stresses generally change places. If it were not for this shift of stress, the CPR would be seriously violated because we would end up with clumsy clusters of maximally tonic syllables in the *b* sentences.

[29] The history or institutionality of a word often appears to be relevant to the phonological and other linguistic behavior of that word. Note that the second syllable is normally far less tonic in, say, *cupboard, clapboard,* and *starboard* than in *blackboard.* Note further that *cupboard, clapboard,* and *starboard* are perhaps older and hence better established than *blackboard.* Given examples such as these and (90) in 2.4., it appears that, other things being equal, an older form tends to be subject to the CPR far more than a newer form is.

Finally, let us consider the simplification of clusters of atonic syllables, as exemplified by the following data.

(114) a. preference /préf(ə)rəns/
b. preferential /prèfərénšəl/

(115) a. comfortable /kʌ́mf(ər)təbl/
b. comfort /kʌ́mfərt/

(116) a. vegetable /véj(ə)təbl/
b. vegetarian /vèjətériən/

(117) a. educational /èjəkéyš(ə)nəl/
b. education /èjəkéyšən/

(118) a. continent /kʌ́nt(ə)nənt/
b. continental /kʌ̀ntənéntəl/

We can see here that we tend to delete the vowel of an unstressed syllable if it is immediately post-tonic and followed by another unstressed syllable. Thus clusters of atonic syllables tend to be avoided, although not quite as much as those of tonic syllables do. Given the CPR, this is precisely the way it should be, because clusters of atonic syllables are also in violation of the CPR, albeit to a slightly less serious degree.

It is interesting that this same desire to circumvent the juxtaposition of two atonic syllables in immediate post-tonic position is at the root of the non-insertion or loss, as the case may be, of the italicized *e* or *o* in lexical derivations such as the following.

(119) a. éntĕr + -ance → éntrance, *éntĕrance
b. tígĕr + -ĕss → tígrĕss, *tígĕrĕss
c. céntĕr + -ăl → céntrăl, *céntĕrăl
d. húngĕr + -y → húngry, *húngĕry
e. rĕmémbĕr + -ance → rĕmémbrance, *rĕmémbĕrance
f. scúlptŏr + -ĕss → scúlptrĕss, *scúlptŏrĕss

Note in this connection that American English generally silences the italicized *o* in (120b), but not in (120a).

(120) a. lab*o*r /léybər/
b. lab*o*ratory /lǽb(ə)rətɔ̀riy/

If the italicized *o* were not silenced in (120b), then we would have to cope with a rather clumsy proximate repetition of atonic syllables between the two tonic syllables here. The silencing of this *o* here is then, in our terms, designed to help us get around this potential problem.

Incidentally, the second orthographic *o* in *laboratory* is more often than not silent in the typical British pronunciation /ləbɔ́rət(ə)riy/. This phenomenon is, of course, explainable in terms of the CPR. Note here that, of the three atonic syllables comprising the cluster in question, it is the medial syllable which optionally gets its vowel

silenced. Recall our earlier contention that a cluster of three (or more) similar phonological elements is usually simplified by reducing or deleting the medial member of the cluster.

Note in this connection that the orthographic *a* may optionally be silenced in *-ically,* but not usually in *-ical,* as is shown in the following data.

(121) a. academical /ǽkə̆démĭkə̆l/
b. academically /ǽkə̆démĭk(ə̆)lĭy/

Notice here that *-ical* is a cluster of just two atonic syllables while *-ically* is one of three such syllables. Thus *-ically* violates the CPR more seriously than *-ical* does with the result that the orthographic *a* may delete in the former, but not in the latter. It is noteworthy that the vowel which may delete is in the medial syllable of the cluster in question.

Examples such as (121) above show not only that CPR-conditioned deletion normally affects the medial member of a multimember cluster. They also show that the degree of repetition is crucially relevant to the operation of the CPR.

That a cluster of three atonic syllables is often intolerable is further attested to by examples such as the following.

(122) íntĕgĕr + -ăl → íntĕgrăl, *íntĕgĕrăl

Note that the second *e* of *íntĕgĕr* in (122) deletes obligatorily when it is suffixed with *-al.* Suppose that this *ĕ* did not delete here. Then we would get **íntĕgĕrăl,* which involves a clumsy cluster of three atonic syllables in immediate post-tonic position. We resolve this problem here by deleting the vowel of the medial member of the cluster in question, which has the effect of simplifying the cluster from one of three (atonic) syllables to one of a mere two.

Recall here our suggestion in 2.1. that the medial member of a cluster, flanked by the other two members, is under double pressure from the CPR while either of the other members, flanked by just one other member, is not. This is probably why it is the vowel of the medial atonic syllable, not that of either flanking atonic syllable, that may get deleted in examples like (121b) and (122).

Note in this connection that British English often suppresses the first vowel of the suffix *-ary, -ery,* or *-ory,* be it immediately post-tonic or not, as shown in the following data.

(123) a. elementary /èlĭmént(ə̆)rĭy/
b. military /mílit̆(ə̆)rĭy/

This data also supports our contention that a cluster of atonic syllables often gets simplified under the pressure of the CPR. It further supports our claim that we normally simplify such a cluster by manipulating the first syllable if it is a two-member cluster and the medial syllable if it is a three-member cluster. Incidentally, the third orthographic *e* in the Briticism *jéwellery* may have become silent under the pressure of the CPR because it occurred in the medial syllable of a cluster of three atonic syllables.

It is very likely that, other things being equal, the suppression here of the first vowel of *-ary, -ery,* or *-ory* in British English is more probable when it is not immediately post-tonic. This is because a cluster of three atonic syllables should be in more serious violation of the CPR than one of just two such syllables is. Thus this vowel is apparently more apt to delete in *cúlĭnărȳ* than in *bínărȳ* in British English, for example.

Note at this point that the vowel suppression of the sort discussed in the preceding paragraphs also serves to reduce the number of syllables. Recall our suggestion in 2.1. that polysyllabicity may also violate the CPR. Seen in this light, the vowel suppression under discussion here may also serve to render the words in question more acceptable by making them less polysyllabic than they would otherwise be. Incidentally, most of the examples of syllable-cluster simplification discussed in 2.1. may also count as examples of atonic-cluster simplification.

3. Closing Remarks

We have shown in this paper that the constraint on proximate repetition, the CPR for short, operates quite pervasively in English phonology. In other words, we have demonstrated that English phonology maximally avoids proximate repetition of similar elements. To be more specific, we have shown that *"the more similar, the more proximate, and the more numerous the repeated elements are (phonologically), the more constrained they tend to be."*

The CPR is far more powerful and pervasive than it has been made out to be in this paper. In fact, it is very much in evidence not just in the phonological stratum of English but also in its syntactic, semantic, and pragmatic strata. My papers cited earlier, especially Park (1977a, 1977b, 1980, 1982b, and 1983), deal with the CPR as it relates to all these different strata of English.

The CPR is not confined to English only, either. On the contrary, it apparently operates in other languages also. I have already shown, albeit in a piecemeal fashion, especially in Park (1977b, 1980, and 1982b), that the CPR operates in Korean in essentially the same way that it does in English. In fact, it is highly probable that the CPR is a linguistic universal and thus defines a property common to all human languages.

In support of our contention that the CPR is a linguistic universal, we may point out that virtually all types of ellipsis and anaphora/cataphora involve the CPR in one way or another. I have suggested elsewhere (Park 1977a, 1980, 1982b, and 1983) that the CPR is instrumental in explaining why there is such a thing as Performative Deletion in all languages. I have also suggested in Park (1977a, 1982b, and 1983) that the CPR helps explain why we have things like pronominalization and reflexivization in all languages.

Also apparently universal is the relevance of the CPR to the study of stylistics. This relevance has been discussed in some detail in this paper and most of my other papers cited earlier, mostly with examples from English. We have claimed that the CPR is instrumental in explaining why, for example, *"I had a dream"* is a stylistic

improvement on "?*I dreamed a dream.*" Some Korean examples are discussed in Park (1977b and 1982b).

The CPR thus appears to be a linguistic universal capable of throwing very much light on innumerable aspects of human language. Therefore, we need to pay much more serious attention to the CPR in our future research into the nature of language. Needless to say, no theory of language would be adequate or complete without something like our CPR, for it would leave unexplained or inadequately explained a vast array of linguistic phenomena such as those referred to in the immediately preceding paragraphs.

Notice at this point that many supposedly syntactic examples of the CPR discussed in Park (1977a, 1977b, 1980, 1981, and 1982b) involve varying degrees of phonological motivation. Ross's *doubl-ing,* for one, is substantially phonological in motivation. The "syntactic" neutralization exemplified by the following data adapted from Park (1982b), for example, is phonologically motivated to a considerable extent.

(124) a. *That the boy is examined* here surprises me.
→ *The boy's being examined* here surprises me.
b. *That the boy is being examined* here surprises me.
→ **The boy's being being examined* here surprises me.
→ *The boy's being examined* here surprises me.

(125) a. *The boy who works* here is from Boston.
→ *The boy working* here is from Boston.
b. *The boy who is working* here is from Boston.
→ **The boy being working* here is from Boston.
→ *The boy working* here is from Boston.

In fact, many phenomena of intralinguistic ellipsis and virtually all endophoric proforms, including reflexive pronouns, are phonologically motivated to some degree or other. If this is correct, then we have here a case of phonology affecting syntax, which runs counter to the popular assumption that syntax influences, but it is not influenced by, phonology. It thus appears that there can be no phonology-autonomous syntax just as there can be no syntax-autonomous phonology. In light of this, it should not be surprising that many of the examples considered in this paper do indeed smack of syntax.

We may observe here that morphological processes also are often phonologically conditioned, as is amply demonstrated by many of the examples discussed in this paper. The derivation of *íntĕgrăl,* rather than **íntĕgĕrăl,* from "*íntĕgĕr + -ăl*" is a case in point (See 2.5.). Thus we see that morphology is also dependent upon phonology and that there can be no phonology-autonomous morphology.

Thus it is apparently the case that both morphological and syntactic processes are frequently influenced by phonological considerations although probably not quite as much as by semantic ones. This dependence of morphology and syntax upon phonology may be a corollary of their role as mediator between sound and meaning.

We can say at this point that, all in all, the CPR is extremely powerful explanatori-

ly. However, we would do well here to remind ourselves that our understanding of the CPR is rather crude at present and it needs refining in several directions. For one thing, we do not yet know why one device is used more or less commonly in coping with proximate repetition of similar elements. For another, we do not yet know why, in a given case, one device, rather than another, is resorted to. Still another problem is that often intuitive at best is our knowledge of what constitutes the critical degree of similarity, proximity, and repetition in the operation of the CPR.

Thus we need to refine our as yet unrefined answers to these and many other questions if we are to truly maximize the explanatory power of the CPR and thus make more substantive contributions to the development of linguistic theory. The refinement of our answers here may come from various sources, one of which is evidence from the study of languages other than English.

Contrary to the impression created by the immediately preceding sentence, far from complete is our understanding of the CPR operative in English. As an illustration, let us consider the following data.

(126) a. integral /íntəg*rəl*/ → /íntr*ə*gəl/
b. relevant /*rélə*vənt/ → /*révələ*nt/

Notice that /r/ and /l/ are highly similar to each other in that they are both liquids. Notice further that these two similar sounds occur much closer to each other in the first alternative pronunciation for either word above than in the second one. We may thus contend here that the first alternative pronunciation sometimes gives rise to the second under the pressure of the CPR.

Interesting as it may be, the kind of metathetical distancing exemplified by (126) above appears to be extremely idiosyncratic. To the best of my knowledge, it is extremely limited in occurrence. To be really significant as a device for avoiding proximate repetition of similar elements, metathetical distancing ought to be far more widespread than appears to be the case at present. We may thus raise the question of whether or not metathetical distancing is really confined to cases of the (126) type. As of this writing, there is a multitude of such questions yet unanswered about the CPR in English so that our current knowledge thereof is far from adequate.

Before concluding, we may observe that insertion is probably far more widespread than may appear to be the case from our discussion in 2.3. Note that we have not just the linking /r/ (see (81)) but also the linking /t/, /n/, and /k/, as exemplified by the following data.

(127) a. dram*a* + -*ize* → dram*atize*, *dram*aize*
b. Plat*o* + -*ic* → Plat*onic*, *Plat*oic*
c. simplif*y* + -*a*tion → simplif*ica*tion, *simplif*ia*tion

Admittedly, the linking sounds in (127) are etymologically determined, but then so is the linking /r/. It thus appears that any adequate discussion of insertion should include these linking sounds as well. If so, insertion may be said to be fairly widely utilized as a device for avoiding proximate repetition of similar sounds.

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