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Morphological Conditions on Regular Sound Change? A Reanalysis of *l-loss in Paamese and Southeast Ambrym

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Northern Paamese and Southeast Ambrym, two languages of Central Vanuatu, share a set of sound changes involving vocalization and loss of *l. One subpart of this sound change results in loss of *l word-initially before non-high vowels. An interesting aspect of this sound change is that it appears to apply in all word classes except verbs. Indeed, Crowley (1997) suggests that Northern Paamese *l-loss is a clear case of sound change with grammatical conditioning. In this paper we suggest that phonological and morphological aspects of verbal inflectional paradigms have given rise to the apparent exceptionality of *l-loss in these two languages. Phonological factors result in continuation of *l, while the structure of inflectional paradigms has given rise to analogical restoration of initial /l/ in all verbs where it is expected to be lost. Under this analysis, initial *l-loss can be seen to have applied without exception, and without grammatical conditioning.

1. INTRODUCTION. Phonetically based sound change was a central component of Neogrammarian linguistics of the late nineteenth century. In this tradition, sound change was modeled as systematic, exceptionless, and prototypically regular, with regularity definitional and operational: “Those changes that were sweeping and observed after several centuries to be essentially exceptionless qualified for the term *Lautgesetz* (sound law), while changes that seemed to affect only particular words or groups of words did not so qualify” (Rankin 2003:185). Historical linguistics of the twentieth century, however, tended to take the Neogrammarian hypothesis as an intrinsic (not definitional) feature of sound change: phonetically based sound change is regular and operates without exception (see, e.g., Hock 1991:35). Stated in this way, the regularity hypothesis is falsifiable and, indeed, most introductory textbooks in historical linguistics have some discussion of nonphonetic conditioning of sound change, or “degrees of regularity” (see, e.g., Hock 1991:652–54).¹

1. For a recent review of exceptions to regular sound change, including the well-known cases of Ancient Greek *s*-loss and Estonian *n*-loss, see Blevins and Wedel (2009).

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The third edition of Crowley's *An Introduction to Historical Linguistics* is no exception (Crowley 1997). Chapter 11, *Problems with Traditional Assumptions*, begins with a review of Neogrammarian principles, and includes a full section (11.6) on *Non-Phonetic Conditioning* of sound change. However, Crowley's text is exceptional in bringing data from a little-known Oceanic language, Paamese, to bear on the central issue of regularity. The facts in question involve the reflexes of Pre-Paamese *l in Northern Paamese. Crowley's observation is that a sound change deleting *l word-initially before nonhigh vowels in Northern Paamese applies in all word classes except verbs (1997:242–44). This apparent restriction leads Crowley to analyze Northern Paamese *l-loss as "a clear example of a sound change that does not involve purely phonological conditioning factors, but also involves grammatical conditioning" (244), and to conclude that "at least some sound changes apply only in certain word classes" (243).

In this paper, we suggest that the grammatical conditioning suggested by Crowley is only apparent. In section 2, we review the pattern of exceptionality found in Northern Paamese, and show that it is also found in closely related Southeast Ambrym. In both languages, an apparently phonetically conditioned rule of *l-loss occurs regularly except initially in verbs. In section 3 we highlight syntagmatic and paradigmatic factors that must be taken into account in understanding the development of verb stem-initial consonants in the languages of Central Vanuatu. One of these is the phonological composition of common prefixes preceding the verb stem. Since *l-loss in Northern Paamese and Southeast Ambrym does not occur adjacent to high vowels, a common *mi- prefix would result in high frequencies for inflected /l/-initial verbs. A second important factor involves the complex inflectional paradigm structure of verbs in both languages, with verb classes defined on the basis of stem-initial consonant alternations. Assuming regular *l-loss, we are able to demonstrate that analogical forces are in evidence that would restore /l/ verb-initially, in line with the largest and most productive inflectional class. In section 4 we briefly summarize our findings, and place them in the broader context of past and current research.

In what follows, Paamese data are from Crowley (1982, 1991, 1992, 1997) and Southeast Ambrym data from Parker (1968, 1970) and Crowley (1991, 2002). Reconstructions at the lowest levels, including Pre-Paamese and Proto-Paamese-Southeast Ambrym forms, are our own. Proto-North-Central Vanuatu reconstructions are from Clark (forthcoming) and are preceded by a raised ^N before the asterisk. In these reconstructions, we have modified Clark's orthography to conform more closely with standard Proto-Oceanic orthography: we write *q for his *ʔ, *g for his *q, and *ŋ for his *g. Proto-Oceanic reconstructions are unmarked and come from Ross, Pawley, and Osmond (1998, 2003) and from Greenhill, Blust, and Gray (2003–8). All symbols have approximate IPA values, except that doubled letters are used to indicate length. Language abbreviations are: PAA, Paamese; nPAA, Northern Paamese; sPAA, Southern Paamese; SEA, Southeast Ambrym; PNCV, Proto-North-Central Vanuatu; POC, Proto-Oceanic.

2. POC *l, *r, AND *R IN PAAMESE AND SOUTHEAST AMBRYM.

As detailed in Lynch (2008), the developments of Proto-Oceanic *l, *r, and *R in North-Central Vanuatu languages are interrelated. When *R was not unpredictably lost, *r and

*R merged as *r in Proto–North–Central Vanuatu. Following this development, Proto–North–Central Vanuatu *l and *r merged in a number of Central Vanuatu languages, with subsequent splits of the merged phoneme. Splits appear to be conditioned by presence versus absence of an adjacent high vowel. In high vowel contexts, a liquid reflex is typically retained. In nonhigh vowel contexts, the merged phoneme is often realized as /i/ or zero. The sound changes that vocalize or delete liquids are typologically unusual since they apply to segments in the onset position as well as in codas. Further, unlike the many Indo-European languages where /l/ vocalizes to [w] or [u], the most common nonliquid reflex of Proto-Oceanic *l and *r is [i], a palatal vowel, and this in nonhigh vowel contexts.

A range of Central Vanuatu languages show merger of PNCV *l and *r with subsequent conditioned loss of the merged phoneme (Lynch 2008). Languages with liquid loss include Avok, Axamb, and Port Sandwich of Malakula, Lewo of Epi, and Northern Paamese and Southeast Ambrym as detailed below. Our focus is on these last two languages because these are the only ones in which (word-initial) liquid loss has been claimed to be sensitive to word class. In 3.3 we introduce limited evidence from Port Sandwich suggesting initial liquid loss for both nouns and verbs in that language.

The two languages discussed here, Paamese and Southeast Ambrym, constitute a clearly definable subgroup of Central Vanuatu languages (Crowley 1991:183).² Paamese can be divided into three dialects, Northern (N), Central (C), and Southern (S) Paamese. All of these are spoken on the island of Paama. Lopevi, a variety of Central Paamese, was once spoken on Lopevi Island, but after the last major volcanic eruption, Lopevi speakers moved to the east coast of Epi Island, south of Paama, where they continue to speak Paamese. Southeast Ambrym is spoken mainly on the southeastern corner of the island of Ambrym, north of Paama. It is also spoken in the village of Mele-Maat near Port Vila on Efate, as a result of the relocation of some village populations following a volcanic eruption in the 1950s. For a survey of previous work on the languages of Vanuatu, see Lynch and Crowley (2001).

2.1 SOUTHERN PAAMESE. In Southern Paamese, Proto-Oceanic *l and *r merge as /l/ in all environments, as illustrated in (1).³ Note that word-initially, as in (1a), /l/ is found in nouns, verbs, and other parts of speech.

- (1) a. word-initially (before all vowels)
- | | | | |
|--------|------------------------------|-------------|-----------------|
| loje | < *roŋoR ‘hear’ | lima/ŋa (L) | < *lima ‘five’ |
| loho-n | < *lipon ‘tooth’ | luaa/ŋa (L) | < *rua ‘two’ |
| lase-n | < ^N *laso ‘penis’ | lumulumu | < *lumut ‘moss’ |
| lau/ai | < *raun ‘leaf’ | luue | < *luaq ‘vomit’ |
| lesi | < *leqos-i ‘look, see’ | | |

2. We are not aware of any widely accepted family tree for Central Vanuatu. Following Clark (1985), Central Vanuatu consists of the languages of central and south Pentecost, Malakula, Ambrym, Paama, Epi, and Efate. The closest relatives of Paamese and Southeast Ambrym are thus probably the other languages of Ambrym on the one hand, and those of Epi-Efate on the other.

3. Here and throughout, slashes separate noncognate material, and final suffixed *-n* is the 3rd singular possessive marker. In many nouns a preceding vowel reflects a fused article that derives from *a, as in *a/hile* < *a-p^wilak in (1b). Often the article undergoes assimilation, as in *o/ulo* < *a-kurat in (1b). Paamese words marked with (L) are from the *lusefsef* (bush sprite) language, and are used for comparison when they show word-initial *l that, in the common language, is preceded by a fused article or numeral prefix.

- b. word-medially and -finally (before/after all vowels)
 a/hile < *p^wilak ‘lightning’ kole < *koro ‘surround, block up’
 a/silati < *sulati ‘worm’ a/amali < *kamaliR ‘men’s house’
 ke/ile < *(k)ira ‘they’ a/al < *kara ‘stinging plant’
 o/ulo < *kurat ‘*Morinda* sp.’ a/mal < *m^waloq ‘coral head, reef’

2.2 NORTHERN PAAMESE. As discussed by Crowley (1982:9–10; 1992:xii–xiii; 1997:242–44) and, more recently, by Lynch (2008:301–3), Northern Paamese has either vocalized *l > i, or lost it altogether in the context of nonhigh vowels. In (2) and (3), Northern and Southern Paamese comparisons illustrate the general patterns for word-initial and noninitial positions, respectively. Word-initially, Southern Paamese /l/ corresponds to Northern Paamese /l/ before high vowels in (2a), but to zero before nonhigh vowels in (2b). In noninitial position, as illustrated in (3), the same conditioning factors are seen. Southern Paamese /l/ corresponds to Northern Paamese /l/ adjacent to a high vowel in (3a). However, when not adjacent to a high vowel, the reflexes of *l are zero in (3b) or /i/ in (3c).

- (2) **S. Paamese** **N. Paamese**
- a. word-initially before high vowels
- | | | |
|------------|------------|-----------|
| limaŋa (L) | limaŋa (L) | ‘five’ |
| lihelih | lihlih | ‘seaweed’ |
| liiseles | liisees | ‘always’ |
| luaaŋa (L) | luaaŋa (L) | ‘two’ |
| luhi | luhi | ‘middle’ |
| luen | luon | ‘vomitus’ |
- b. word-initially before nonhigh vowels
- | | | |
|--------|-------|-------------------------|
| leiai | eiai | ‘bush’ |
| leŋa- | eŋe- | ‘dry skin, scab, scale’ |
| lohon | eehon | ‘child, boy’ |
| lauai | ouai | ‘leaf’ |
| laum | oum | ‘land crab’ |
| laahon | aahon | ‘plantar wart’ |
| laŋolu | aŋolu | ‘blowfly’ |
- (3) **S. Paamese** **N. Paamese**
- a. adjacent to a high vowel
- | | | |
|---------|---------|--------------------|
| asilati | asilati | ‘worm’ |
| haulue | haulue | ‘many’ |
| gilela | kilea | ‘s/he knew’ |
| teilaji | teilaji | ‘sky’ |
| ahilu | ahilu | ‘hair’ |
| tahule | tahule | ‘rubbish, garbage’ |
- b. not adjacent to a high vowel, zero reflex
- | | | |
|-------|------|----------------|
| alete | aete | ‘flat place’ |
| gela | kea | ‘s/he crawled’ |
| melau | meau | ‘megapode’ |
- c. not adjacent to a high vowel, /i/ reflex
- | | | |
|------|------|------------------------|
| vaal | vaai | ‘ <i>Hibiscus</i> sp.’ |
| amal | amai | ‘coral head, reef’ |

| | | |
|----------|---------|---|
| metaalo | metaaio | ‘European’ |
| voleat | veiat | ‘long narrow basket’ |
| volaahus | voiahus | ‘coconut that has a hole with inside eaten out by rat’ |

On the basis of correspondences like those in (2) and (3), Northern Paamese can be said to have undergone the sound changes shown in (4b), with *l continued adjacent to high vowels (4a).⁴

(4) Northern Paamese reflexes of Pre-Paamese *l

- | | |
|-----------------|--------------------------------------|
| a. Continued | *l > l / {i,u} |
| b. Sound Change | (i) *l > zero / # ___ {e,o,a} |
| | (ii) *l > zero / e ___ {e,o,a} |
| | (iii) *l > zero / {e,o,a} ___ e |
| | (iv) *l > i / elsewhere ⁵ |

The phonetic basis of these sound changes has not received a great deal of attention. Maintenance of *l in high vowel contexts suggests that coarticulation of the high tongue body of [i] and [u] contributes to maintenance of central closure of the lateral, and its consonantal articulation. Coarticulation between a lateral and an adjacent vowel with non-high tongue body position may result in absence of central closure, with lateral vocalization and loss. In articulatory terms, then, the sound changes appear to be natural in the sense of Blevins (2009).⁶

That these are completed sound changes, and not ongoing changes or consequences of synchronic alternations or phonotactic constraints, is clear from loanword phonology. In loans, /l/ is maintained before all vowels, including the nonhigh vowels /e,o,a/. Paamese loans from Bislama include: *laan* ‘learn’, Bislama *lan*; *lanis* ‘speedboat’, Bislama *lanis* from English *launch*; *lapet* ‘party’, Bislama *lafet* from French *la fête*; *lapul* ‘light globe’, Bislama *lapul* from French *l’ampoule*; *lasuv* ‘juice, gravy’, Bislama *lasup* from French *la soupe*; *lees* ‘lace’, Bislama *les*; *leto* ‘truck’, Bislama *loto* from French *l’auto*; *looj* ‘long trousers’, Bislama *long*; *lou* ‘law’, Bislama *lou*.

However, as noted by Crowley (1997:244), the regular sound change in (4b) of word-initial *l-loss before nonhigh vowels is unexpectedly absent in Northern Paamese verbs. Some examples of apparent *l-retention in verbs are shown in (5). In all cases, initial *l-loss as in (4b) is expected but is not in evidence.

| | | |
|----------------|------------|---|
| (5) S. Paamese | N. Paamese | |
| lehei | lehei | ‘pull’ < ^{N*} rave |
| leŋasi | leŋasi | ‘roast over fire’ < ^{N*} raŋa-si |
| lesi | lesi | ‘see, look at’ < ^{N*} leqo-si |

4. The changes in (4) are slight reformulations of the sound changes given in Crowley (1992:xii–xiii) and Crowley (1997:243).

5. Though see Lynch (2008:302) for some possible exceptions. Exceptions to initial *l-loss in N. Paamese nouns are few, but include nouns derived from verbs (e.g., *lonlonjen* ‘news’ < *loje* ‘hear’), likely borrowings (e.g., *ladiah* ‘k.o. breadfruit’), and a few forms with stem-initial /l/ (e.g., *leirumrum* ‘whale’ < ^{N*}leidumudumu).

6. A similar sound change is found in Northwest Mekeo, an Oceanic language of the Papuan Tip Cluster (Jones 1998). In Northwest Mekeo *l > y, e, with the /e/ reflex typical of low-vowel environments. Compare, for example, West Mekeo *mala*, Northwest Mekeo *maea* ‘tongue’; West Mekeo *uala*, Northwest Mekeo *uaea* ‘crocodile’.

| | | | |
|--------|--------|-----------|-----------------------|
| loŋe | loŋe | ‘hear’ | < ^{N*} roŋo |
| laau | laau | ‘hunt’ | < ^{N*} lako |
| laau/i | laau/i | ‘go over’ | < ^{N*} lakai |
| lahi | lahi | ‘carry’ | < ^{N*} lavi |

An important point to note is that word-medial *l-loss is regular in Northern Paamese verbs: compare sPAA *gela*, nPAA *keaa* < ^{N*}karaka ‘climb, crawl’; sPAA *kole*, nPAA *koe* < ^{N*}koro ‘surround, cover, obstruct’; sPAA *male*, nPAA *maee* < ^{N*}mala ‘sour, bitter’; sPAA *ta-velahi*, nPAA *ta-veahi* < ^{N*}baravu ‘long, tall’; sPAA *vola-vol*, nPAA *voo-voi* < *bore ‘dream’. Verbs are not exceptions to the sound changes in (4b.ii–iv) then, only to (4b.i).⁷

Crowley’s (1997:244) conclusion is a strong one: “Verbs, it seems, are completely immune in Paamese to any changes involving initial /^{N*}l/ ... This is therefore a clear example of a sound change that does not involve purely phonological conditioning factors, but also involves grammatical conditioning.” In section 3, we propose an alternative involving phonological and analogical factors. However, before presenting our analysis, we turn to similar facts in closely related Southeast Ambrym.

2.3 SOUTHEAST AMBRYM. Like Northern Paamese, Southeast Ambrym has undergone a regular sound change where *l is lost or vocalized medially between non-high vowels, and lost before nonhigh vowels {a,o} word-initially, but maintained before high vowels (Lynch 2008:305–6). While the range of reflexes is similar to Northern Paamese, there is also one notable difference: word-initially before /e/, the lateral is maintained. Lynch (2008:305–6) provides many examples of word-internal zero/i reflexes of *l, and discusses some of the factors determining vocalization versus loss. Medially, between nonhigh, nonfront vowels /a/ and /o/, an *i* reflex seems most likely when the liquid is in the onset of an unstressed syllable, while loss is found more often when the liquid is the onset of a stressed syllable. Here, we focus on word-initial environments, since it is in this context where Southeast Ambrym and Northern Paamese show the same patterns of exceptional *l-retention in verbs.

Word-initial reflexes of Pre-Paamese-Southeast Ambrym *l are shown in (6) and (7). In (6) we see the regular pattern: in (6a) *l is maintained before high vowels, while in (6b) it is lost before nonhigh vowels {a, o}, and in (6c) it is maintained before nonhigh vowel {e}.

- (6) **SE Ambrym N. Paamese**
- a. word-initially before high vowels
- | | | | |
|------|------------------|-----------|-----------------------------|
| lim | lima/ŋa (L) | ‘five’ | < ^{N*} lima |
| luho | a/loh (S. a/luh) | ‘tooth’ | < ^{N*} livo |
| lu | luaa/ŋa (L) | ‘two’ | < ^{N*} rua |
| lulu | luo-n | ‘vomitus’ | < ^{N*} lua ‘vomit’ |
- b. word-initially before nonhigh vowels {a,o}
- | | | | |
|----|--------|----------------------------|----------------------|
| aŋ | aŋo/lu | ‘fly’/‘blowfly’ | < ^{N*} laŋo |
| ai | ai | ‘trochus shell armband’ | < ^{N*} lala |

7. If it could be argued that the sound changes in (4) are one unified whole, a technical problem arises: how can one subpart of the sound change be blocked in verbs, but not other subparts? The analysis we propose in section 3 solves this problem by allowing all subrules of (4) to apply in verbs, with subsequent analogical restoration of stem-initial /l/.

| | | | |
|--|---------------------|------------------|-------------------------|
| ase | hei/aso- | ‘testicles’ | < ^{N*} laso |
| e/ok | a/eko | ‘pudding’ | < ^{N*} logo |
| oum | oum | ‘land crab’ | < ^{N*} rakumwa |
| c. word-initially before nonhigh vowel {e} | | | |
| le, sile | a/le-n ⁸ | ‘leg’ | < ^{N*} lewa |
| le-lep | — | ‘mud, dirt’ | < ^{N*} leba |
| leŋ | sene/aŋ | ‘a native dance’ | < ^{N*} leŋa |

As in Northern Paamese, loss of *l before nonhigh vowels is not found initially in verbs. The list of Southeast Ambrym verbs in (7) is representative: *l is retained word-initially before all vowels, including the nonhigh vowels {a,o}.

| | | |
|----------|---------------|----------------------|
| (7) laŋa | ‘open’ | < ^{N*} laŋa |
| lahi | ‘take, carry’ | < ^{N*} lavi |
| lau | ‘hunt’ | < ^{N*} lako |
| loŋe | ‘hear’ | < ^{N*} roŋo |
| loh | ‘run’ | < ^{N*} rovo |

Again, as in Northern Paamese, an important point to note is that word-medial *l-loss or vocalization is regular in Southeast Ambrym verbs: compare SEA *kea* (sPAA *gela*, nPAA *keaa*) < ^{N*}karaka ‘climb, crawl’; SEA *te-viei* (sPAA *ta-velahi*, nPAA *ta-veahi*) < ^{N*}baravu ‘long, tall’; SEA *meas* (sPAA *melas*, nPAA *measi*) < ^{N*}marazi ‘heavy’. As in Northern Paamese, Southeast Ambrym verbs are not general exceptions to the set of sound changes involving *l; only in initial position are reflexes of *l in verbs exceptional in failing to delete before {a,o}.

3. REGULARITY RECONSIDERED: SOME SPECIAL PROPERTIES OF PAAMESE-SOUTHEAST AMBRYM VERBS. In both Northern Paamese and Southeast Ambrym, an apparent phonetically based sound change of *l-loss before nonhigh vowels appears to be exceptional: though affecting all other categories, and occurring medially in verbs, the change shows no evidence of having ever applied to verb-initial consonants. In this section we suggest two factors that have played a role in the maintenance and analogical restoration of initial /l/ in Paamese and Southeast Ambrym verbs. The first factor, discussed in 3.1, is phonological: a common inflectional prefix in the history of both languages ended in a high vowel, providing a phonological context for maintenance of the verb-initial lateral. A second factor is morphological: assuming that unprefixed verbs beginning in *la... or *lo... did undergo word-initial *l-loss, we illustrate how the pervasive influence of analogical pressures would result in restoration of the initial /l/. A handful of verbs in both languages provide evidence for this proposal. With both of these factors taken into consideration, the general issue of regularity is reconsidered in 3.3.

3.1 FINAL HIGH VOWELS IN INFLECTIONAL PREFIXES: 3SG *mi-. In Paamese and Southeast Ambrym, verbs are preceded by three major orders of prefixes as illustrated in (8) (Crowley 1991:183).

8. Northern Paamese *ale-n* ‘lower.leg-3SG’ (< ^{N*}lewa ‘leg’) is an exception to regular *l-loss in the *a_e* context (4b.iii), and looks like a borrowing from Southern Paamese. Compare N *hae*, S *hale* < ^{N*}vareqa ‘outside’, where (4b.iii) applies regularly as expected. Recall that, unlike Southeast Ambrym, *l is lost before *e* in Northern Paamese, as in some examples in (2b).

(8) SUBJECT/TENSE/MOOD + TENSE/MOOD + NEGATIVE + STEM

A primary mood distinction is that between realis and irrealis. Realis verbs are indicatives. They are morphologically unmarked for tense or aspect, and can be used to express events in the past, in the present, or general truths independent of time. In realis verbs, subject markers immediately precede the verb stem, while in irrealis forms, subject markers are followed by tense/mood markers that precede the verb stem.

While the subject and tense/mood categories are basically the same in both languages, there is one significant difference in the distribution of subject markers, as shown in (9).

| (9) | Paamese | SE Ambrym | | Proto-PAA-SEA |
|-----|---------|-----------|----------|---------------------------------|
| | | REALIS | IRREALIS | |
| 1SG | na- | na- | na- | *na- '1SG SUBJECT' |
| 2SG | ko- | o- | o- | *ko- '2SG SUBJECT' ⁹ |
| 3SG | ∅ | mi- | ∅ | *mi- 'REALIS 3SG SUBJECT' |

As shown in (9), where Paamese has a general system across realis and irrealis verb forms with zero marking of 3SG subjects,¹⁰ Southeast Ambrym shows /mi-/ in 3SG realis verbs, but zero elsewhere. We suggest that Southeast Ambrym is conservative in this respect, as indicated by the reconstructions in the last column of (9). Paamese, on the other hand, is innovative: as we discuss further below, the /mu-/ reflex of *mi- in Paamese has been either reanalyzed as part of the verb stem or leveled away.

An understanding of the synchronic distribution of /mi-/ in Southeast Ambrym allows us to piece together the historical role of this prefix in the maintenance and restoration of verb-initial /l/ before nonhigh vowels in SEA and Paamese. Southeast Ambrym third person singular /mi-/ is exceptional in three ways (Parker 1970:v-vi). Unlike other person markers, it never precedes other prefixes, and always immediately precedes the verb stem. Compare examples in (10a) with forms like *na-te-var* 'I tied', where the 1SG realis prefix *na-* is separated from verb stem *-var* by the past prefix *te-*. Also unlike other person markers, /mi-/ is phonologically conditioned: before labial-initial stems, the prefix is realized as zero, as in (10b) (Parker 1968:40a, 1970:vi).¹¹ Compare these with first person singulars *na-bas* 'I hit', *na-pat* 'I sleep', where the person marker is always realized. Finally, unlike other person markers, /mi-/ is optional before verbs stems beginning in /g/ and /d/ as illustrated in (10c) (Parker 1968:40a; Crowley 1992:188).

| | | | |
|---------|----------------------|-----------------|------------------|
| (10) a. | mi-lan | 'it is dawning' | |
| | 3SG:REAL-dawn | | (Parker 1970:11) |
| | mi-liŋi | 'he puts it' | |
| | 3SG:REAL-put.it | | (Parker 1970:28) |
| | mi-sani | 'he gives it' | |
| | 3SG:REAL-give.it | | (Parker 1970:25) |
| | mi-terohon-ni | 'he practices' | |
| | 3SG:REAL-practice-TR | | (Parker 1970:32) |

9. The expected reflex of *ko- is SEA **xo-. However, /x/ is sporadically lost before /o/. Compare SEA *xosali, osali* 'today', PAA *kosa* 'now, today'.

10. See Crowley (1982:129–30) for a description of other Paamese portmanteau subject-mood prefixes.

11. The historical development we imagine is *mi-v > mu-P > mP > P.

| | | |
|-----------------|--------------------------|------------------------------------|
| b. bas | ‘he hits’ | |
| 3SG:REAL.hit | | (Parker 1968:29) |
| pat | ‘he sleeps’ | |
| 3SG:REAL.sleep | | (Parker 1968:29) |
| c. (mi-)gil | ‘he/she digs/dug’ | |
| 3SG:REAL-dig | | (Parker 1968:29; Crowley 1992:188) |
| (mi-)gui | ‘he/she scrapes/scraped’ | |
| 3SG:REAL-scrape | | (Crowley 1992:188) |
| (mi-)da | ‘he/she/it stays’ | |
| 3SG:REAL-stay | | (Parker 1970:28,29) |

By reconstructing *mi- ‘realis 3SG subject’ to Proto-Paamese-Southeast Ambrym, we are able to identify a primary inhibiting factor for the loss of *l before nonhigh vowels. Recall from section 2 that in both Northern Paamese and Southeast Ambrym, *l-loss is inhibited by an adjacent high vowel. We suggest then that as *l-loss evolved, the final high vowel of *mi- and its reflexes inhibited *l-loss when prefixed to *l-initial verb stems: cf. (4a), (6a). Forms like SEA /mi-lan/ in (10a) can be viewed as continuations of earlier prefixed forms, never having undergone *l-loss due to the high vowel preceding the stem-initial /l/.

There are other high-vowel-final prefixes reconstructible to Proto-Paamese-Southeast Ambrym that will have also created the phonological conditions for verb-stem-initial *l-retention. These include *i- ‘3rd person distant irrealis’ and *ralu- ‘plural imperative’. However, *mi- differs from these other inflectional prefixes in several ways that make it the most likely source of *l-retention and, as such, the analogical basis for *l-restoration. As a morphological marker of 3SG realis, verbs with *mi- are assumed to have been highly frequent, as they still are in Southeast Ambrym. In addition, the absence of /mi-/ before stems beginning with labial consonants, and its optional realization before /g/ and /d/, results in a large subclass of realis verbs where there is no marking of third person singular, paving the way for the Paamese system in (9). Finally, as we discuss in detail in the following section, the preexisting structure of inflectional paradigms in these languages provides the basis of analogical extension of stem-forms with initial /l/.

Before turning to the structure of verb paradigms, we provide a brief overview of the development of *mi- in Paamese. Cross-reference is made to Paamese verb classes, which are defined in detail in 3.2, and illustrated in table 3. The phonological reflex of *mi- is /mu-/ in Northern and Southern Paamese.¹²

As expected, since *mi- was never found before labial-initial stems in the proto-language, there are no reflexes of *mi- before labial-initial verbs in Paamese. For verbs beginning with other consonants, one of three general pathways is observable, as sketched in (11).

(11) Reflexes of *mi- 3SG.realis in Paamese

- a. Reflex of *mi- is zero
- b. $\text{mu} + [\text{X}]_{\text{STEM,REAL}} > [\text{muX}]_{\text{STEM,REAL}}$
- c. $\text{mu} + [\text{X}]_{\text{STEM,REAL}} > [\text{muX}]_{\text{STEM,CLASSX}}$

12. We assume a reduced vowel, which assimilates in labiality to the preceding *m*: *mi- > *mĩ*- > *mu*-.

From a synchronic situation like the one found in Southeast Ambrym, a development like (11a) is expected. Reflexes of *mi- are easily lost, since a great number of verbs (with initial labials) have no marking of 3SG subjects to begin with, and others, beginning with /d/ and /g/, show optional marking. If any verb in the /d/ or /g/ class is formed on analogy with the labial class, it will lose marking with *mu-* altogether. As we will see, this is precisely what has occurred with three verb classes in Paamese (classes I, IV, and V). As the number of verbs without *mu-* marking gets bigger and more diverse (e.g., verbs beginning in /d/, /g/, or a labial), more verbs may be analogically formed in this way. In fact, the largest verb class in Paamese (class XI) is one with no reflexes of *mi- whatsoever, and a diverse set of initial consonants, including all labials. For protostems in which *mi+stem is of very high frequency, and where subjects tend to be third person singular (e.g., weather verbs, impersonals), the development in (11b) is expected: a formerly inflected form is reinterpreted as a realis stem without overt person/number marking. Developments of this kind include Northern Paamese *mulan* 'real.dawn' (cf. SEA *mi-lan* in [10a]), and define a distinct inflectional class (class IX). Finally, as we will see, the distribution of *mu-* in Paamese can be even more restricted, occurring with some subclasses of realis stems, instead of all of them (classes VII and X). In comparison to the protolanguage, SEA appears most conservative, retaining *mi- reflexes in most original contexts. Northern Paamese is more conservative than Southern Paamese, with the latter showing the most instances of (11a), with loss of this marker in a significant percentage of realis verb forms.

With this brief overview of the development of *mi- in Paamese, we turn to details of verbal inflectional paradigms. We hypothesize that expected retention of /l/ in reflexes of *mi- prefixed forms has yielded analogs for the basis of extension. These /l/-initial forms have been analogically extended to contexts where *l-loss, as regular sound change, is thought to have occurred. Supporting evidence for this analysis is twofold: first, there are some verbs in both Southeast Ambrym and Northern Paamese where *l-loss is still visible initially in verbs; and second, the analogical extension and leveling proposed for historically *l-initial verbs is in evidence for *k-initial verbs as well.

3.2 VERB CLASSES AND ANALOGICAL RESTORATION. Verbs in Southeast Ambrym and Paamese can be assigned to one of multiple conjugation classes according to the mutation pattern of the initial segment of the root (Crowley 1991:185). Table 1 shows the nine conjugation classes of Southeast Ambrym, which is characterized by five potentially distinct stem forms, labeled here as 1st stem, 2nd A, 2nd B, 2nd C, and 2nd D. In the second column of the table, figures are given for the percentage of verbs in each class, based on a corpus of about 340 verb roots (Crowley 1991:185).

Each stem type is used in a specific morphosyntactic environment, as detailed in Crowley (1991:185). With only a few exceptions, the basic division is between irrealis and realis verbs, with 2nd D stems reserved for realis forms, and other stems distributed among irrealis. 1st stems are used after a wide range of irrealis prefixes, after the past prefix *te-* and in unprefixed verbs (imperatives and nominalizations). 2nd A stems are used with the negative markers *naa-* and *taa-*, while 2nd B stems occur after the first person singular immediate irrealis prefix *na-*. 2nd C stems occur after the second person singular immediate irrealis prefix *o-* and after all nonsingular immediate irrealis prefixes. Finally, 2nd D stems are found after all realis prefixes when not followed by the past tense marker *te-*.

Two important aspects of the SEA conjugation system in table 1 are the size and composition of class IX. Class IX constitutes the “regular” verbs in the language: a verb stem has a consistent form and, more specifically, a consistent initial consonant, independent of the morphosyntactic context in which it occurs. This class appears to constitute two-thirds of all verbs in the language. In addition, it includes all /l/-initial verbs in Southeast Ambrym.

A list of /l/-initial verbs from Parker (1970) is provided in (12), and sorted according to the vowel following the initial /l/. Recall that by the sound changes reviewed in 2.3, we expect Proto–Paamese–Southeast Ambrym *l to be lost before nonhigh vowels /a, o/ and retained elsewhere. Forms in (12a) are exceptional, in showing no evidence of *l-loss before these nonhigh vowels.

| | |
|---------------------------------|-------------------------------|
| (12) a. <i>l</i> -loss expected | b. no <i>l</i> -loss expected |
| lahi ‘take’ | lehiti ‘leave’ |
| laxati ‘look after’ | lel ‘die’ |
| lalei ‘wake’ | lele ‘have a premonition’ |
| lan ‘dawn’ | lihi ‘plant’ |
| lan ‘look’ | lihii ‘pull’ |
| lanja ‘open (book)’ | lii ‘be higher’ |
| las ‘cut brush’ | liliihi ‘fan’ |
| lati ‘pick up’ | lu ‘miss’ |
| lau ‘hunt birds’ | lulu ‘vomit’ |
| lavuap ‘swell’ | luvosi ‘lie, deceive’ |
| lah ‘flow’ | |
| loh ‘run’ | |
| loŋe ‘hear, feel’ | |
| losili ‘examine’ | |

An explanation for the exceptional forms in (12a) is now apparent. Suppose that *l-loss was regular in the history of Southeast Ambrym. Regular *l-loss would yield partial paradigms like the one shown in table 2 for verbs like those in (12a). In table 2 (where shaded forms are nonoccurring due to analogical leveling based on a stem with *mi-*), patterns of /l/ versus zero are determined by phonological conditioning, not verb class. As already illustrated, all other stem-initial consonant alternations in verbs are aligned with the structure of verbal paradigms, and play a central role in defining the verb classes of the language. In contrast, the stem-initial alternations in table 2 crosscut preexisting stem classes: /-ahi/ is neither a realis nor an irrealis stem, nor is /-lahi/. The distribution of stem allomorphs in table 2 is antithetical to the dominant pattern of stem-initial consonant alternations in the

TABLE 1. SOUTHEAST AMBRYM VERB CONJUGATION CLASSES

| Class | % of verbs | 1st stem | 2nd A | 2nd B | 2nd C | 2nd D (REALIS) |
|-------|------------|----------|-------|-------|-------|----------------|
| I | 10.5 | t- | t- | t- | t- | d- |
| II | 4.5 | x- | x- | x- | x- | g- |
| III | 1 | Ø- | x- | m- | v- | g- |
| IV | 1 | h- | h- | m- | v- | g- |
| V | 1 | h- | x- | m- | v- | g- |
| VI | 0.5 | h- | h- | m- | v- | b- |
| VII | 8.5 | h- | v- | m- | v- | b- |
| VIII | 6.5 | v- | v- | v- | v- | b- |
| IX | 66.5 | C- | C- | C- | C- | C- |

language: these are generally aligned with stem types whose distribution is morphosyntactically determined. The hypothetical irregular distribution of verb-initial /l/ in table 2 does not lend itself to reanalysis as belonging to any verb class in table 1: in only one very small class (III) is there a regular alternation between zero and an initial consonant, with the initial consonant consistently absent in 1st stem forms. However, as shown in table 2, the result of regular *l-loss yields 1st stems that may or may not have initial /l/. On the other hand, the partial paradigm in table 2 has at least one feature that pushes it toward regularity (class IX): whether the 2nd D (REALIS) stem is analyzed as /lahi/ or /ahi/, it is identical to other stem types within the paradigm. The identity between a 2nd D (REALIS) stem and other stems is a property found only in regular class IX verbs. In all other verb classes, the realis stem is distinct from all other stem forms.

We suggest that the hypothetical paradigm in table 2, and parallel ones for other verbs like those in (12a), were subject to constant analogical pressures of three kinds.¹³ First, and most generally, there is pressure to conform to one of the nine preexisting verb classes of the language, defined by initial consonant alternations. Within this verb class system, /l/-initial verbs could belong either to class III, based on vowel-initial forms of 1st stems, or to class IX, based on /l/-initial 1st and 2nd D stems. Class III is ruled out by the failure of inflectional forms to show anything but /l/ or zero in stem-initial position. This leaves class IX, the biggest inflectional class in the language. A second analogical pressure, indicated visually by the bolded form in table 2, is the possibility of using high frequency 3rd person singular realis verbs as principal parts to define the realis stem. Under this pressure, the realis stem is /lahi/, and the just mentioned pressures nudging this verb into class IX yield the leveled paradigm where /l/ is restored in all shaded forms in table 2. Finally, we invoke an additional analogical pressure at the phonological level. Recall that verbs like those in (12b) have initial nonalternating /l/, and are continued in class IX. Assuming regular *l-loss as in table 2, with a choice of analyzing the stem as regular vowel-initial or regular /l/-initial, the regular /l/-initial analysis should win. This is because regular /l/-initial verbs like those in (12b) exist in almost equal numbers, while there are no regular vowel-initial verbs in the language.

**TABLE 2. HYPOTHETICAL PARTIAL PARADIGM FOR /lahi/ ‘TAKE’,
ASSUMING REGULAR *l-LOSS BEFORE {a,o}**

| 1st stem | | 2nd A | | 2nd B | | 2nd D (REALIS) | |
|----------|----------|---------|-----|--------------|---------|----------------|---------------|
| ni-lahi | 1SG.DIST | naa-ahi | NEG | na-ahi | 1SG.IMM | na-ahi | 1SG.REAL |
| u-lahi | 2SG.DIST | taa-ahi | NEG | | | o-ahi | 2SG.REAL |
| i-lahi | 3SG.DIST | | | | | mi-lahi | 3SG.REAL |
| va-ahi | 3SG.IMM | | | 2nd C | | ra-ahi | 1INCL.PL.REAL |
| ta-ahi | ADJ | | | o-ahi | 2SG.IMM | ma-ahi | 1EXCL.PL.REAL |
| ahi | IMPER | | | | | mu-lahi | 2PL.REAL |
| ahi-en | NOM | | | | | la-ahi | 3PL.REAL |
| te-lahi | PAST | | | | | ra-lu-lahi | 1INCL.DU.REAL |
| | | | | | | ma-lu-lahi | 1EXCL.DU.REAL |
| | | | | | | mu-lu-lahi | 2DU.REAL |
| | | | | | | la-lu-lahi | 3DU.REAL |

13. For recent detailed studies of competing analogical pressures, see contributions to Blevins and Blevins (2009a).

Notice that the analysis just proposed restores /l/ in stem-initial position, either word-initially or following inflectional prefixes. If regular *l-loss could target stem-initial consonants, evidence might be sought in other contexts, for example, where verb stems are preceded by something other than inflectional prefixes. A search of Parker (1970) reveals a handful of attested verb forms where a stem-initial /l/ from the set of verbs in (12i) is missing, and in all cases, the stem is neither in absolute word-initial position, nor preceded by inflection. The relevant words are shown in (13). In (13a–c) the reduplicated form has a restored /l/ in word-initial position, but lacks this /l/ in the second stem. Note that *l-loss in the second stem of (13a) and (13b) cannot be attributed to word-medial context, since a high vowel precedes, and would be expected to block *l-loss. We hypothesize that these forms are relics of reduplicated regular *l-loss verbs, with word-initial *l restored by the combination of analogical pressures detailed above.

- (13) a. lahi-ahi (Parker 1970:12)
 < *ahi-ahi < *ahi < *lahi ‘take an undetermined number of things’ (cf. *lahi* ‘take’)
- b. lavu-ap (Parker 1970:12)
 < *avu-avu < *avu < *lavu ‘swell’ (cf. ^N*labu ‘big’, Lewo *lapwa* ‘swell up’)
- c. loŋe-oŋ (Parker 1970:13)
 < *oŋe-oŋe < *oŋe < *loŋe ‘hear, listen’ (cf. *loŋe* ‘hear, feel’)
- d. tata-oŋ (Parker 1970:31)
 < tata-oŋe < *oŋe < *loŋe ‘listen carefully’

In sum, we suggest that *l-loss before nonhigh vowels was regular in Southeast Ambrym. Subsequent (or simultaneous with) this sound change, analogical restoration of stem-initial /l/ occurred due to a combination of analogical pressures: general pressures of preexisting stem classes; predictive pressures based on high-frequency *mi-* forms; and phonological pressures from nonalternating *l*-initial stems, like those in (12b).¹⁴ This analysis explains at least two sets of facts that remain unexplained if verbs are simply considered exceptions to regular *l-loss. First, it explains why *l-loss is regular noninitially within verb stems, but irregular in initial position (cf. footnote 7): recall forms like SEA *kea* (sPAA *gela*, nPAA *keaa*) < ^N*karaka ‘climb, crawl’; SEA *te-viei* (sPAA *ta-velahi*, nPAA *ta-veahi*) < ^N*baravu ‘long, tall’; SEA *meas* (sPAA *melas*, nPAA *measi*) < ^N*marazi ‘heavy’. It is only in stem-initial position that the analogical pressures detailed above took effect. Second, this account is able to handle the remnants of *l-loss in words like (13a,b) that are exceptions to Crowley’s (1997:242–44) morphological treatment. Here, *l-loss is found in verbs, provided the verb stem is noninitial in a derived verb form.

The same general analysis can be applied to Northern Paamese, with only a few modifications due to the proposed developments in (11) involving loss and reanalysis of *mi- reflexes. Verbs in Paamese can be assigned to one of eleven conjugation classes according to the mutation pattern of the initial segment of the root (Crowley 1991:190).

14. One can frame these developments in traditional terms, with regular sound change followed by analogical restoration, or in modern multicausal terms. In the latter case, one might hypothesize a period of time where sound change and analogy were competing grammatical forces, giving rise to variation in usage that, over time, resolved itself into the current, more stable, state. See Wedel (2009) for simulation of transitions from unstable to stable states in the context of competing phonological and morphological factors.

Table 3 shows these eleven conjugation classes characterized by five potentially distinct stem forms, labeled again as 1st stem, 2nd A, 2nd B, 2nd C, and 2nd D (REALIS). In the second column of the table, figures are given for the percentage of verbs in each class, based on a corpus of about 750 verb roots (Crowley 1991:191). As in Southeast Ambrym, each stem type is used in a specific morphosyntactic environment, as detailed in Crowley (1991:190–91), and there are small differences between Northern (N) and Southern (S) dialects.¹⁵ With only a few exceptions, the basic division is between irrealis and realis verbs: 2nd D stems are reserved for realis forms, and other stems are distributed among irrealis forms. 1st stems are used after a wide range of irrealis prefixes, after the adjectival derivative *ta-*, and in unprefixing verbs (imperatives and nominalizations). 2nd A stems are used for second elements in noun+verb compounds, while 2nd B stems occur in serialized verbs, when there is no inflectional prefix. 2nd C stems occur after realis prefixes and the negative prefix. Finally, 2nd D stems are used in realis and negative forms when the verb is reduplicated, or when the verb is the initial inflected verb in a serial verb construction.

As in Southeast Ambrym, two important aspects of the conjugation system in table 3 are the size and composition of the “regular” verb class, class XI. In class XI, a verb stem has a consistent form and, more specifically, a consistent initial consonant, independent of the morphosyntactic context in which it occurs. This class is more than twice as big as any other verb class in Paamese, containing about 41 percent of all verbs, and includes all labial-initial roots, as well as roots beginning with any other consonant except for /h/ (class VIII only), /d/, /n/, and /ŋ/ (all in class IX). Vowel-initial stems, on the other hand, are never in class XI. In Paamese, they are split between classes V, VI, and VII, where vowels in 1st stems alternate with velar-initial 2nd stems, and class IX, where the vowel-initial stem may be prefixed with *mu-* in certain 2nd stem forms. The shaded rows in table 3 show innovative verb classes due to reanalysis of *mu-* (<*mi-) as part of the stem (11b,c). In Southern Paamese, the only remnant of *mi- reflexes is in class IX; Northern Paamese is more conservative, preserving *mi- reflexes in classes II, III, IX, and X.

TABLE 3. PAAMESE VERB CONJUGATION CLASSES

| Class | % of verbs | 1st stem | 2nd A | 2nd B | 2nd C | | 2nd D (REALIS) | |
|-------|------------|----------|-------|-------|-------|-----|----------------|----|
| | | | | | N | S | N | S |
| I | 15.5 | t- | t- | r- | r- | d- | r- | d- |
| II | 0.4 | t- | t- | r- | mur- | d- | mur- | d- |
| III | 0.4 | r- | r- | r- | mur- | d- | mur- | r- |
| IV | 8.5 | k- | k- | k- | k- | g- | k- | g- |
| V | 4 | Ø- | k- | k- | k- | g- | k- | g- |
| VI | 0.4 | Ø- | k- | k- | k- | ŋ- | k- | ŋ- |
| VII | 0.1 | Ø- | k- | k- | muk- | ŋ- | k- | ŋ- |
| VIII | 12.5 | h- | h- | v- | v- | v- | h- | h- |
| IX | 16.4 | Ø- | Ø- | mu- | mu- | mu- | mu- | Ø- |
| X | 0.4 | C- | C- | C- | muC- | C- | C- | C- |
| XI | 41.5 | C- | C- | C- | C- | C- | C- | C- |

15. There are also slight differences between Central and Southern Paamese in classes VI and VII (Crowley 1992:190), but these do not have any bearing on our general argument.

We turn now to slight differences between developments in Paamese and Southeast Ambrym where *l-initial verbs are concerned. Rough correspondences between verb classes in Paamese and Southeast Ambrym are shown in (14).

| (14) Southeast Ambrym | Paamese |
|-----------------------|--|
| I | I, + II, III (via reanalysis of <i>mu-</i>) |
| II | IV |
| III, IV, V | V, VI, + VII (via reanalysis of <i>mu-</i>) |
| VI, VII, VIII | VIII |
| IX | XI, + IX, X (via reanalysis of <i>mu-</i>) |

Recall that all *l*-initial verbs in Southeast Ambrym are regular (class IX equivalent to Paamese class XI), with analogical restoration associated with the regular initial consonantism of this verb class. In Paamese, the same basic historical analysis is proposed. The only difference is that, due to fossilization of /*mu-*/, as in (11b,c), *l*-initial verbs are spread over three verb classes with approximately the following breakdown: IX (22%), X (2%), and XI (76%) (Crowley 1991:191). Examples of *l*-initial verbs in these three classes are shown in (15).

- (15) a. Class IX
 mulat ‘sting’ < ^{N*}galato ‘nettle tree’
 (cf. ato ‘k.o. tree with sap that stings’)
 mule < ^{N*}leqo ‘wake up’
 muluu < ^{N*}lua ‘vomit’
- b. Class X (Northern Paamese only)
 mulan (S lan) ‘dawn’ < ^{N*}rani ‘day, daylight’
 muli (S lii) ‘pass’ < ^{N*}liu ‘go beyond, exceed’
 muloh (S loh) < ^{N*}rovo ‘run’
- c. Class XI
 lahi < ^{N*}lavi ‘carry’
 lesi < ^{N*}leqo-si ‘see, look at’
 loŋe < ^{N*}roŋo ‘hear’

Notice that, as suggested under (11), /*mu-*/ < ^{N*}mi ‘3SG.realis’ has been reinterpreted as part of the realis stem in verbs that have prototypical 3SG subjects, like weather verbs (*lan* ‘dawn’) and impersonals (*lat* ‘sting’). This reanalysis supports our suggestion that 3SG realis forms in hypothetical paradigms like table 2 were pivotal analogs for morphological change. In Southern Paamese, continued leveling results in movement of yet more verbs from class IX into regular class XI.

While *mu-* blocks *l-loss in classes IX and X due to the final high vowel, *l*-initial verbs in Class XI are explained by the same mechanisms suggested earlier for Southeast Ambrym. Verbs like those in (15c) were subject to constant analogical pressure of three kinds. First, and most generally, there was the pressure to conform to one of the preexisting verb classes of the language, defined by initial consonant alternations. Within this verb class system, /*l*-initial verbs could belong only to class XI. A second analogical pressure involved third person singular realis verbs with /*mu-*/. These verbs were used as principal parts, leading to reanalysis of a realis stem with initial /*l*/. Finally, there is the potential leveling effect of class XI verbs like *liŋi* ‘leave behind’: since the initial /*l*/ of this

verb is adjacent to a high vowel, it was never subject to *I-loss, with historical continuity of *l*-initial stems across the paradigm.

The analysis proposed assumes analogical pressure pushing irregular stem-initial alternation patterns into established stem-classes, and regular *I-loss, with /l/ restored in stem-initial position in verbs, either word-initially, or following inflectional prefixes. Three further pieces of data from Paamese, when taken in comparative context, may further support this proposal.

Recall from (13) that Southeast Ambrym shows vowel-initial relics of verb-initial *I-loss in reduplicated verb stems. In contrast, Paamese does not show such relics, with initial *I restored in both initial and noninitial stems: *lahlah* ‘loaded’ (cf. *lahi* ‘carry’); *lohloh* ‘run about’ (cf. *loh* ‘run’); *lonlon* ‘aware, wise’ (cf. *loŋe* ‘hear’). This may be due to the integration of reduplicated stems into the conjugation system, as suggested by Crowley (1991), where it is noted that primary (1st) stems are used “... in the second of a pair of reduplicated syllables...” (190) and that the secondary D stem (2nd D) is used “... when (i) the verb is fully reduplicated...” (191). However, there is at least one case of a derived verb where stem-initial *I has been lost. In Paamese the transitive verb *S loŋe*, *N oŋe* ‘hear, feel, listen, pay attention to’ has a doublet, *S ralon*, *N raen*, which appears to contain a derivational prefix /ra-/ (cf. SEA *tata-on* ‘listen carefully’). As in Southeast Ambrym, *I- is lost initially in a verb stem, provided that the stem is preceded by derivational material. However, since the *a_o* vocalic context is also a context for medial *I-loss, Northern Paamese *raen* (< *ralon) is a less convincing “relic” of verb-initial *I-loss than the SEA forms in (13a,b).

A second piece of evidence involves comparison of SEA *l*-initial subject marking prefixes with their Paamese cognates:

| | | |
|-----------------------|---------------|---------|
| (16) Southeast Ambrym | Paamese | |
| lu-o | lo- (< *lu-o) | 1DUAL |
| lu- | lu- | 3DUAL |
| la- | a- | 3PLURAL |

Phonological adjacency to a high vowel blocks regular *I-loss in the 1DUAL and 3DUAL prefixes, but nothing blocks *l*-loss in the 3PLURAL. Indeed, *I-loss appears to have applied in Paamese. This is of interest since, as an inflectional prefix, the 3PLURAL will only occur initially in inflected verbs. Again, Crowley’s (1997:242–44) suggestion that Paamese verbs are exceptions to initial *I-loss cannot be maintained.¹⁶

A third more general fact about the evolution of Paamese verbs is that analogical pressures of class XI regular paradigms are visible elsewhere. This is true, for example, of class IV verbs, as discussed by Crowley (1991:193). Recall from table 3 that these verbs show *k*-initial stems everywhere except in Southern Paamese 2nd C and 2nd D stems, where they show *g*-. Taking the Southern Paamese forms as conservative, Crowley comments: “In the North, these verbs are invariant for all morphosyntactic environments; so this entire class has effectively been eliminated, and its membership reassigned to Class XI, which includes all verbs with invariant roots.” Recall that it is the treatment of Class XI as a powerful analog that motivates the restoration of *I stem-initially in verbs.

16. For SEA, we assume *l*-restoration, based on pronominal prefix paradigms. See Parker (1968:36–38) for the fullest available description.

3.3 THE ROLE OF STEM CLASSES: TIDBITS FROM PORT SANDWICH.

In the analysis suggested above, stem-initial *l is restored in verbs due to combined analogical pressures of verb paradigm structure, regular *l*-initial verbs, and prefixed 3SG realis stems. Since stem-initial consonant alternations in Proto–Paamese–Southeast Ambrym verbs play a central role in *l-restoration, our analysis makes predictions for languages lacking such paradigm structure. In languages where there are no distinct stems defined by initial consonant alternations, analogical restoration, as suggested for Southeast Ambrym and Northern Paamese, is not expected. In such languages, a sound change of word-initial *l-loss before nonhigh vowels (4b.i) should apply to all word classes, including verbs, since there is no paradigmatic pressure to conform to a preexisting set of stem-defining consonant alternations. Within Vanuatu, at least one language, Port Sandwich, shows evidence consistent with this prediction. Port Sandwich data in this section are taken from Clark (forthcoming) and, where relevant, have been checked against Charpentier (1979).

With the exception of Aulua, no Malakula language has the productive verb-initial consonant alternations associated with the realis/irrealis distinction so common elsewhere in central Vanuatu, though there is evidence that these existed in the past (Lynch 2008:296–97). Of these languages, at least one, Port Sandwich, shows limited evidence of *l-loss before nonhigh vowels in verbs.¹⁷ Generally, when *l or *r was word-initial, the two protophonemes merged to *r* before *i and to *l* elsewhere (Lynch 2008:306). There are few, if any, reflexes of noun-initial *l or *r that are not preceded by the fused article *na-, making it very difficult to assess the fate of absolute word-initial *l.¹⁸ In these cases, where fossilized *na- occurs, /l/ is between nonhigh vowels, and expected to be lost, as it is: *ne-an* ‘fly (n.)’ < *na-lajo; *ne-an* ‘wind (n.)’ < *na-laji; *n-ti-* ‘leaf’ < *na-rau; *nō-sō-n* ‘testicles’ < *na-laso. The closest one can come to bare noun stems is to find instances of compounds with *l-initial nouns, where there is no fossilized *na-, as in *a-o* ‘offshore’ and *vi-o* ‘out to sea’, where -o < ^N*lau ‘sea, shore’. While the facts are strongly suggestive of initial *l-loss before {a,o} in nouns, there are no clear instances of this process applying word-initially. With verbs, however, there are at least two attested cases of initial *l-loss: *ax* ‘married’ < ^N*laki, and *ov* ‘run’ < *rovo. The regularity of this sound change, however, is challenged by at least two common verbs where initial *l is maintained before a nonhigh vowel: *lanjasi* ‘to singe a bird, to broil’ < *raŋa-si, and *loŋo/ni* ‘hear, feel, want’ < *roŋo. Since the first two cases, where *l-loss occurs, are monosyllabic outputs, while the verbs maintaining initial *l are multisyllables, it is possible to attribute loss in the monosyllables to prosodic factors: if these monosyllables are typically parsed with preceding particles as prosodic words, the *l would not be word-initial, and could be subject to the intervocalic conditions of *l-loss.

If, however, future work on Port Sandwich demonstrates that there was *l-loss word-initially in verbs, and if this development can be argued to follow the loss of an earlier

17. Lynch (2008:306–8) provides many details of Port Sandwich reflexes of PNCV *l and *r, though word-initial *l-loss is not noted. See Lynch (2008) also for reflexes of PNCV *l and *r in other languages of Malakula, including Avok, Axamb, Maskelynes, Unua, and Banam Bay. None of these languages shows evidence of word-initial *l-loss before nonhigh vowels, though some exhibit *l-loss between nonhigh vowels.

18. Only two nouns with initial *l reflexes are known: *lage-* ‘gills’ < ^N*laja- ‘scales’, with an irregular *g/ŋ* correspondence, and *ledrumdrum* ‘whale’ < ^N*leidumudumu (Lynch 2008:306). *l-loss is expected in the first noun (before *a*) but not in the second (before *e*). Port Sandwich *lage-* ‘gills’ could be borrowed from neighboring Aulua *laga-* ‘gills’.

system of verb-initial consonant alternation, then it could be seen to indirectly support the analysis presented above. Since Port Sandwich lacked a distinct stem class system at the time initial *l-loss occurred, there was no analogical pressure to conform to a preexisting alternation pattern, and therefore, no analogical restoration.

4. SUMMARY. An unusual set of sound changes involving *l vocalization and loss in Paamese was claimed by Crowley (1997) to be morphologically conditioned, failing to apply regularly in verbs. Subsequent work by Lynch (2008) revealed parallel exceptionality in Southeast Ambrym verbs. Since these sound changes appear to be phonetically motivated, we have reevaluated their regularity. The pattern of exceptionality suggests a regular sound change of *l-loss initially before nonhigh vowels. Subsequent or simultaneous with this, the initial /l/ of verb stems was analogically restored on the basis of its continuation in 3SG *mi- prefixed forms. A range of analogical pressures were suggested, the strongest being the inherited verb class system, in which /l/-initial verbs could most easily be coopted into the regular class of verbs with nonalternating initial segments. The same kind of leveling is attested for verbs with other initial consonants.

This analysis solves certain problems that the morphologically conditioned view of sound change cannot handle. One is the fact that the rule-cluster of *l-loss/vocalization changes clearly applies in verbs, just never to the initial consonant of the stem. Another problem is the existence of Southeast Ambrym relics with apparent *l-loss verb-stem-initially. Finally, the alternative analysis makes no connection between the distribution of *mi-, its fossilization in Paamese verbs, and *l-retention. While apparent exceptions to regularity can always be attributed to subsequent analogical developments, we hope to have shown here that the analogical pressures suggested are independently evidenced.

While there is still much to be learned about the nature of sound change, the class of changes conforming to Neogrammarian principles continues to grow. Recent reviews of phonetically unnatural developments reveal new interactions of natural sound change and well-founded analogy (e.g., Blevins 2008, Garrett and Blevins 2009). Meanwhile, novel simulation studies allow well-known exceptions to regularity to be explained in terms of effects of lexical competition on phonological categorization (e.g., Blevins and Wedel forthcoming). This account of sound change in two little-known languages of Central Vanuatu provides another potential example of regularity interacting with analogical change, and highlights the central role analogy may play in analyzing language structure and language change (Deutcher 2005, Blevins and Blevins 2009b). We hope this study will stimulate further research on exceptions to regular sound change and, as well, encourage future descriptive work on the many understudied languages of central Vanuatu.

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