Stress-Conditioned Allomorphy in Surmiran

(Rumantsch)

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I approach my topic here from a somewhat different perspective than that of several other contributors to the present volume. To be clear, my knowledge of the Romance languages and their comparative grammar is quite limited, and my knowledge of their histories even more so. The discussion below, with some limited exceptions, is thus not based on detailed historical and comparative analyses, but rather represents a somewhat self-contained account of a single synchronic system. As Romance Philology, therefore, it may be judged to be weak; but I submit that its weaknesses are similar to those of a child encountering the primary linguistic data provided by those around her, and forced to acquire the underlying linguistic system on that basis. If the analysis I offer differs in some ways from what one might be inclined to on the basis of the precedents set by other languages, I suggest that that is entirely appropriate. After all, linguistic systems do change, sometimes quite radically in their nature but with very little alteration in the surface forms they support, as a result of new generations of learners making different abductive inferences from the data at hand (Andersen 1973).
To be more specific, the analysis offered and defended below has rather a different character from that proposed by Maiden (2008, this volume) for some closely related languages. Since the facts I use to support my account are in some ways particular to the language under discussion here, they do not necessarily bear on the description of those other languages, and (perhaps more importantly) *vice versa*. Within a set of languages whose surface forms are quite similar, even mutually comprehensible to a significant degree, the underlying bases of the observed patterns may be quite distinct. In particular, even if a primarily morphological account of certain alternations in some languages, based on purely morphological morphomic units, is appropriate for those languages, much the same patterns of alternation may have a phonological basis (not involving morphomes) in another.

The language to be treated here is Surmiran, a Swiss Rumantsch language, and in particular the form of Surmiran spoken in Savognin, Salouf, and the surrounding area. This has some status as a local standard, and is codified in a normative grammar, a variety of pedagogical material, and locally available dictionaries. As shown in Figure 1, Surmiran is a member of the central subgroup of the Swiss Rumantsch languages. Other Swiss Rumantsch languages with literary standards are shown unparenthesized in Figure 1; the forms identified in parentheses are clearly identifiable, distinct languages but ones without the same official status. While Swiss Rumantsch is clearly a unit from a historical and comparative point of view, it is often grouped together with the various forms of Dolomitic Ladin and Friulian as part of a larger “Rhaeto-Rumantsch” unit within Romance, and the evidence for the unity of such a grouping is much more controversial. A review of the reasons to doubt the historical significance of “Rhaeto-Rumantsch” can be found in Haiman & Benincà 1992, but these considerations will not be relevant in the discussion of Surmiran which follows.
The central point at issue here will be the analysis of stem alternations in Surmiran, particularly those in the verbal system. In order to make the theoretical points below clear, it will be necessary to go over the analysis of these facts presented in Anderson 2008, 2010, forthcoming. To begin, there are six basic conjugational types in Surmiran, differing in the endings found in the infinitive and elsewhere as illustrated in (1).

\[
\begin{array}{cccccccc}
\text{Inf.} & \text{Example} & \text{1pl. Pres.} & \text{Imperf.} & \text{Fut.} & \text{Cond.} & \text{PPpl.} \\
-ar & \text{cantar ‘sing’} & -agn & -ava & -aro & -ess & -o/ada \\
-er & \text{lascher ‘leave’} & -agn & -eva & -aro & -ess & -ea/eda \\
-ieir & \text{spitgier ‘expect’} & -agn & -iva & -aro & -ess & -ia/eida \\
-eir & \text{tameir ‘fear’} & -agn & -eva & -aro & -ess & -ia/eida \\
-er & \text{tanscher ‘reach’} & -agn & -eva & -aro & -ess & -ia/eida \\
-eir & \text{parteir ‘depart’} & -ign & -iva & -iro & -iss & -ia/eida \\
\end{array}
\]

The most common (and most productive) of these is the first, and in (2) the Present Indicative of a representative verb of this type *cantar ‘sing’* is given.
As will be seen in (2), the verb stem appears in two different shapes phonetically (here, [kant] and [kant]). In the various forms of the verb other than the Present Indicative, as illustrated in (3), the stem always appears in one of these two shapes.

(3)  a. Present Subjunctive canta [‘kanta], cantas [‘kantas], canta [‘kanta], cantan [‘kant⁴n], cantas [‘kantas], cantan [‘kant⁴n]

b. Other tenses: Imperfect (ia) cantava [kɔntava]; Future (ia) cantaro [kɔnta’ro];
   Imperfect Subjunctive/Conditional (ia) cantess [kɔnt’es]

c. Non-finite forms: Gerund cantond [kɔnt⁴nd]; Past participle canto, cantada [kɔnto, kɔnta’dɔ]

Cantar is a ‘regular’ verb, showing endings and alternations that pervade the verbal system. Many other verbs in Surmiran, including those in (4), are much less regular, and show a variety of idiosyncrasies — some of which fall into minority patterns of sub-regularity, but which need to be lexically identified as not conforming to the most broadly regular form.
A particularly common form of ‘irregularity’ is that shown by so-called “Alternating” verbs like those in (5), which show two distinct stem forms that are less predictably related than those of verbs like *cantar*: e.g. [lod]/[lud], [lev]/[lev], [fet(t)]/[fet(t)].

The two alternants of the stem differ (both for alternating verbs like those in (5) and regular verbs like *cantar*) primarily in the quality of their last vowel, and their distribution can be described in terms of morphological categories. One alternant regularly characterizes a set of forms (apparently) based on the singular Pres. Indicative stem, as illustrated in (6).
The other stem is found in forms (apparently) based on the first and second person plural of the Present Indicative, as shown in (7).

As indicated in (7), the infinitive generally shows the stem found in the other forms of (7), rather than that of the forms in (6). A systematic exception to this generalization is provided by verbs of the fifth conjugation type in (1), more traditionally the Romance third conjugation. As illustrated by the verb in (8), these verbs use the stem form of the singular Present Indicative in their infinitive, which is characterized by the ending [–ɔt].

(8) discorrer [dɪʃˈkɔɾəɾ] ‘speak’; 1sg Present disˈcor; 1pl Present disˈcurˈrign.
At first glance, it appears that the distribution of the two stems might be an instance of the morphemic “N-pattern” of Maiden (1992, 2004b, 2005). A closer look, however, reveals a different generalization. The choice of stem is not determined by Morphosyntactic features (as for genuinely suppletive irregular verbs, like (4)), but rather the distribution is phonologically based: one stem is used when main stress falls on the stem itself as in (6), fifth conjugation infinitives as in (8), and the singular and 3pl Present Indicative. The other is used when main stress falls outside the stem, as in 1pl, 2pl Present Indicative and the other forms in (7), and infinitives of other classes.

One initial problem with the “N-Pattern” analysis is the fact that according to Maiden’s previous formulations, we would expect to see a stem alternation in the Present Subjunctive comparable to that in the Present Indicative. This is easily enough remedied, by simply saying that the morphological categories characterized by the stem of the singular (and 3rd plural) Present Indicative include all of the Present Subjunctive, and not simply the ones taking this stem in the Indicative. Maiden (this volume) discusses other Rumantsch languages where comparable leveling of the Subjunctive has occurred. This does make the point, however, that the (arbitrary) set of morphological categories defining a morphome is a language particular matter, and the comparison with other, distinct language systems is not necessarily probative.

Perhaps more significant is the fact that there is no natural way to characterize the stem distribution in terms of lists of morphological category, because the same category (the infinitive) can be associated with different stems depending on its phonology. Whether the infinitive takes one stem or the other, that is, depends on whether its ending happens to have a form requiring desinential stress on the one hand, or one that produces stress on the stem on the other. As we will see below when we go beyond...
the verbal system, the generalization based on the distribution of stress extends to a variety of other circumstances, while one based directly on morphological categories does not.

To maintain that the location of stress in a verbal form is the determinant of the shape its stem should take requires that we provide an account of how stress is assigned in the language. Essentially, this is straightforward and quite regular: With the exception of some synchronically foreign words, main stress falls on the penult if the rhyme of the final syllable consists of [a], possibly followed by [r], [l] [n] or [s]. If the final rhyme contains a full (non-[a]) vowel, or [a] followed by some other consonant, the main stress falls on this syllable instead. Assuming that syllables whose rhyme is of the first sort (nucleus [a] with coda limited to [r,l,n,s]) are prosodically weak, and others strong, we can describe this simply by the rule in (9).

(9) **Main Stress Rule**: Build a quantity-sensitive trochee at the right edge of the word.

Secondary stress falls on initial syllables (usually) separated by at least one syllable from the main stress; parts of compounds are stressed separately with main stress on the stress center of the final element. Other secondary stresses appear to be the result of cyclic word formation, although the principles have not yet been fully worked out. I do not attempt to formulate a complete system including secondary stresses, since these are not in general relevant to the problem of stem alternation.

The difference between stressed and unstressed syllables in Surmiran is associated with a major difference in vowel inventories. Stressed syllables can contain a variety of vowels (long and short) and diphthongs. Unstressed syllables generally contain only short [a] (written a or e), [i] (i) or [u] (u), though unstressed [e, o] are not rare.
When we examine regular verbs like *cantar*, we see that the difference between the stems [kônt] and ['kant] looks as if it might simply be the product of a rule of vowel reduction, applying to unstressed syllables. Is it plausible, then, to suggest that the whole apparatus of stem alternation is purely a matter of stress-conditioned phonology? While initially appealing, this analysis cannot be sustained. The fundamental reason is the fact that the correspondence between stressed and unstressed vowels in the stems for a given lexical item is not unique in either direction, and thus not a candidate for expression as a phonological rule.

Considered first from the point of view of predicting the stressed vowel from the unstressed one, we see that this is not possible because unstressed [o] in a stem can alternate with any of several vowels, as illustrated by the verbs in (10).

<table>
<thead>
<tr>
<th>Alternation</th>
<th>Infinitive</th>
<th>3sg Pres. Indic.</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ɔ]/[a]</td>
<td>l[ɔ]var</td>
<td>lava</td>
<td>‘wash’</td>
</tr>
<tr>
<td>[ɔ]/[aI]</td>
<td>[ɔ]ntrar</td>
<td>aiترا</td>
<td>‘enter’</td>
</tr>
<tr>
<td>[ɔ]/[i]</td>
<td>t[ɔ]dlar</td>
<td>tedła</td>
<td>‘listen’</td>
</tr>
<tr>
<td>[ɔ]/[e]</td>
<td>l[ɔ]var</td>
<td>leva</td>
<td>‘get up’</td>
</tr>
<tr>
<td>[ɔ]/[eI]</td>
<td>p[ɔ]sar</td>
<td>peïsa</td>
<td>‘weigh’</td>
</tr>
<tr>
<td>[ɔ]/[ei]</td>
<td>antsch[ə]dar</td>
<td>antsheïda</td>
<td>‘start yeast’</td>
</tr>
<tr>
<td>[ɔ]/[i]</td>
<td>surv[ə]gneir</td>
<td>survigna</td>
<td>‘receive’</td>
</tr>
<tr>
<td>[ɔ]/[o]</td>
<td>cl[ə]mar</td>
<td>cloïma</td>
<td>‘call’</td>
</tr>
</tbody>
</table>

The same is true for unstressed stem [i], as in the verbs of (11).
<table>
<thead>
<tr>
<th>Alternation</th>
<th>Infinitive</th>
<th>3sg Pres. Indic.</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[i]/[ˈa]</td>
<td>(sa) tgil[ɾ]ttar</td>
<td>tgilɔtta</td>
<td>'sit down (scornfully, as of a cat)'</td>
</tr>
<tr>
<td>[i]/[ˈai]</td>
<td>spisg[ɾ]ntar</td>
<td>spisgjinta</td>
<td>'feed'</td>
</tr>
<tr>
<td>[i]/[ˈe]</td>
<td>p[ɾ]glier</td>
<td>p geli</td>
<td>'take'</td>
</tr>
<tr>
<td>[i]/[ˈɛ]</td>
<td>f[ɾ]mar</td>
<td>fema</td>
<td>'smoke'</td>
</tr>
<tr>
<td>[i]/[ˈei]</td>
<td>anv[ɾ]dar</td>
<td>anvɛida</td>
<td>'invite'</td>
</tr>
<tr>
<td>[i]/[ˈi]</td>
<td>tɡ[ɾ]rar</td>
<td>tɡira</td>
<td>'guard'</td>
</tr>
<tr>
<td>[i]/[ˈiɔ]</td>
<td>s[ɾ]var</td>
<td>siɛva</td>
<td>'sweat'</td>
</tr>
<tr>
<td>[i]/[ˈo]</td>
<td>dum[ɾ]gnar</td>
<td>dumɔgna</td>
<td>'dominate'</td>
</tr>
</tbody>
</table>

And also for unstressed stem [v], as illustrated in (12).

<table>
<thead>
<tr>
<th>Alternation</th>
<th>Infinitive</th>
<th>3sg Pres. Indic.</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ʊ]/[a]</td>
<td>v[ɾ]rdar</td>
<td>ʊrda</td>
<td>'watch'</td>
</tr>
<tr>
<td>[ʊ]/[ɔ]</td>
<td>d[ɾ]rmeir</td>
<td>ʊurma</td>
<td>'sleep'</td>
</tr>
<tr>
<td>[ʊ]/[o]</td>
<td>cr[ɾ]dar</td>
<td>ʊroda</td>
<td>'fall'</td>
</tr>
<tr>
<td>[ʊ]/[oː]</td>
<td>p[ɾ]ssar</td>
<td>pɔssa</td>
<td>'rest'</td>
</tr>
<tr>
<td>[ɛ]/[oː]</td>
<td>l[ɾ]ier</td>
<td>ɛloia</td>
<td>'arrange'</td>
</tr>
<tr>
<td>[ɛ]/[ou]</td>
<td>ram[ɾ]rar</td>
<td>ramoura</td>
<td>'roll, surge'</td>
</tr>
<tr>
<td>[ɛ]/[u]</td>
<td>p[ɾ]gnier</td>
<td>puagna</td>
<td>'fight, box'</td>
</tr>
</tbody>
</table>

Unstressed stem [ɛ] and [ɔ] commonly either (a) alternate with long stressed (open or closed) similar mid-vowels, or else (b) do not alternate, belonging to the class of verbs in esch (see the discussion of this pattern below). Approximately two dozen verbs (out of several hundred) with stressed [ˈɛ] or [ˈɔ] show an unstressed vowel with the same quality, while in a few verbs, unstressed [ɛ] alternates with [ˈai] or [ˈei].
These patterns, like unstressed mid-vowels in general, are quite marginal to the overall system.

Predicting the unstressed vowel from the stressed one fares no better: obviously, the data in (10), (11) and (12) also establish that the correspondence between particular stressed vowels and their unstressed counterparts is non-unique. The same stressed vowel can correspond to more than one unstressed vowel (for [a] and [o], to any of the three). There is no stressed vowel whose unstressed correspondent is unique. I conclude that the patterns of stem alternation cannot be reduced to the effects of a phonological rule of vowel reduction alone.

While there is little doubt that the historical origins of the stem alternation patterns seen in contemporary Surmiran are to be sought in the phonology of reduction of unstressed vowels, as an account of the current system that cannot be correct. Complex phonological developments over time (cf. Lutta 1923: 120–136, Grisch 1939: 76–94, Haiman & Benincà 1992: 56–63), plus the influx of German words with vowels other than [a, i, u] in unstressed syllables have made the original vowel reduction regularities opaque. Stem alternation is the morphologized remnant of a variety of processes, including vowel reduction, but the individual components have become inextricably merged in a set of patterns that can no longer be decomposed phonologically.

In fact, the vowel alternations are only one aspect of the broader system of stem alternation in Surmiran: they form part of a more comprehensive set of patterns which are idiosyncratically associated with particular lexical items. Each verb has two listed stems, one used when stress falls on it, and the other when stress falls on an ending. The difference is often a matter of the quality of the last vowel in the stem, but other differences appear as well.
In a number of verbs, \( gn \) ([n]) or \( ng \) ([ŋ]) following the stressed vowel of the stressed alternant corresponds to \( n \) ([n]) in the unstressed alternant, as in the verbs in (13).

(13) Infinitive 3sg Pres. Indic. gloss
ma’nar 'magna 'lead'
cuschi’nar cu’schigna ‘cook’
spla’nar 'splanga 'plane'
amplu’nar am’plunga ‘pile up’

Sometimes this is accompanied by vowel changes as well, as illustrated in (14).

(14) Infinitive 3sg Pres. Indic. gloss
(sa) sda’nar (sa) ‘sdegna ‘shrink from doing s.t.’
(s’)ancli’nar (s’)an’clegna ‘bend’
smarscha’nar smar’schunga ‘loaf’

The relation between palatal and velar nasals on the one hand and dental nasals in related forms was originally governed by phonological rules, but as in the case of vowel reduction, these rules have become opaque, leaving a morphologized residue.

In a number of forms, we find complex patterns of alternation that are not confined to a single vowel, as in the examples of (15).
Alternation Infinitive 3sg Pres. Indic. gloss

a–o~o–e  flamma’ger  flom’megia  ‘blaze’
e–o~o–e  decla’rar  da’clera  ‘declare’
i–i~o–e  angivi’nar  angia’vegna  ‘solve’
i–i~o–ei  misi’rar  ma’seira  ‘measure’
i–i~o–i  ghisi’gnier  ga’signa  ‘taunt’
u–o~o–o  murma’gner  mar’mogna  ‘murmur’
u–o~o–oi  sua’rar  sa’voira  ‘smell’
u–o~o–u  ruscha’nar  ra’schunga  ‘speak’
u–∅~o–ou  lu’vrar  la’voura  ‘work’

Some verbs appear to show metathesis of /t/ with an adjacent (possibly altered) vowel, as in (16).

Infinitive 3sg Pres. Indic. gloss

bar’geir  ‘bragia  ‘cry’
patar’ger  pa’tratga  ‘think’
sgar’tar  ‘sgratta  ‘scratch’
sgar’mar  ‘sgroma  ‘de-cream (milk)’
glisnar’ger  glisna’regia  ‘simulate’
‘cresch[ɔ]r [1pl] car’schagn  ‘be brought up’

In historical terms, what is involved in these cases is actually an alternation between a vowel and ∅, with epenthesis subsequently repairing the resulting cluster. Synchronically, however, we just have another type of stem alternation pattern.

Yet another alternation type has cognates in many of the other Romance languages. A great many verbs in the ‘productive’ [-ar] and [-ejr] conjugations form their
“stressed” stem with the extension -esch, similar to the ise of Italian finiscolfini’amo ‘I/we finish’. An example of such a verb in Surmiran is luschardar ([lužɔɾ’dar]) ‘strut’, whose Present Indicative is given in (17).

(17) 1sg luschar’desch
     2sg luschar’deschas
     3sg luschar’descha
     1pl luschar’dagn
     2pl luschar’delz
     3pl luschar’deshan
     1sg Pres. Subj. luschar’descha

Since -esch itself bears the stress whenever this would fall on the stem, the stem itself is effectively always unstressed, and so no other alternation occurs in these verbs. As a result, verbs that take -esch have a single, uniform stem that is identical with that of the infinitive, as opposed to virtually all others in the language. This fact is surely related at least partially to the distribution of such verbs in Surmiran speakers’ lexicons: if only one form of a verb is known, assigning it to this class avoids the issue of how to determine the stem alternation. Given the infinitive luschardar ‘strut’, for example, presumably a verb that is not often encountered, the 3rd singular Present Indicative form might be any of *luscharda, *luscheirda, *luschorde, *laschurda, *laschorda, among others. Treating it as a verb in -esch avoids this indeterminacy.

Verbs in -esch include many recent borrowings. Some verbs listed as alternating in Sonder & Grisch 1970 appear in Signorell 1999 with -esch (and current speakers extend this trend to additional verbs). Sometimes when speakers do not know or cannot recall the correct alternation pattern for a given verb, they produce -esch forms instead.
As will be discussed below, this view of formations in *-esch* as a sort of default that avoids the choice among an unpredictable range of alternation patterns is not intended as an analysis in itself. It does provide us with some understanding of why at least some verbs are assigned to this type, however.

The analysis of these facts proposed in Anderson (2008) is as follows. First, let us distinguish in phonological representations between full vowels and those that are characteristic of reduced positions: [a] *vs.* [ə], [i] *vs.* [ɪ], [u] *vs.* [ʊ]. The first member of each pair should only appear in stressed position, the second only in unstressed position. Following an analysis in the terms of Optimality Theory, constraints in the phonological system specify that stressed [ə,ɪ,ʊ] are to be avoided, and also unstressed [a,i,u] (as well as unstressed long vowels and diphthongs). Unstressed mid vowels are also penalized, though this constraint is not ranked as highly as those against unstressed peripheral vowels, long vowels or diphthongs.

The lexical representations of stems then have two (listed) alternants. Ignoring the marginal cases of verbs with mid vowels in both stems, in one of these the last vowel is from the set [ə,ɪ,ʊ], and in the other the last vowel is a full vowel or diphthong. There are of course general patterns of stem alternation, with some types being common and others much rarer. The Surmiran lexicon describes a speaker’s knowledge of the range of possible patterns and semi-regularities of alternation. Although the need for a theory of this sort of lexical relation has long been recognized (notably in Jackendoff 1975; cf. also Anderson & Lightfoot 2002: ch. 7), it has not been a focus of theoretical discussion, and I will confine myself here to the observation that some formulation of such regularities as lexical, not phonological in character must eventually be provided.

Given a lexical representation with two alternative forms for a verb’s stem, the phonology can in fact contribute to a determination of the unique surface forms of
individual words based on that stem. The mechanism assumed for this purpose is approximately that proposed by Kager (2008). In essence, it involves computing the surface result obtained by pairing each of the alternatives with the other morphology of the required form, and then determining which of these is more harmonic with respect to the overall constraint system. The constraints that associate full vowels with stressed syllables and reduced vowels with unstressed ones also function in this way to choose one stem or the other on the basis of the location of main stress.

Consider, for instance, the verb *vurdar* ‘watch’, 3sg. *varda*. The two stems of this verb are {/vurd/, /vard/}; the infinitive ending is */-ar/ and the ending for the 3rd singular of the Present Indicative is */-ə/18. Tableaux of the traditional sort are provided in (18) to illustrate the choice of the correct surface forms in the two cases.

<table>
<thead>
<tr>
<th></th>
<th>Stress</th>
<th>*u, i, ə</th>
<th>*a, i, ŭ</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>*/{vurd,vard}-ar/</td>
<td>vurdăr</td>
<td>!*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>vardăr</td>
<td>!*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>vûr'dar</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>văr'dar</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>*/{vurd,vard}-ə/</td>
<td>vurdō</td>
<td>!*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘vardō</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>vûr’dō</td>
<td>!*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>văr’dō</td>
<td>!*</td>
</tr>
</tbody>
</table>

There is one circumstance in which the apparatus developed thus far would not suffice to make a choice between the two possible stem forms. In stems with the shape
\[X\sigma C_0 V C_0 / \sim / X\sigma C_0 \bar{v} C_0 /\], when there is no following suffix (as in the 1sg Present Indicative form \([s\text{u}t\text{er}]\), *\([s\text{utar}\text{ar}]/s\text{utera} \text{‘bury’}\), either stem would be well formed in terms of the relation between vowel quality and stress, since a final trochee could in principle be made up either of the single syllable \([\text{ter}]\) (with a full vowel) or the two syllables \([\text{sutar}]\). In fact, however, it is the first of these footings that must be chosen. This can be accomplished if we add to the constraints governing prosodic structure a preference for final stress by ranking the constraint in (19) appropriately (but below the constraints requiring the main stress foot to be a quantity-sensitive trochee).

(19) **Rightmost:** The primary stressed syllable is at the right edge of the Prosodic Word.

On this account, the vowel reduction regularities are entirely subsumed by the system of stem alternation. As a result, even “regular” verbs have two lexical stem forms, because their regularity is not predictable from either shape. The stems of such verbs are as in the examples of (20).

(20) a. *cantar* ‘sing’, 3sg *canta*: \{[/k\text{ont}\mathbf{t}/, /k\text{ant}/]\}

b. *chintar* ‘calculate’, 3sg *chinta*: \{[/k\text{int}\mathbf{t}/, /k\text{int}/]\}

c. *cuntschier* ‘tinker’, 3sg. *cuntscha*: \{[/k\text{unj}\mathbf{t}/, /k\text{unj}/]\}

Most “irregular” verbs are integrated into the two-stem system at least in part, though with some additional complications. For example, consider the verb *pudeir* ‘can, be able to’ with the Present Indicative paradigm in (21).
This verb can be assumed to have two basic stem forms: /pɔs/, /pud/. In addition, the idiosyncratic 2sg, 3sg and 3pl Present Indicative forms (/pɔst/, /pɔl/, /pɔn/) must be listed, but the remainder of the paradigm follows from this information.

Returning to the verbs that take -esch, these are analyzed as having only a single stem: the “unstressed” one found in the infinitive (and other forms with desinential stress), whose last vowel has a quality inappropriate to appearance in a stressed syllable. The morphology includes the rule in (22), limited to [-ar] and [-ejr] verbs.

(22) /X/ → /Xej/ [+VERB]

From an Optimality Theoretic perspective, the fact that this rule serves to realize no concrete morphological property (such as agreement or tense) means that its application is always dispreferred (by higher ranking DepM: Introduced phonological material should be the realization of morphological properties in the Input), with one exception: when it would result in a prosodically preferred form, by avoiding stress on an unstressable vowel. This result is achieved by ranking DepM below those enforcing the relation between vowel quality and stress.

The analysis offered here accommodates all of the facts of stem alternation in Surmiran verbs; support for that account from other areas of grammar will be adduced below. In the process, it attributes a great deal of variation that might seem quite
low-level and “obviously” phonological in many other languages to relations among lexically listed stems; but this seems inevitable, given the unpredictability and lexical specificity of the alternations involved, in this language.

Apart from the intrinsic interest of such a wholesale historical shift from the productive phonology into the lexicon, the system of alternations just discussed is significant from another perspective. On the one hand, the alternating forms are lexically listed allomorphs of individual stems, and on the other, the factors governing the choice of an allomorph in a particular circumstance are purely phonological (the predictably assigned stress pattern of the word). This is thus an especially pervasive system of phonologically conditioned suppletive allomorphy, of the sort highlighted some years ago in work of Carstairs (1987, 1988).

Subsequent discussion of such cases of “phonologically conditioned suppletion” have concentrated on instances in which the shape of an affix is conditioned by that of the stem to which it is attached, but Carstairs had already envisioned instances in which the conditioning is in the opposite direction, as in Surmiran. Instances of phonologically conditioned affix alternation are certainly more common than stem alternation, but they are not the only examples that need to be considered in arriving at a theory of such phenomena.

The Surmiran system constitutes a clear counter-example to claims made about such phenomena in the recent literature, in particular those of Paster (2009a,b). Paster contends (along with Bye 2007) that phonologically conditioned suppletion can always be understood as a matter of differential sub-categorization restrictions imposed on lexically listed alternants of a morphological element. She opposes this to a view on which multiple alternants are provided by the morphology, with the choice being made by the operation of the phonology — as proposed above for the Surmiran
case. She cites four principles on the basis of which the sub-categorization analysis is generally to be preferred to the phonological (which she identifies as the “P ≫ M” approach, referring to the fact that on this line phonological conditions determine morphological realization).

One of these is the claim that phonologically determined suppletion is always conditioned from the inside outwards, that is, from stems to affixes and from inner affixes to outer ones rather than the other way around. The Surmiran example is a clear \textit{prima facie} counter-example to this, and not amenable to a sub-categorization based description. In fact, Carstairs (1987: 179ff.) also offered examples of such sensitivity in the opposite direction, examples which Paster does not discuss and which must be considered to pose further problems for her claim.

A second claim is that the phonological factors conditioning allomorph choice will always be found in the input to the phonology, and not (as output-directed frameworks such as Optimality Theory would have it) crucially in the surface form. Again, Surmiran counter-exemplifies this claim: the distribution of stress in this language is completely predictable in terms of the shape of whole words, apart from obvious loan vocabulary, and thus not present in the phonological input. It is only in terms of the phonologically assigned prosody, and thus aspects of the output form that are not manifest in the input, that the stem choice can be made.

Two other claims are not particularly probative here. One of these is the observation that phonologically conditioned allomorph choice is not uniformly in the direction of phonologically optimal surface forms. Examples which Paster discusses may well show this, but in the Surmiran case, the relation between vowel quality and stress is a natural one, a clear candidate for formulation as a set of Optimality Theoretic constraints, and it is this relation that the choice of stem allomorphs tends to
render coherent.

Finally, Paster claims that the sub-categorization description is better suited than the “P≫M” analysis to account for the fact that conditioning factors and the element whose shape is to be determined cannot be arbitrarily separated: the shape of a suffix cannot depend on that of a prefix, for example. This issue of the “locality” of phonological relations and the role of variables in phonological expressions is one that has been raised at least since the early 1970s, in work such as Howard 1972, Jensen 1974 and others. Differences in the interpretation of such variables have been claimed to be associated with differences among types of rules (Anderson 1975, 1992). Related issues have been a perennial concern of phonologists from a variety of points of view, but there is little to be had in the way of conclusive results (as opposed to strongly held intuitions) in this area. In particular, there is no obvious basis for the claim that the correct theory of locality will constrain sub-categorization statements in a way that is palpably different from its effect on other sorts of phonological relations.

I conclude, therefore, that the analysis of stem alternations in Surmiran constitutes strong evidence against the claim that phonologically conditioned suppletion is always appropriately analyzed as phonological sub-categorization of morphological alternants. This is not to deny that some examples are better seen in that way, rather than as matters of phonological optimization, but those examples do not exhaust the phenomena as some have proposed.

2 Some Objections

The above analysis of Surmiran verbal alternations as phonologically conditioned allomorphy, originally offered in Anderson 2008, is objected to on a number of grounds
by Maiden (2008, this volume). In this section, I will consider those objections and show how they are to be met. For reasons having to do with the logistics of preparing the present paper, I will base my discussion on the formulation of these issues in Maiden 2008, though I believe the points raised by Maiden in his contribution to the present volume are similar in their essentials.

Probably the most fundamental issue Maiden raises is the suggestion that once one goes beyond verbal inflection, the forms shown by stems are not uniformly those that would be predicted by the phonological analysis:

“The alleged phonological conditioning is simply not purely phonological: the environment for the ‘unstressed’ alternant is not (as Anderson recognizes) always that selected by stressed derivational affixes [...]”

To appreciate the issues here, and to put the relevant examples in an appropriate context, it is necessary to describe the overall framework assumed above in a bit more detail.

While I assume that phonological relations between underlying inputs and derived forms are mediated by a system of ranked violable constraints of the type generally assumed in descriptions based on Optimality Theory, I do not adhere to all of the associated principles of that theory in its classical form. In particular, I wish to maintain an overall architecture of grammar similar to that of classical Lexical Phonology (Kaisse & Shaw 1985; Kiparsky 1982, 1985). On this view, the morphology and the phonology of a language interact cyclically, with (some appropriate sub-system of) the phonology applying to adjust the results of each stage of morphological elaboration of a form.

The constraint-based implementation of this picture is essentially the model of ‘Stratal OT’ (Bermudez-Otero forthcoming; Kiparsky 2000). Each cycle of morpho-
logical formation provides the input to an appropriate constraint system which determines the corresponding phonological form — a result which may in turn serve as the basis for further cycles of morphological formation.

Within the system of Surmiran as outlined above, lexical items generally have two listed stem forms, with the exception of ‘-esch verbs’, which have only one. The choice of one or the other of the two stem allomorphs takes place on the first cycle to which a stem is subject; and once the stem shape is determined, that decision is not revisited on subsequent cycles. As a result, if the ‘stressed’ base is chosen on the first stem cycle, and this form is subsequently extended by further endings so that the vowel stressed on the first cycle no longer bears stress, the original stem will appear to be inappropriate.³ This is not random or exceptional behavior, however: it is rather a principled deviation from the simplest case, based on the motivated morphological structure of the form and its relation to the stratal organization of the language’s morphology.

These considerations do not in general arise in the description of the inflected forms of verbs, which have formed the basis of the discussion so far. When we turn to other word classes, however, they become relevant. In general, non-verbs which are related to alternating verbs are built from the same stem set, and thus display the same stress-based alternation. Some (of many) alternating verbs with related non-verbs that illustrate this are given in (23).
These forms are completely straightforward, being derived from the same stem set as the corresponding verbs, but with appropriate derivational endings. The combination of a stem (with two possible forms) and the ending is then submitted to the phonology, where the same principles that are operative in the case of verbs determine the choice of stem allomorphs.
At least one alternating verb has related non-verbal forms with a distinct alterna-
tion, as shown in (24).

(24)  \( \text{suarar} \) ‘to smell’ 3sgPres. \( \text{sa\'oir} \)
\( \text{sa\'our} \) ‘smell (N); \( \text{sa\'ious} \) ‘fragrant’

In this case, we must assume that the noun and adjective forms are based on a distinct
stem set from that underlying the verb. The principles determining the stem shape
are the same in both cases, however, given this lexical difference.

Thus far, there is no problem for the basic analysis as presented in section 1. The
complexities arise in a significant number of more complex words, where the "stressed"
stem appears in a form where it does not take the stress, as illustrated in (25).

(25)  a. \( \text{sa\'iger} \) ‘(to) dry [intr.]’ 3sgPres. \( \text{setga} \)
\( \text{setga} \) (dry (adj.)); \( \text{setgan\'tar} \) ‘(to dry [trans.]’

b. \( \text{preschen\'tar} \) ‘(to) present’ 3sgPres. \( \text{pre\'schainta} \)
\( \text{preschentazi\'un} \) ‘presentation’; \( \text{pre\'schaint} \) ‘present (Adj)’; \( \text{pre\'schainta\'maint} \)
‘presently’

c. \( \text{accumpa\'gner} \) ‘accompany’ 3sgPres. \( \text{accum\'pogna} \)
\( \text{accumpa\'gneder} \) ‘accompanist’; \( \text{accumpogna\'maint} \) ‘accompaniment’

d. \( \text{accuma\'dar} \) ‘adjust’ 3sgPres. \( \text{accu\'moda} \)
\( \text{accumu\'dabel} \) ‘adjustable’ \( \text{accumu\'da\'maint} \) ‘adjustment’

e. \( \text{sfend[\or]} \) ‘(to) split’ 1plPres. \( \text{sfan\'dagn} \)
\( \text{sfan\'dia} \) ‘cracked (adj)’; \( \text{sfen\'dibel} \) ‘splittable’

f. \( \text{dur\'meir} \) ‘(to) sleep’ 3sgPres. \( \text{dorma} \)
\( \text{durmi\'gliun} \) ‘late riser’ \( \text{dormu\'lent} \) ‘sleepy’
g. *anga*’nar ‘defraud’ 3sgPres. *angiona*

*anga’nous* ‘fraudulent’; *an’gion* ‘fraud (N)’; *angion’reia* ‘deceit (coll.)’

If these deviations from the expected distribution of stem allomorphs were unprincipled, they would indeed pose a problem for the analysis being developed. That is not the case, however. The apparently exceptional appearance of ‘stressed’ stems in forms where they do not bear stress generally has a clear explanation in terms of the word’s cyclic morphological structure.

Some of the words in (25) are clearly derived from other words in which the stressed base is motivated: *setgantar* ‘to make dry’ is de-adjectival, from *setg(a)*; *preschaintamaintg* and the other adverbs in *-maintg* are derived (as in other Romance languages) from the feminine form of the Adjective *preschainta*, and it is in this base form that the choice of the stem is determined, a choice which persists in words further derived from it. Similar explanations can be given for the forms of nominalizations in *-maint* and ‘ability’ adjectives in *-alibel*.

Others of the words in (25) represent more compositional, word-level derivation, as opposed to (sometimes semantically idiosyncratic) stem-level derivation. This is comparable to the situation in English, where “Level II” morphology is traditionally distinguished from “Level I” morphology. Word-level morphology is based on an input whose shape is determined at the stem level, where the stem choice (in the absence of any stress-attracting stem extension) will favor the ‘stressed’ stem. Subsequent layers of word-level morphology may render this choice opaque. Notice that such opaque or ‘incorrect’ stem choice never involves the appearance of the ‘unstressed’ stem in a word where it would in fact bear stress, something we would expect if the ‘incorrect’ stem choices were really arbitrary.
I conclude, therefore, that far from compromising the analysis offered in section 1, non-verbal forms, including those in which the stem choice seems unexpected are actually entirely consistent with it, and in many cases offer significant support for the general point of view.

Maiden considers remarks about the use of -esch forms as a fall-back strategy such as those above in section 1 to be misleading, and to miss the fact that this paradigm characterizes a morphological class in the language.

“[-esch] is unconvincingly presented by Anderson merely as an ‘avoidance’ strategy resorted to when speakers cannot recall the correct stem allomorph. But overwhelmingly (Maiden 2004a) the augment is an obligatory part of a verb’s morphology: its use in cases of ‘doubt’ is at best secondary, not its primary function.”

This point is quite correct, but not in conflict with the analysis offered above. I note first that in verbal forms, the distribution of -esch is the same as that of stem-stressed forms in other types of stem alternation. In verbs, the presence of -esch plays the same role as the choice of the ‘stressed’ stem, and in fact on the present analysis the same factors (stress pattern and preferred associations between vowel quality and level of stress) determine both the selection of that stem (where there are two stems in the lexical form) and the appearance of the “empty morph” -esch (where there is only one stem form, and that form is not suitable to take the stress). The question, therefore, is not whether -esch is an obligatory component of the morphology of certain forms of certain verbs, but rather of how to distinguish those verbs from others that show stem alternation instead, with the same distribution.

Verbs in -esch must be marked in some way, since it is not possible to predict
which verbs (of the -ar and -éir conjugations) will be conjugated in this way and which will not. Instead of an arbitrary diacritic ‘[+es]’ the present analysis represents them as having only a single stem, whose final syllable contain a vowel with quality appropriate for an unstressed syllable, a representation that triggers the introduction of -esch by the rule in (22).

On this account, transfer of a verb to the -esch class consists in the loss of the ‘stressed’ stem (the one not attested in the infinitive) from the lexical representation, rather than the acquisition of the arbitrary feature ‘[+es]’. The observation that there is a tendency for relatively infrequent alternating verbs to shift into the -esch class (but not vice versa), is thus represented as the loss of an unpredictable stem alternant, rather than as the acquisition of an arbitrary property. Similarly, the fact that a verb encountered only in a form based on its ‘unstressed’ stem may be treated as having only this shape, and thus falling into the -esch class, becomes a natural default behavior. In both cases, the behavior in question finds an explanation in the appropriate morphological representation, and is not itself treated as basic.

There are good reasons to treat the morphological characterization of verbs in -esch as a property of specific lexical items. For a small number of verbs in -esch, a related non-verbal form exists that could in principle supply the (missing) stressed stem, as illustrated in (26).
In these cases, although semantically related words show a two-stem pattern, the verbs themselves have only a single stem. These facts (along with verbs like the one in (24)) show that the lexical representations of verbs and related non-verbs are in principle separate and not based on a unitary, category-neutral stem, contrary to views such as that of Marantz (1997).

We might ask what would be the form of a verb that had only a single lexically listed stem form, but where this was one that was appropriate for use as the 'stressed' stem. While the -esch rule in (22) provides a default strategy for the case in which a single listed shape is only appropriate as the 'unstressed' stem form, there is no such default strategy for dealing with the opposite case. In fact, there are a few verbs that seem to have this character, as illustrated in (27).
b. *confrontar* ‘confront’ 3sgPres. *confronta*

*confrontazi'ung* ‘confrontation’

Such verbs have only a single listed shape, which must be used as their ‘stressed’ and ‘unstressed’ stem. In the case of a verb like *baitar*, with a final diphthong, this leads to a disfavored association of vowel quality with stress, which is improved somewhat by the assignment of secondary stress to the initial syllable. The result is not ideal, but the best that can be achieved with the resources at the language’s disposal: this is what is meant by saying that Optimality Theoretic constraints are violable.

Other verbs of this type involve a simple short mid vowel in the last syllable of the stem. Such vowels are less optimal in unstressed syllables than *[a,i,u]*, but the constraint against their appearance in this position is less highly ranked than those militating against unstressed diphthongs, long vowels, and *[a,i,u]*.

Another of Maiden’s objections to the analysis in Anderson 2008 appears to be based on a notion of prosodic structure other than the one I assume:

“In many cases the verb forms involved are actually *monosyllables* lacking inflectional desinences. […] ‘stress’ pertains to the relations between syllables in polysyllabic words, yet here we need to add (as Anderson does [*sic*]) that the same alternants occur with a ‘phonetically null’ inflectional desinence.”

I assume prosodic structure to be represented as a hierarchy of categories (Nespor & Vogel 1986, Selkirk 1995, etc.), as in (28).

(28) segments ⊆ syllables ⊆ feet ⊆ Prosodic Words ⊆ Prosodic Phrases…

A ‘stressed’ syllable is one that is the head of its foot, and the ‘primary stressed’ syllable is (grossly) the head of the foot that is the head of the Prosodic Word. Constraints
enforcing the Prosodic Hierarchy require that every Prosodic Word contain a Foot, and every Foot contain a syllable: thus, the only syllable in a monosyllabic verbal form is ‘stressed’. There is thus no need to say anything about phonetically null desinences (such as the 1sg of the Present Indicative in verbs or the masculine singular of adjectives). A monosyllabic stem that is not extended by any overt phonetic material continues to be monosyllabic, and in consequence its only syllable is stressed.

In Maiden’s view, the phonological analysis presented here and the morphological one he advocates are at best equivalent.

“Any potential advantages of ‘economy’ presented by the ‘phonological’ account start to recede. On the one hand, we have the (uniformly morphological, if incoherent) specification ‘[pres. [sing + 3rd]]’, on the other the (mixed phonological and morphological) ‘unstressed (or null) verb inflectional ending’.”

But this apparent balance of descriptive apparatus is illusory. First of all, the phonological account has no need to invoke morphological factors in addition, as just noted. More importantly, however, the morphological view has intrinsic limitations that are not incurred by the present analysis.

If stem alternation is to be associated with the distribution of arbitrary sets of morphological categories or ‘morphomes’ (Aronoff 1994) such as Maiden’s ‘N-Pattern’, it is still necessary to provide a substantive definition of the morphomes involved. As motivated in other Romance languages studied by Maiden, the N-Pattern is a set of inflectional categories delimiting a subspace of the paradigmatic space of verbs. But in Surmiran, at least, the alternations in stem shape are not at all confined to verbs, as we have already seen. Of course, we could simply add to the definition of the relevant
morpheme an inventory of the derivational categories that require the 'stressed' as opposed to the 'unstressed' stem, but the more of these we find, the more obvious it becomes that the real generalization is based on the distribution of stress in the surface forms of words, not on an arbitrary collection of morphological categories. It is precisely the absence of a coherent alternative to such a listing that serves as the primary justification for the morphomic analysis in other languages, an argument Maiden has made quite compellingly elsewhere. Here, however, it has no real place, since a transparent basis is available for the relevant conditioning factor: stress.

It should be noted again that stem alternation is not confined to verbs. Many alternating non-verbal words exist, in fact, that are not based on any verb, and thus the Surmieran lexicon contains stems that alternate but to which the morphological categories of the verb are inapplicable (even if words built on these stem may in turn serve as the base of a denominal or deadjectival verb). Some examples are given in (29).

(29)  
   a. ‘deir ‘hard’; di’raglia ‘hardness; di’rezza ‘very hard’
   
   b. ‘freid ‘cold (N, A); far’daglia ‘great cold’; far’dour ‘coolness’
      sfar’dar ‘to get cold’ 3sgPres. sfreida; sfar’dour ‘frost-shower’; sfardan’i’ar
          ‘to cool (tr.)’ 3sgPres. sfar’dainta;
   
   c. ‘meir ‘wall’; mi’raglia ‘walling, stonework’; mi’rader ‘wall-maker’

The principle of stem alternation in the present analysis (the constraints that prefer one stem or another as the input form, depending on the result of stressing a particular vowel or not) does not refer to any morphological property, and is purely phonological. As a result, the analysis extends without further stipulation to a full range of categories, and is not confined to inflected verbal forms. In particular, it does not refer to verb endings (since it also applies in non-verbal forms) and does not need
a special stipulation for monosyllabic forms. Stress-based stem choice is not a universally valid generalization about surface forms, due to the limited opacity introduced by its cyclic interaction with the morphology, but it is purely phonological within the framework of the overall analysis.

3 Conclusion

In section 1 above, I have offered what I think is a comprehensive analysis of the pattern of stem alternations in Surmiran, and in section 2 I have shown that certain reservations about this analysis are not well founded. In fact, what has happened in this language represents quite a remarkable restructuring of its grammatical system. What was undoubtedly a system of alternations governed by rather low level phonological rules gradually became opaque, and was replaced by a system of lexically listed alternations conditioned by the surface phonological properties of prosodic structure. In the process, a pattern of phonologically conditioned suppletion was created that provides an unusually robust and pervasive example of the fact that such variation is not limited to affixal material conditioned by the shape of the stem to which it is attached. There is, I think, much to ponder here from a theoretical point of view, but the fundamental reorganization of the language’s grammar has had only very limited consequences for its actual set of surface words. An analysis similar in character to that offered here may well be appropriate for some other forms of Swiss Rumantsch, but for other, superficially quite similar, related languages it may well be the case that the vowel reduction phenomena remain phonological in nature and the stem alternations morphological, as argued by Maiden. Languages do not wear their grammars on their sleeves, and very similar outer garments may conceal quite different natures.
References


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Footnotes

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2The Surmiran data here are drawn from dictionaries (Sonder & Grisch 1970, Signorell 1999, including the electronic edition of this work, version 2.0 [01.03.2004]), from the grammars of Signorell et al. (1987) and Thöni (1969), and in part from my own field work in Salouf and Savognin during the summers of 2002–2008. I am very grateful to the Surmiran speakers who have helped me with their language, especially Petra Uffer who has spent many long hours going over the facts reported here (but who bears no responsibility for my possible mis-use of her judgments).

3See Kamprath 1987 for discussion of motivations for cyclic interaction in a closely related form of Rumantsch.