As discussed generally in the literature (Kiparsky, 1985; Archangeli and Pulleyblank, 1986), phonological marking conditions, or configurationality constraints, typically block rule application that would create structure not otherwise licensed in a particular language. Alternatively, Rice (1987) has proposed that constraints may be violated under certain circumstances with the resulting ill-formed configuration then being repaired at a later time.¹ In this paper I argue that this latter view of constraints is essentially correct and that the distinction between blocking and repair strategies accounts for two different types of invariant vowels in the vowel harmony systems of Pasiego. The analysis additionally provides support for Rice’s claim that constraint violations are the result of phonological rules applying at a time when a given constraint is not visibly violated. Unlike the case considered in Rice (1987), however, ‘invisibility’ in the present instance is not a function of the Morphemic Tier Hypothesis but results instead from rules applying to segments not yet fully specified for all feature values.

The data on which this paper is based are taken from Penny (1969a and 1969b). Another important source has been McCarthy (1984). Much of the discussion and analysis in the middle sections of this paper borrows heavily in fact from McCarthy’s earlier work. This is especially and almost entirely true of sections 4 and 6, although not section 6.1.

1. Assumptions

In this paper I assume a theory of nonlinear phonology in general (Goldsmith, 1976; Clements, 1977;1985; Archangeli and Pulleyblank, 1986). More particularly, I assume a theory of full underspecification (Kiparsky, 1982; Archangeli, 1984). By this I mean that lexical entries bear specifications only for non-redundant features and that of these features only one of the values + or - is present in underlying representation. Remaining features and feature values are supplied by redundancy rules of the type given in (1).
Presumably these rules are ordered freely among the other rules of the phonology, subject only to such ordering principles as Dresher’s (1985) Constraints on Empty Categories (alternatively Archangell and Pulleyblank’s (1986) Redundancy Rule Ordering Constraint) and the Elsewhere Condition (Kiparsky, 1982; 1985).

I further assume that all phonological rules respect conditions on adjacency as this might be defined (Steriade, 1987; Cole, 1987). Finally, I assume that information concerning restrictions on possible feature cooccurrence in a given language is encoded formally by means of general segment structure constraints, an example of which appears in (2).

(2) \[ \ast \times \]
\[ \text{[-voice]} \quad \text{[+nasal]} \]

All other assumptions not yet noted will be introduced at appropriate points during subsequent discussion.

2. Pasiegos 2

The surface phonetic vowel system of Pasiegos contrasts five [+ATR] vowels with four [-ATR] vowels, organized as follows:³

(3) a. [+ATR]  
   \[ \text{i} \quad \text{u} \]
   \[ \text{e} \quad \text{a} \]

   b. [-ATR]  
   \[ \text{U} \quad \text{O} \]
   \[ \text{A} \]

Not all of the contrasts in (3) are present in the underlying vowel system of Pasiegos. McCarthy (1984) has argued that surface tense/lax alternations can be derived by morphological rule and autosegmental spreading conventions. Accepting this analysis for the most part, the details of which are presented in section 4, it is necessary to distinguish only five vocalic segments underlyingly, /i e a o u/.

The features needed to contrast these sounds distinctively are [high], [low] and [back]. Considerations of the phonology suggest that [+high] and [+low] are marked feature values underlyingly since the
former is required for a lexical rule of high harmony (discussed below) while the latter is needed to account for the fact that low vowels do not undergo high harmony or an additional rule of Vowel Raising (also discussed below). In order to distinguish /e i/ from /o u/ a third feature is required, one of either [back] or [round]. The feature [back] is chosen here although nothing in the analysis depends on this decision.

Assuming that the marked feature value for [back] is +, and, again, nothing depends on this, the underlying vowel sounds of Pasiego will be represented as follows:

\[
\begin{array}{cccccc}
\text{high} & i & e & a & o & u \\
\text{back} & + & + & + & & \\
\text{low} & & + & & & \\
\end{array}
\]

The representations in (4), if not affected by phonological rule, are filled out by the redundancy rules in (5).

\[
\begin{array}{cccc}
\text{a)} & [ ] & \rightarrow & [-\text{high}] \\
\text{b)} & [+\text{low}] & \rightarrow & [+\text{back}] \\
\text{c)} & [ ] & \rightarrow & [-\text{back}] \\
\text{d)} & [ ] & \rightarrow & [-\text{low}] \\
\text{e)} & [+\text{back}] & \rightarrow & [+\text{round}] \\
\text{f)} & [-\text{low}] & \rightarrow & [-\text{round}] \\
\text{g)} & [ ] & \rightarrow & [+\text{ATR}] \\
\end{array}
\]

The ordering of these rules is intrinsic, governed by the various ordering principles mentioned in section 1. Note in particular, though, that the Elsewhere Condition orders (5b) before (5c) and (5e) before (5f) since the former are more specific than the latter and their outputs are different. Note also that in order for the structural description of (5e) to be met, rule (5d) must apply first.

In addition to the representations in (4) and the redundancy rules in (5), the following configurationality constraints are also assumed in the analysis of Pasiego vowels outlined below.

\[
\begin{array}{cccc}
\text{a)} & \star & \times & \\
\text{b)} & \star & \times & \\
\end{array}
\]

The form and function of these constraints is discussed in detail in sections 7 and 8. First, however, it is necessary to examine a number of
rule governed phenomena, namely, metrical stress assignment, ATR harmony, high harmony and Vowel Raising. Each of these is taken up in turn in subsequent sections.4

3. Metrical Stress

In sections 5 and 6 respectively, I formulate the rules of high harmony and Vowel Raising. Before doing so, and because these rules make reference to prosodic structure, I will first formulate the rules that assign metrical stress in Pasiego. The theoretical framework adopted here is essentially that of Hayes (1981) and Harris (1963) although I assume that the same facts could be accounted for equally well in some alternative framework.

3.1. Primary Stress

Penny's (1969a) word list shows that primary stress in Pasiego most frequently falls on either the penultimate or final syllable of a polysyllabic word. Words with antepenultimate stress are also found but account for fewer than 2% of the more than 6000 items in Penny's list.

(7) a. Final stress
   may'or  "bigger"  bati'kol  "crupper"
   su'flar  "to blow"  kutur'nih  "quail"

b. Penultimate stress
   su'nAnU  "sunny"  xo'roba  "hunch"
   ku'mida  "lunch"  kUr'dirU  "lamb"

c. Antepenultimate stress
   ri'kItIkU  "weak"  bi' takula  "tavern"
   'bjespora  "wasp"  'AbrigU  "south wind"

The data in (7) give some partial indication of the fact that stress assignment in Pasiego is sensitive to syllable weight. Words with final stress normally have a branching rime or nucleus in their final syllable5 while those with penultimate or antepenultimate stress do not. Words with antepenultimate stress also have a nonbranching rime or nucleus in their penultimate syllable.

The types of branching syllables that typically induce word final stress are those having the form VC, VV (V:), or VG.6
(8) a. VC
to'kar "to touch" ko'lar "to strain"
okal'tal "eucalyptus grove" piruxal "wild pear tree"
sin'gan "according to" sakres'tan "sexton"
b. VV
desani'mai: "discouraged" ku'mja: "eat!"
afortu'nai: "fortunate" boka'Fai: "mouthful"
bi'ñji: "come!" atra'sai: "late"
c. VG
ayu'dal "help!" AkO'mbAU "curved"
xOro'BAU "hunchbacked" sin'tlyu "feel (past ppl.)"
pO'leu "type of plant" ApO'kAU "cowardly"

A point of qualification is in order here. Word final inflectional consonants are considered to be extrametrical. This accounts for the fact that words ending in such consonants typically have nonfinal stress.

(9)
kor'deruu "lamb + pl." 'bjudyuu "widower + pl."
'sa'len "be + 3.pl.ind." a'flos"iis "loosen + 2.sg.ind."
'sim'patiku"congenial + pl." 'omedyuu "humid + pl."

With respect to the prosodic rules formulated below, words such as those in (9) are analyzed as having a final nonbranching rime.

A second point of qualification concerns tautosyllabic GV sequences. For reasons that are of no immediate interest, the prevocalic glides /j/ and /w/ are considered to be rime internal constituents. As the data in (10) indicate, however, rising diphthongs do not condition final stress in words.

(10) a. /j/
'bid'juu "to shout" 'limpuu "clean"
ku'umJuju "swing" bios'temaa "blasphemy"

b. /w/
'lenyaa "tongue" sa'leyyaa "eye infection"
'yeuyyaa "mare" saugwa "water"

This I take to be consistent with the assumption that rising diphthongs in some languages are complex segments (Kaye, 1985), represented as in (11a) rather than (11b) or (11c).

(11)  

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On this account, rising diphthongs do not condition final stress in Pasiego since they branch at the level of the segment only.

3.2. Pasiego Stress Rule

An approximation of the Pasiego stress rule (PSR) based on the discussion in the preceding subsection appears in (12).

(12) Pasiego Stress Rule
   a. at the right edge of a word, construct a binary branching foot labelled S W. (Condition: recessive nodes may not branch).
   b. incorporate any remaining syllables as recessive nodes in a uniformly left branching word tree.

As formulated, (12) correctly predicts penultimate stress in the case of words such as kor‘nexa "crow". This is illustrated by the following derivation.

(13) a. kornexa ----> b. kornexa ----> c. kornexa
      R R R
      \   \
   SW
   \   \
W \   \
 V S

In (13a) the final syllable of kornexa contains a nonbranching rime. The condition on branching nodes is not violated and foot formation is allowed to apply in the manner shown. Word tree construction then gives the surface representation in (13c).

The PSR also predicts correctly that words with a final branching rime or nucleus will have final stress. The prosodic structure assigned to okali’tal "eucalyptus grove", for example, can only be that as indicated in (14).

(14) okali’tal
     W W W
     \ \ \\ \
   S S S S

Here as in other similar cases, foot construction is suppressed by the condition that recessive nodes may not branch. Word tree construction in (12b) subsequently ensures that the final syllable of okali’tal is interpreted as being the most metrically strong.
As already noted, word final inflectional consonants are considered to be extrametrical. Following Hayes (1981) I assume that these elements are incorporated into existing prosodic structure by a general principle of Stray Adjunction, formulated as in (15).

(15) Stray Adjunction

Adjoin a stra segment/rime as a recessive node of an adjacent syllable/foot.

Providing that Stray Adjunction applies after the PSR, nonfinal stress in words such as 'koxu+s "lame + pl." is actually the predicted case. A sample derivation follows (parentheses indicate extrametricality):

(16)

<table>
<thead>
<tr>
<th>a. koxu(s)</th>
<th>PSR</th>
<th>b. koxu(s)</th>
<th>Stray Adj</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR</td>
<td></td>
<td>SW</td>
<td>s</td>
</tr>
</tbody>
</table>

The PSR in (16) applies as if the final syllable of koxus contained a nonbranching rime. Stray Adjunction accordingly converts the representation in (16b) to that in (16c).

Extrametricality and Stray Adjunction also provide for a principled account of antepenultimate stress in Pasiego. Consider, for example, bi'takula "tavern". Assuming that the final syllable of this word is extrametrical, prosodic structure will be assigned as in (17).

(17)

<table>
<thead>
<tr>
<th>a. bitaku(la)</th>
<th>PSR</th>
<th>b. bitaku(la)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR RR RR</td>
<td></td>
<td>RRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WS W</td>
</tr>
<tr>
<td></td>
<td></td>
<td>s</td>
</tr>
</tbody>
</table>

Stray Adjunction applying after the PSR converts the representation in (17b) to the following.

(18)

\[ \text{bitakula} \]

In this way, words with antepenultimate stress need not be marked as lexical exceptions to the PSR.

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3.3. Cyclic Stress

In section 5 I argue that high harmony is a cyclic rule. Since this rule makes crucial reference to metrical structure, it necessarily follows that the PSR must also apply cyclically. This property of the PSR is illustrated by the following derivation of piruxal "wild pear tree".

\[
\begin{align*}
&\text{cycle 1} \\
pirluxjal \longrightarrow &\text{cycle 2} \\
\text{level} &
\end{align*}
\]

Unless relevant to any subsequent discussion, however, cyclic stress assignment will not be shown.

3.4. Nonprimary Stress

Penny (1969a and 1969b) provide no information on anything other than primary stress in Pasiego. Nevertheless, in a later section of this paper I discuss a number of vowel height alternations that are accounted for systematically only if some element of nonprimary stress is taken to be present word internally. At this later time it will be hypothesized that nonprimary stress falls on alternating syllables preceding the primary stressed syllable, a pattern readily attested in other Spanish dialects (Harris, 1983; Rocca, 1986). Owing to a lack of specific information on this subject, however, the rule assigning these hypothesized stresses will not be formulated. At the same time, this could be accomplished in a very general way by having foot formation in (12a) apply iteratively. Assuming this to be the case, the representation of okalital, for example, would be that of (20) rather than (14).

\[
\begin{align*}
o \quad k \quad a \quad l \quad i \quad t \quad a \quad l \\
w \quad w \quad w \quad w \quad w \quad w
\end{align*}
\]

All other remaining structures above would also be adjusted accordingly.
This concludes the section on metrical stress in Pasiego. In what follows, prosodic structure assigned by the PSR will not be represented in detail. As a matter of convenience, primary stress is indicated with an acute accent (/>/) and nonprimary stress with a grave accent (\/).

4. ATR Harmony

Two vowel harmony processes are observed in Pasiego, ATR harmony and high harmony. The first of these requires that all vowels in a word or clitic group bear the same value for the feature [ATR]. The mid front vowel /e/ is apparently neutral, however, and may occur in either [+ATR] or [-ATR] domains. These findings are illustrated by the alternations in (21).

(21) a.        masc. pl.        masc. sg. count
      simpatikus  simpatikusU  "congenial"
      soldaus    soldau     "soldier"
      pullukus   pulluku    "young chicken"

b.        fem sg.        masc.sg.mass        masc.sg.count
      mala       mala       malu       "evil"
      limpja     limpu      limpuU     "clean"
      suthya     suthy      suthyU     "dirty"

c.        pa mi        "for me"        pA  l  sUbriU     "for the nephew"
      un ubillo  "yarn (mass)"  Un ubilloU  "yarn (count)"
      li mjeu    "fear"        li kurdru     "lamb"

d.        masc. pl.        masc. sg. count
      ermanus    ermanu     "brother"
      bedanus    bedanu     "wood chisel"
      komfesonarjus komfesonarju     "confessional"

The data in (21a-b) show the typical distribution of [ATR] within words while those in (21c) show that the vowels of proclitics regularly share the same specification for [ATR] as stem vowels. The fact that /e/ is invariant under harmony and does not impede the propagation of [-ATR] vocalism is evidenced by the forms in (21d).

The above data also illustrate certain other essential characteristics of ATR harmony. First, all vowels are predictably [+ATR] unless otherwise occurring in a word or sanchi domain where the masculine count suffix +u/+U is present in final position. If this morpheme is not present, or if it is followed by the plural morpheme +s, [-ATR] vocalism does not occur. A second related observation is that the harmonic classes [+/- ATR] form a morphological opposition in Pasiego.
Specifically, [+− ATR] vocalism in words differentiates the categories of singular count vs. mass for both masculine nouns and adjectives (cf. (21b-c), above).

Informally, then, the following two statements hold true for Pasiego: i) [+− ATR] form a distinctive opposition in the language, and ii) this opposition is morphological, not phonological. Put another way, [ATR] must be present in the underlying system of Pasiego but not in the representations of vowels where it is a nondistinct feature. As argued in McCarthy (1984), these two seemingly disparate facts are explained formally on the assumption that [-ATR] is a floating autosegment which by itself constitutes the masculine singular count morpheme in Pasiego. Presumably this autosegment does not occupy a timing unit of its own but is realized phonetically instead by associating with some other segment(s).

Following Pulleyblank (1986) I assume that the associative spreading of an unlinked autosegment is nonautomatic. In this case it might be supposed that the initial association of [-ATR] is governed by universal association conventions (UAC) with any subsequent associations then being the result of the harmony rule in (22).8

(22) ATR Harmony

\[ \text{Spread [-ATR]} \]

The directionality of [-ATR] Spread is from right to left within the word group. This need not be stipulated, however, since the [-ATR] count morpheme, if present, is always in absolute word final position. This latter fact also establishes that the domain of [-ATR] Spread is minimally the word level. At this point it may be recalled that clitic vowels regularly harmonize for [ATR] with stem vowels. If clitics are generated in the syntax, it necessarily follows that [-ATR] Spread must apply postlexically regardless of whether or not it is also a lexical process. This matter is not central to any of the issues discussed below, however, and is not explored further.

By way of illustrating the formal mechanisms adopted in this section, consider the following partial derivations of malu "evil (mass)", malus "evil (pl.)" and málú "evil (count)" (here and elsewhere irrelevant details of structure are omitted).
In (23a-b) the [-ATR] singular count morpheme is not present. The structural description for [-ATR] Spread is not met and therefore this rule does not apply. Missing feature values for [ATR] are then filled in by default rule application (cf. <5g>, above). In (23c), on the other hand, general word formation rules provide [-ATR] as part of the lexical representation of mAlU. Subsequent to the UAC linking [-ATR] to the masculine suffix +u, [-ATR] Spread applies to associate this feature value with all remaining vowels in its domain. Prior application of [-ATR] Spread precludes [+ATR] from being assigned as a default value so that root and suffix vowels alike surface with a [-ATR] specification.

The above analysis can be extended to account for all of the basic cases of ATR harmony in Pasiego. Additional assumptions are required to account for the apparent neutrality of /e/ with respect to [-ATR] Spread. I return to this matter in section 8 below.

5. High Harmony

A second vowel harmony process in Pasiego regulates the distribution of the feature [high]. The basic facts of high harmony are illustrated by the following data.

(24) a. /beb/ "drink"
   bebe're (1.sg.fut.) bl'blis (2.pl.pr.ind.)
   be'be'mus (1.pl.pr.ind.) biblyla (1.sg.cond.)
   /kom/ "eat"
   ko'mer (infin.) ku'miste (2.sg.pret.)
   ko'me'memus (1.pl.pr.ind.) ku'mles (2.pl.pr.ind.)

b. el 'pelu "hair" Il kUr'dIrU "lamb"
   me lo kom'ro "he bought it" i mi 'dixu "and he said"
   for me" to me"

c. ka'lor "heat" gAr'dUnU "rake"
er'manu  "brother"  pi'nar  "to set upright"
afosil'ar  "to shoot"  mexil'ar  "to mew"
d. isku'pir  "to spit"  iskupil're  "1.sg.fut."
dir  "to go"  di'beis  "2.pl.pr.ind."
sin'tir  "to feel"  sintil're  "1.sg.fut."

The forms in (24a-b) show that high harmony operates both within words and across clitic boundaries. The verbal alternations in (24a) additionally show that final unstressed vowels neither condition nor participate in high harmony (be'hemus/khi'beimus; ku'miste/*ku'misti). As indicated by the data in (24c), low vowels are invariant and may occur in words with either [+high] or [-high] vowels. A number of the forms in (24c) also show that high harmony is not conditioned by unstressed vowels in pretonic position (afosi'lar/*afusi'lar/*afosil'ar). Finally, the nonalternating verb stems in (24d) indicate that underlying vowel height contrasts are stabalized when the tonic vowel is [-high] (iskupi're/*eskope're).

In addition to high vowels, the prevocalic glides /j/ and /w/ also induce [+high] vocalism when occurring in a stressed syllable. This observation is supported by the data in (25).

(25)
a. mo'ler  "to grind"  mu'ljenda  "grinding"
kor'nexa  "crow"  kurni'lar  "to crow"
'menus  "less"  min'gwar  "to lessen"
b. lo'malu  "the bad thing"  lu'pjor  "the worst thing"
el ga'nau  "cattle"  il'mjew  "fear"
c. rros'arjus  "backbones"  ig'lesja  "church"
rre'kapjus  "bee-swarms"  'medjas  "stockings"
desgewas'ar  "to bone"  'lengwa  "tongue"

The alternations in (25a-b) show leftward harmony being conditioned within the word group by a /j/ or /w/ in stressed position. Glides in unstressed syllables, however, do not condition a similar change in vowel height. This is demonstrated by the nonalternating forms in (25c).

On the basis of the general facts outlined above, the rule of high harmony is formulated as follows:

(26) High Harmony

\[ N \]
\[ x \quad x \quad \text{stressed} \]
\[ / \quad / \quad +hi \]

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(26) states that [+high] is spread leftwards if associated with a stressed segment. Reference to metrical structure is clearly required since high harmony is not conditioned by atomic vowels. The expression of directionality in (26) is also a necessary complication since vowels occurring to the right of a stressed [+high] segment may be disharmonic with respect to high harmony. Evidence in support of [+high] being the spreading feature value is provided by the alternations in (25a-b) and indirectly by the disharmonic forms in (24d).

As formulated, the rule in (26) differs in two essential respects from the corresponding one given in McCarthy (1984). There it is claimed that high harmony is a bidirectional feature changing rule with both values of the feature [high] being spread onto adjacent vowels. In support of bidirectional spreading, McCarthy cites distributional evidence of the type listed in (27).

(27) an’dibula "jaw"  'omedus "humid (pl.)"
    antig’wisimu "oldest"  ‘Trebeca "trivet"
    ‘sitimu "seventh"  ‘bjespora "wasp"

Disharmonic forms such as those in (24a) are then judged to be the result of independently motivated low level reduction processes that govern the selection of final unstressed vowels. The explanation offered for disharmonic glide-vowel sequences in stressed syllables (cf.25a-b) is that values for [high] are erased only from vowels in unstressed position.9

Although McCarthy’s analysis is consistent with the known facts, it is not adopted here. To some extent this is the result of a differing opinion as to what constitutes the null hypothesis in the absence of alternations that overtly prove the bidirectionality of high harmony. At the same time it may be noted that the level of complication imposed by the statement of directionality in (26) is offset by the concomitant need not to specify [-stress] as a necessary condition on possible high harmony targets.

A more clearly contentious point of difference between the two analyses under consideration concerns the present claim that only [+high] is a spreading feature value in Pasiego. On the face of it, this claim would seem difficult to substantiate, alternations such as those in (28) suggesting that [-high] is a spreading feature value also.

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A careful examination of Penny (1969a) reveals, however, that alternations of this type are exceedingly rare, apparently limited to just those forms given. A reasonable conclusion, then, is that height harmony conditioned by stressed [+high] vowels is an irregular process at best.

A similar conclusion is also forthcoming from a study of the various disharmonic forms cited in Penny (1969b) and McCarthy (1984). As noted in both references, exceptions to height harmony are of two essential types: unsystematic exceptions organized here along the lines of (29a–b) and suffixed forms ending in -era, -ete, -or, -on or -osos.10 Some examples of this second type appear in '29c).

As the above data show, disharmonic forms with a stressed [+high] vowel are less common than those with a corresponding [-high] vowel. Particularly illuminating are the systematic exceptions in (29c).
explanation given for these forms in Penny (1969b) is that they are due
to the influence of a primitive on a derived form (eg. 'linde "boundary"
in the case of lin'dera "escarpment"). From the point of view of the
analysis being argued for here, the real significance of the suffixed
forms in (29c) is that they contain a mid vowel that is typically
assigned stress by the prosodic rules discussed in section 3.1. Assuming
that the high harmony rule in (26) more generally spreads [+high] than
[-high], the disharmonic forms in (29c), as well as those in (29b), are
not exceptions to harmony at all. The only exceptions to be noted in
this case are the relatively few forms listed in (29a), some of which
have regularly harmonic doublets anyway (anto'xil/antu'xil;
mei'e'xina/mill'e'xina).

One additional consequence of taking [+high] to be the only typical
spreading feature value in Pasiego is that the rule of high harmony can
now be viewed as feature building rather than feature changing with the
value [-high] being more generally assigned by default rule application
(cf. 5a, above). This analysis of Pasiego high harmony is illustrated by
the following derivations of komer "to eat" and kumiste "2.sg.pret."

(30) | a. kom ] er ] | b. kom ] iste ]
     | +hi |
PSR   komer            komiste
     | +hi |
High Harmony NA         komiste
     \ \ | +hi |
Default [-hi]            komer
     \ \ \ \ \ \ -hi
[ komer ] | [ kumiste ]

In these examples the structural description for high harmony is met in
(30b) but not (30a). Rule (26) applying in the former instance spreads
[+high] leftwards from the tonic vowel, but not rightwards. At some
later point in the derivation all vowels unspecified for [high] are
subsequently assigned [-high] as a default value. The correct surface
forms are thus obtained.
A similar analysis also accounts for alternations where the triggering segment is either of the high glides /j/ or /w/. In this case, it is necessary to assume only that glides are specified for [+high] and are possible stress bearing units. As noted in McCarthy (1984), this first requirement is consistent with the view that glides and vowels share similar feature specifications, syllabicity presumably being determined by syllable position and/or sonority. That glides are possible stress bearing units in Pasiego also follows without stipulation if rising diphthongs are represented as in (11a), repeated here as (31).

(31)

\[
\begin{array}{c}
N \\
X \\
G \\
V
\end{array}
\]

Assuming this much, the behaviour of /j/ and /w/ under high harmony is an expected and straightforward consequence of rule (26). An analysis of glide conditioned vowel height alternations accordingly will proceed in the same manner as that indicated in (30).

At this point it may be recalled that the domain of high harmony is the clitic group. As with ATR harmony, if cliticisation is a syntactic process, high harmony is necessarily a postlexical rule. Here it can be determined, though, that rule (26) must apply lexically in any event. Consider, for example, the alternating forms that appear in (32).

(32)  
\begin{align*}
\begin{array}{c}
\text{'pera} \quad \text{"pear"} \\
\text{k'om'era} \quad \text{"to eat"} \\
\text{'pelu} \quad \text{"hair"} \\
\text{kumi'ona} \quad \text{"feast"} \\
\text{pliu'xon} \quad \text{"tuft (of wool hanging from a sheep's underbelly)"}
\end{array}
\end{align*}

These alternations are not accounted for if rule (26) applies only at the word level and/or postlexically. This is illustrated by the following derivations of piru'xal and kumilona. Underlyingly these forms are /per + ux + al/ and /kom + il + ona/ respectively.

(33)  
\begin{align*}
\begin{array}{c}
\text{per} \quad \text{ux} \quad \text{al} \\
\text{kom} \quad \text{il} \quad \text{ona}
\end{array}
\end{align*}

\begin{align*}
\text{PSR} & \quad \text{peruxon} \\
\text{High Harmony} & \quad \text{NA} \\
\text{NA} & \quad \text{NA} \\
\text{*[ peruxon ]} & \quad \text{*[ komilona ]}
\end{align*}
Assuming that high harmony is a word level and/or postlexical process, the structural description for rule (26) is not met in either of the above examples. The expected surface forms consequently are *[peruxal] and *[kumilona], neither of which are attested.¹¹

What is clearly required by the data in (32) is that (26) be a cyclic rule. This in turn means that the PSR must also apply cyclically since only vowels in stressed syllables are possible high harmony triggers. The actual derivations of piruxal and kumilona will then be as follows.

\[
\begin{array}{ccc}
\text{per} & \text{ux} & \text{al} \\
\text{kom} & \text{il} & \text{onal} \\
+hi & +hi & \\
\text{cycle 1}
\end{array}
\]

\[
\begin{array}{cccc}
\text{PSR} & \text{pel} & \text{kom} \\
\text{High} & \text{NA} & \text{NA} \\
\text{Harmony}
\end{array}
\]

\[
\begin{array}{ccc}
\text{perux} & \text{kom} \\
\text{+hi} & +hi & \\
\text{cycle 2}
\end{array}
\]

\[
\begin{array}{cccc}
\text{PSR} & \text{perux} & \text{kom} \\
\text{High} & \text{NA} & \text{NA} \\
\text{Harmony}
\end{array}
\]

\[
\begin{array}{cccc}
\text{word level} \\
\text{PSR} & \text{piruxal} & \text{kumilona} \\
\text{High} & \text{NA} & \text{NA} \\
\text{Harmony}
\end{array}
\]

The analysis developed in this section accordingly provides a systematic account of not only the basic cases of high harmony but a number of previously unexplained phenomena as well. In particular, surface vowel height alternations of the type noted in (32) are judged to be the result of high harmony applying at some stage prior to the word level.

This concludes the section on high harmony. Still to be explained, however, is the invariance of the low vowels a/A. This matter is taken up separately in section 7.

6. Vowel Raising

The final vowel related phenomenon to be discussed concerns a constraint on the observed distribution of mid vowels in Pasiego. Of
interest here is the fact that mid vowels do not occur in stressed syllables in [-ATR] voweled words. This is indicated by the distributional gap in (35a).

(35)  

<table>
<thead>
<tr>
<th>[+ATR]</th>
<th>[-ATR]</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. stressed syllables</td>
<td></td>
</tr>
<tr>
<td>ka'lor</td>
<td>&quot;heat&quot;</td>
</tr>
<tr>
<td>u'rgn</td>
<td>&quot;ferret&quot;</td>
</tr>
<tr>
<td>lu 'pjor</td>
<td>&quot;the worst thing&quot;</td>
</tr>
<tr>
<td>'mgnus</td>
<td>&quot;less&quot;</td>
</tr>
<tr>
<td>ku'mjngdu</td>
<td>&quot;eating&quot;</td>
</tr>
<tr>
<td>b. unstressed syllables</td>
<td></td>
</tr>
<tr>
<td>on'targa</td>
<td>&quot;lard&quot;</td>
</tr>
<tr>
<td>antg'x1l</td>
<td>&quot;meadow plant&quot;</td>
</tr>
<tr>
<td>ko'xar</td>
<td>&quot;to take&quot;</td>
</tr>
<tr>
<td>sakreg'stan</td>
<td>&quot;sexton&quot;</td>
</tr>
<tr>
<td>sgr'tal</td>
<td>&quot;string&quot;</td>
</tr>
</tbody>
</table>

"drunk"  "backbone"  "lynchback"  "cliff"  "wood chisel"

More generally, these data show that mid vowels may occur in unstressed position in [-ATR] domains and in both stressed and unstressed position in [+ATR] domains.

The gap in (35a) is not accidental. As illustrated by the following data, stressed mid vowels are regularly raised to high in [-ATR] voweled words.

(36)  

| 'pelu        | "hair (mass)" |
| ko'nexus     | "rabbits"     |
| 'flonxu      | "limp (mass)" |
| the'rroxus   | "bolts"       |
|             | 'pi1U          |
|             | kU'nixU        |
|             | thl'rruxU      |

A number of these data additionally show that derived high vowels are invariable high harmony triggers (eg. ko'nexus/kU'nixU).

Proceeding with a formal analysis of the general facts outlined above, note in particular the rather puzzling condition that stressed /e/ undergoes raising in [-ATR] domains but not [+ATR] domains. In order to account for this fact in a manner that is consistent with the observation that stressed /o/ but not /o/ also raises, it would seem necessary, as suggested in McCarthy (1984), to posit some intermediate stage where /e/ is realized as /E/. Adopting this aspect of McCarthy's analysis the rule of Vowel Raising is formulated as in (37).12

(37) Vowel Raising

\[
\begin{array}{c}
\text{N} \\
\text{\sigma-----> [+high] / X ] stressed} \\
\text{[-ATR]}
\end{array}
\]
This rule states that [+high] is inserted onto any [-ATR] segment occurring in a stressed nuclear position. Note that the structural description for Vowel Raising requires that the PSR and [-ATR] Spread apply first. The fact that derived high vowels condition [+high] vocalism indicates that Vowel Raising must in turn precede the rule of high harmony. The ordering relations that obtain between the various rules are then as follows: PSR/[-ATR] Spread; Vowel Raising; high harmony.

No ordering statement is required for the PSR and [-ATR] Spread since a similar result is obtained regardless of which rule applies first. The ordering of these two rules with Vowel Raising is intrinsic, the structural description of the latter not being met unless the other two have applied previously. For a similar reason, intrinsic ordering of high harmony and the PSR is also suggested. The fact that [-ATR] Spread precedes high harmony follows as a consequence of strict transitivity and the observation that Vowel Raising must be ordered between these two rules. Finally, the ordering of high harmony and Vowel Raising is an apparent language specific property of Pasiego that may have to be stipulated.

The effect of Vowel Raising and its interaction with other rules is illustrated by the following derivations of konexus "rabbit (pl.)" and kUnIxU "id (sg.count)"

(38) a. konexus \[us\] \[l\] b. konexu \[-\text{ATR}\] \[l\]

\[
\begin{array}{ll}
\text{PSR/} & \text{konexus} \\
\text{URC} & \text{konexU} \\
\text{[-ATR]} & \text{NA} \\
\text{Spread} & \text{NA} \\
\text{Vowel} & \text{NA} \\
\text{Raising} & \text{kOnExU} \\
\text{High} & \text{NA} \\
\text{Harmony} & \text{kUnIxU} \\
\text{Default} & \text{NA} \\
\text{[+ATR]} & \text{NA} \\
\text{[-high]} & \text{NA} \\
\end{array}
\]
In (38a) no non-default rules apply other than the PSR. Conversely, in (38b), the structural description for Vowel Raising is met by prior application of the PSR and [-ATR] Spread. Subsequent to this latter rule applying, the structural description for high harmony is also met. At this point in the derivation of (38b) no vowel is unspecified for [ATR] or [high]. Default rule application assigning redundant values for these features accordingly takes place only in (38a).

The analysis developed thus far is relatively straightforward and uncomplicated. Crucial to this account of Vowel Raising, however, is the assumption that /e/ is realized as /E/ at some intermediate stage in the derivation of [-ATR] voweled words. In the case of kUnIxU (<konexu) and lixIrU (<lexeru), for example, this assumption is nonproblematic since high harmony and/or Vowel Raising removes all instances of unlicensed /E/. At the same time it remains to be explained why unstressed /e/ is not realized as /E/ in words where [-ATR] Spread applies but Vowel Raising and high harmony do not (eg. be´dAnU). This question is related to an account of the surface neutrality of /e/ in Pasiego and is discussed in detail in section 8.

6.1. Vowel Raising in Nonprimary Stressed Syllables

The rule of Vowel Raising discussed above is fully automatic and exceptionless when applying to mid vowels in primary stressed syllables. There is evidence, however, that this rule also applies optionally in nonprimary stressed syllables. In respect of this claim, consider the data in (39).

(39)
afOru´na: "fortunate (fem.)" AfUrTu´nAU "id (masc.)"
egno´masa: "enlarged udder" IngO´mAU "id"
tse´kesu: "that cheese" Isl miU´cAcU "that boy"
el ga´nau: "the cattle" il er´mAnU "brother"

An examination of these data reveal height alternations that appear not to be the result of high harmony. What is consistent throughout these forms, though, is that raising occurs in alternating syllables preceding the primary stressed syllable and only in [-ATR] domains.
One obvious and reasonable explanation for these facts is as follows: i) nonprimary stress in Pasiega falls on alternating syllables preceding the tonic vowel and ii) the rule of Vowel Raising in (37) applies generally to any stressed nuclear segment, obligatorily in the case of primary stressed vowels and optionally elsewhere. That raising in nonprimary stressed syllables is an apparently optional process is attested to by such nonalternating forms as those listed below.

\[
\begin{array}{ll}
\text{xOrO'\text{\textbar}AU} & \text{"hunchbacked"} \\
\text{AkO1O'drAU} & \text{"long and thin (udder)"} \\
\text{dell'/kAU} & \text{"susceptible"} \\
\text{kOba'\text{\textbar}rAtU} & \text{"cave"} \\
\text{kO1O'\text{\textbar}AU} & \text{"sorrel"} \\
\text{AdelAn'tAU} & \text{"advanced"}
\end{array}
\]

In order to account for the raising of proclitic vowels in (39) it is also necessary to assume that these bear some element of stress as well. This in turn may mean that nonprimary stress is assigned independently of primary stress contra the proposal made in section 3.4. (cf. Rocca, 1986). Nothing of any consequence depends on this, however, and as a matter of convenience nonprimary stresses will be shown to be assigned by the PSR.

An example derivation illustrating raising in nonprimary stressed syllables appears in (41).

\[
\begin{array}{ll}
\text{engomau} & \text{\text{\textbar}ATR} \\
\text{kobaratu} & \text{\text{\textbar}ATR}
\end{array}
\]

\[
\begin{array}{ll}
\text{PSR/} & \text{\text{\textbar}ATR} \\
\text{UAC} & \text{\text{\textbar}ATR} \\
\text{[-ATR]} & \text{\text{\textbar}ATR} \\
\text{Spread} & \text{\text{\textbar}ATR} \\
\text{Vowel} & \text{\text{\textbar}ATR} \\
\text{Raising} & \text{\text{\textbar}ATR} \\
\text{High} & \text{\text{\textbar}ATR} \\
\text{Harmony} & \text{\text{\textbar}ATR}
\end{array}
\]

It should be emphasized that this account of Vowel Raising is considered to be tentative only. At the same time, and despite whether or not the present analysis is able to withstand rigorous investigation, it is clear nevertheless that some manner of mid vowel raising does occur in
syllables other than those that bear primary stress. The importance of this observation will be made apparent in the next section.

7. Low Vowels

As discussed in section 5, the low vowels a/A are invariant under high harmony. This much is clear. What is less clear is whether low vowels are neutral or opaque. The position taken in McCarthy (1984) is that a/A do not block the propagation of [high] vocalism and therefore are neutral. In this section I argue that an alternative analysis is possible and that low vowels are in fact are opaque segments.

Consider the data in (42a-b).

(42)

a. kola'derus "container (pl.)" kula'duru "id (sg.)
sela'derus "sheltered place" sila'duru "id (sg.)
to sleep (pl.)
po la'kale "down the street" pu'i ka'minu "along the path"
el 'pelu "the hair" il ma'diru "the log"

b. enkorna'dura "pair of horns" bela'thina "cloud"
amolan'cin "grinder" mora'lukus "measure"
bena'dixa "wild animal" eko'dixu "grain"
theka'trith "scar" kompa'nia "cortege"

The alternating forms in (42a) apparently show high harmony propagating across an intervening low vowel. This finding is not supported by the data in (42b), however. In these forms, the harmonic spreading of [+high] is blocked when a low vowel intervenes between a stressed high vowel and an underlying mid vowel. The evidence is conflicting, then, the forms in (42a) suggesting neutrality and those in (42b) opacity.

Assuming that low vowels are neutral, the disharmonic forms in (42b) are necessarily exceptions to high harmony. On the face of it this solution is clearly the most maximally simple since alternations of the type shown in (42a) are not obviously explained otherwise. Consider, though, the nature of the height alternations in question. Note in particular that raising takes place in [-ATR] domains and that the affected vowel is always in an alternating syllable preceding the tonic vowel. This would seem true of all such forms in general. The analysis accordingly suggested is that height alternations in (42a) are conditioned by the rule of Vowel Raising applying in nonprimary stressed syllables (cf. section 6.1.).
The plausibility of this analysis is made more concrete by a consideration of the forms kÚmpA'nIrU "companion" (cf. kompanerus "companions") and kompa'nîa "cortege". Underlyingly the initial stem vowel of these words is presumably mid. This vowel is of course raised to high in kÚmpA'nIrU but not kompa'nîa even though the structural description for [+high] spread is met in both instances. Generalizing, the most consistent account to be given for these forms is that low vowels block the propagation of [high] vocalism and that raising of /o/ to /U/ in kÚmpA'nIrU is a result of ATR harmony and concomitant Vowel Raising. Extending this analysis in an obvious way, the forms in (42a-b) are accounted for in a straightforward and systematic manner. The same is not true, however, if low vowels are taken to be neutral. In this case, an exceptions analysis is necessary to account for the disharmonic forms in (42b), a level of complication not otherwise required by the available data.

Concluding that a/A are opaque segments, and that the alternations in (42a) are nonproblematic on this account, the invariance of low vowels in Pasiego can be explained on the basis of the presumably universal constraint prohibiting [+high] from associating with any segment already specified as [+low]. This constraint has been formalized previously in (6a), repeated here as (43).

(43)

![Diagram]

My understanding of this constraint is that it holds at all levels of the phonology and functions to block rules from applying if these would create illicit structure of the type disallowed under (43). Assuming that low vowels are underlying specified as such, (43) will constrain any rule from inserting or spreading the feature value [+high] onto a/A since the resulting structure would necessarily and visibly violate the constraint in question regardless of at which level the rule applies. The fact that a/A are exceptions to both high harmony and Vowel Raising consequently follows from constraint (43) and the assumption that [+low] is a marked feature value in Pasiego.
Note that the constraint in (43) predicts only that low vowels will not undergo raising. In order to account for the claim that a/A block the propagation of [+high] vocalism it is also necessary to assume that the high harmony rule in (26) may not pass over adjacent segments. This I take to be a consequence of the requirement that all phonological rules observe strict conditions on locality (Archangeli and Pulleyblank, 1986). In the event that (43) blocks high harmony from applying to a/A, subsequent associations of [+high] are also disallowed as these would violate general constraints on adjacency. This is illustrated in (44).

(44) a. / kompanja / b. / kompanja /
   +hi
   +hi

   PSR kompanja kompanja
   +hi +hi

   High Harmony BLOCKED kumpanja
   +hi

   [kompanja] *[kumpanja]

Here the structural description for high harmony is met in both (44a-b). In the case of (44a) this rule does not apply, presumably as a result of constraint (43) and the prohibition on nonlocal spreading. In (44b), on the other hand, the feature value [+high] spreads across an intervening low vowel. The resulting surface form *[kumpanja] is then ruled out for reasons already mentioned.

The account of Pasiego low vowels developed in this section is similar to one proposed by Archangeli and Pulleyblank (1986) in their analysis of opaque segments in Yoruba. There as here, opacity effects are judged to be the result of constraints on feature combination and adjacency. Essential to both these accounts is the assumption that configurationality constraints restrict phonological rule application. This I take to be entirely noncontroversial. Clearly less so is the claim that constraints of the type in (43) may be violated with the offending structure then undergoing repair at some later point in a given derivation. In the next section, however, I argue that the evidence from Pasiego also provides support for the existence of repair.
strategies in phonology and that these are related to an account of neutral /e/.

8. Neutral /e/

Recall from section 4 that the mid front vowel /e/ occurs freely in both [+ATR] and [-ATR] domains. This was shown by the data in (21d), repeated as (45) for convenience.

(45)    masc. pl.    masc. sg. count
        ermanus      ermA\text{n}U  "\text{brother}"
        bed\text{An}us    bed\text{An}u  "\text{wood chisel}"
        k\text{omfesonar}jus  k\text{omfesOnAr}jU  "\text{confessional}"

As indicated, /e/ apparently does not undergo and certainly does not impede the propagation of [-ATR] vocalism. In this respect, then, /e/ appears to be a neutral vowel. At the same time, if McCarthy’s (1984) account of Vowel Raising is correct, /e/ actually does harmonize for [-ATR] at some intermediate stage of the phonology. Assuming this as I am (cf. section 6), it is necessary to explain why /e/ does not surface as /E/ in cases where Vowel Raising and/or high harmony do not apply to raise this abstract intermediate vowel to /I/.

The account given in McCarthy (1984) is that /E/ undergoes a late rule of e-Fission, formulated as follows (with the feature [tense] used in place of [ATR]).

(46)    e-Fission

\[
\begin{array}{c}
[-\text{tense}] \\
[-\text{back}] \\
[-\text{high}]
\end{array}
\]

Crucially, this rule is ordered after both Vowel Raising and high harmony. In the event that neither of these rules apply and the structural description for e-Fission is met, the feature value [-tense] is disassociated from /E/. Default rule application subsequently assigns [+tense] as a default value. An example derivation appears in (47).

(47)

\[
\begin{array}{c}
ak\text{omfesonar}jU \\
\rightarrow \text{Spreading} \\
\rightarrow k\text{omfesOnAr}jU \\
\rightarrow \text{Vowel Raising} \\
\rightarrow \text{NA}
\end{array}
\]
McCarthy concedes that an alternative treatment of neutral /e/ not incorporating the rule of e-Fission is possible, but notes rightfully that any such analysis would necessarily require considerable complication of the rule of Vowel Raising in order to account for the fact that stressed mid vowels are raised in [-ATR] domains only.

Although evidently well motivated, McCarthy's analysis nevertheless presents a number of conceptual problems. First, the analysis predicts that phonological processes are free to create structure that is not present either underlyingly or at the level of surface representation. A second related prediction is that languages will arbitrarily select rules that function solely to undo the effect of other, more general rules. In the remainder of this paper I will show these same problems do not arise if the rule of e-Fission, or something like it, is taken to be a general repair strategy rather than a typical rule of the phonology as claimed by McCarthy.

Consider first that in Pasiego there is no [-ATR] counterpart to the mid front vowel /e/. This I take to be expressed formally by the constraint in (46b), now (48).

\[(48)\]

\[
x
\]

\[
/\text{-back} /\text{-ATR} /\text{-high}\]

As formulated, (48) is most obviously a constraint on surface representations since the feature values that it mentions are considered not to be present in the underlying descriptions of Pasiego vowels (cf. section 2). Following related discussion in Archangeli and Pulleyblank (1986), however, I assume that any constraint holding postlexically holds lexically as well. In this way, constraint (48) is presumed to restrict representations at all levels of the phonology.

Assuming that constraints in general may not be violated, the prediction is that (48) will preclude /e/ from undergoing [-ATR] Spread.
That this is not the case in this instance follows from the assumption that /e/ is unspecified for [-high] and [-back] at the time that the rule in question applies, there being no independent motivation for the prior application of default rules assigning these redundant values. [-ATR] Spread applying to /e/, then, does not result in a visible violation of constraint (48). The actual violation of this constraint is made apparent only at such time as that when /e/ is assigned default values for both [high] and [back]. Subsequent to this, and in order to repair the ensuing ill-formed configuration, a process similar to e-Fission disassociates the feature value [-ATR] with default [+ATR] then being assigned in its place. That e-Fission is formulated to delink [-ATR] rather than [-high] or [-back] need not be stipulated, however, since only the first of these is a nondefault value. In the event that e-Fission forces disassociation of one or the other of the remaining feature values mentioned under (48) the constraint will continue to be violated, these same feature values presumably being reassigned by default rule application.

This account of neutral /e/ in Pasiego is illustrated by the following derivations of 1I'xIrU "light" and be'dAnU "wood chisel".

(49) a. leseru] -ATR ] b. bedanu] -ATR ]

<table>
<thead>
<tr>
<th></th>
<th>leseru</th>
<th>bedanu</th>
</tr>
</thead>
<tbody>
<tr>
<td>UAC</td>
<td>lexerU</td>
<td>bedanu</td>
</tr>
<tr>
<td></td>
<td>-ATR</td>
<td>-ATR</td>
</tr>
<tr>
<td>Spread</td>
<td>lExErU</td>
<td>bEdAnU</td>
</tr>
<tr>
<td></td>
<td>-ATR</td>
<td>-ATR</td>
</tr>
<tr>
<td>Vowel</td>
<td>lExIrU</td>
<td>NA</td>
</tr>
<tr>
<td>Raising</td>
<td>+hl</td>
<td>NA</td>
</tr>
<tr>
<td>Harmony</td>
<td>lIxIrU</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>+hl</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>lIxIrU</td>
<td>bEdAnU</td>
</tr>
<tr>
<td>[-high]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[-back]</td>
<td>-bk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-hl</td>
<td>-bk</td>
</tr>
<tr>
<td>e-Fission</td>
<td>NA</td>
<td>bEdAnU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-ATR</td>
</tr>
</tbody>
</table>
In (49a-b) no vowel is specified for [-high]/[-back] at the time that [-ATR] Spread applies. Accordingly, and as a result of this rule, [-ATR] is associated with all vowels including /e/. In the case of (49a) no subsequent violation of constraint (48) is observed since Vowel Raising and high harmony raise all instances of derived /E/ to /I/ prior to the application of default [-high]. Conversely in (49b), raising of /E/ does not occur and [-high] as well as [-back] is assigned as a redundant value. At this point in the derivation, constraint (48) is visibly violated. e-Fission functioning in the manner of a repair strategy consequently forces disassociation of the feature value [-ATR]. Default rule application assigning [+ATR] completes the derivation.

Note that the analysis as it now stands provides no explanation for why rules assigning default values may apply in contravention of a given constraint. In the case of (48), for example, it is clearly required that rules assigning both [-high] and [-back] be able to associate with segments already specified as [-ATR]. This I take to be a consequence of a more general principle of full feature implementation. Specifically, I assume that in order for a segment to be well formed it must be specified for some value for all distinctive features. In Pasiega, this requirement presumably supercedes the language specific constraint shown in (48) so that default rule application assigning [-high] or [-back] to /E/ is itself a necessary repair strategy of sorts.

One final point to be discussed here concerns the claim in Archangeli and Pulleyblank (1986) that the specification of [aF] in some constraint is sufficient to trigger the application of redundancy rules assigning [aF]. If this claim is true, the specification of [-high] and [-back] in constraint (48) should require that these default values be assigned at some time prior to that at which [-ATR] Spread applies. This in turn predicts that (48) will preclude [-ATR] from associating to /e/. To the extent that the analysis developed in this section is correct, it provides no support for the claim in question and suggests instead that...
feature specifications mentioned in constraints do not necessitate early default rule application.

Conclusion

In this paper I have shown that the invariance of Pasiego low vowels and neutral /e/ result from the differing strategies of blocking and repair. In the case of low vowels, observed opacity effects are judged to be a consequence of restricted rule application and constraints on adjacency. The apparent neutrality of /e/, on the other hand, is the result of a phonological process of repair, necessitated by the Pasiego rule of ATR harmony applying in contravention of a segment structure constraint. The analysis developed in this paper accordingly provides support for repair strategies in phonology and Rice's (1987) proposal that configurationality constraints block phonological rule application only if these are visibly violated at the time that a given rule applies.

Notes

* This paper is a revised version of a (1986) paper and appears in its essential form as Chapter Two of my (1987) M.A. Forum paper. For comments and discussion I would like to thank Karen Carlyle, Liz Cowper, Elan Dresher and Hitay Yukseker. I am especially grateful to Keren Rice and Peter Avery; also David Heap for his assistance in translating a number of the forms listed in Penny (1969a) but not (1969b). Funding for this paper was obtained in part by begging, borrowing, stealing and an occasional act of violence.

1. A similar claim is made by Carole Paradis in a series of articles that have come to my attention since the initial writing of this paper. For discussion and an alternative account of constraint violations than that proposed here and in Rice (1987), see Paradis (1988; to appear) and a number of references cited therein.

2. Pasiego is spoken in the Cantabrian mountains in the central-southern area of the province of Santander, Spain.

3. McCarthy uses the feature [tense] in place of [ATR]. Despite this difference, I adopt his convention of representing lax vowels with capital letters. The symbol system used to represent consonants is that of Penny (1969b) with the following exceptions: /c/ = /C/; /th/ = /θ/; /l/ = /l/; /nn/ = /ŋ/.

4. Not discussed in this paper are the allophonic processes that govern the selection of /i e a/ in certain unstressed environments. For discussion and a plausible analysis, see McCarthy (1984).

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5. Exceptions to this pattern are relatively few and include mostly adverbs (e.g., ’a’ll “there”) and certain future tense verb forms (e.g., kome’re “eat (1.sg.fut.”)). These are not accounted for here.

6. There is evidence that long vowels and some VG sequences are derived rather than underlying (cf. Wilson, 1987) although I avoid this complication for present purposes.

7. These primarily have to do with segment co-occurrence restrictions (cf. Wilson, 1987) and certain facts concerning high harmony (discussed in section 5).

8. McCarthy (1984) assumes automatic spreading so that this rule forms no part of his analysis.

9. It is not likely that disharmonic glide-vowel sequences can be explained instead on the basis of a constraint prohibiting consecutive [+high] specifications within rimes since these are otherwise allowed in Pasiego eg. ’bjudo “widower”; A’1jIndU “breath”; agw’lita “grandmother/dim.” (cf. a’gwela “grandmother”).

10. An examination of Penny (1969a) indicates that this list could be expanded to include all stressed mid vowelised suffixes in general (cf. Wilson, 1987).

11. The form peroxal is attested, however.

12. The formulation of this rule takes into account the assumption that segments are unspecified for [-high] until at least some time after high harmony applies.

13. The form afortu-na: would appear to be an exception to the claim that high harmony is a cyclic rule.

14. This is not obviously true of such examples as pU l ’prAU “through the field” where the vowel of the article is regularly syncopated (cf. el prau). Other apparent exceptions to this pattern include such alternating forms as U’xAnU/O’xAnU “grub”. The available evidence suggests, however, that these are dialectal rather than free variants (cf. UxAnU/uxanus; OxAnU/oxanus).

15. This is especially true of the feature value [-ATR].

16. This was first pointed out to me by Elan Dresher.

17. This does not necessarily preclude the possibility that values of redundant features might not be specified.

18. An apparent prediction, then, is that e-Fission and at least one or the other of the rules assigning default [-high] or [-back] is a late, phonetic process.

19. My own research suggests, however, that this account of neutral /e/ in Pasiego cannot be extended generally to account for neutral vowels in all languages (cf. Wilson, 1987 for some discussion of this point).
References


Penny, 1969b. Vowel harmony in the speech of the Montes de Pas (Santander). Orbis 18. 148-166.


