

Morphological conditioning in phonologically transparent processes: evidence from the evolution of vowel reduction in Vinzelles Occitan.

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Does phonological conditioning have a privileged status in allomorphic alternations?¹ Most synchronic descriptions appear to assume that if simple phonological conditions can account for some alternation, they automatically constitute the relevant factors chosen by speakers in their internalized grammars (but cf. Hooper 1976:87 or Klausenburger 1979:29–36 for divergent views).² Intuitive notions of simplicity cannot provide a solution because simplicity is actually an empirical issue (cf. Chomsky 1965:37–47). The answer can only come from the analysis of external evidence, i.e., errors, language acquisition, historical changes, etc.

In this paper, I would like to examine the distribution of the two vowels [a] and [ɐ] in the verbal paradigm of the Occitan dialect of Vinzelles (Dauzat 1897, 1900, 1915) *just before* penultimate stress was generalized to all indicative verbs. This distribution appeared then to be phonologically governed. The historical changes that were to follow, however, show that speakers need not primarily look for phonological information when they make hypotheses about the distribution of sounds. In particular, it is quite possible that morphological factors governed the alternation long before the change in the stress patterns made them apparent.³

1 The development of low mid central [ɐ] in Vinzelles Occitan

Unstressed Romance [a] normally became [ɐ] in Vinzelles Occitan: A¹MĀRE > [ɐ¹ma], PAR¹TĪRE > [pɛr¹ci], RŌSA > [rɔzɐ]. This reduction of [a] in unstressed position is

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1. I would like to thank my mentor Rajendra Singh for encouraging me to write this paper, and for the help provided in countless discussions. He is of course not responsible for any errors, mistakes and distortions which may still appear here.
 2. I have tried to formulate this question in an essentially theory-independent way. In particular, it can be also be raised in models which propose that “morphology and morphophonology [...] should be handled outside phonology proper” (Linell 1979:127) or that “non-automatic morphophonology is [not] a part of phonology” (Singh 1987:283, cf. also Ford & Singh 1984). The alternation between [a] and [ɐ] discussed in § 3.1, for instance, would be the object of a phonotactic rule restricted to verbs in Linell's model (1979: 180–181) or the object of a morphological strategy in Ford and Singh's model (1984:73), in both of which different weights can be attributed to phonological and morphological factors.
 3. This analysis supersedes an earlier presentation in Morin (1987:27–30).

responsible for the alternation [a] ~ [ɐ] found in many verbs: [ʼam-ɐ] ‘(he/she) loves’, [ɐʼm-a] ‘to love’. This was originally a simple allophonic variation conditioned by stress. The opposition between [a] and [ɐ] eventually became phonological when stress patterns were modified and analogical changes extended [ɐ] into stressed position. The analogical change which retracted the stress originally falling on the last syllable of 1pl/2pl present indicative verbs onto the penultimate, e.g., °[ɐʼm-a] > [ʼɐm-a:] ‘(you) love’, is particularly revealing and will be examined in detail later. It now suffices to note that it is not a regular sound change, e.g., it did not affect the infinitive [ɐʼm-a] ‘to love’. The distribution of [a] and [ɐ] is clearly no longer governed by stress. Other changes leading to this state of affair will be first examined in this section: (1) [e] became [ɐ/a] before implosive [r], (2) phonological length was neutralized, and (3) regular sound changes modified the stress patterns.^{3a}

1.1 Reflexes of Romance [e] and [ɛ] before [r]

The Romance vowels [e] and [ɛ] have merged with [a] before implosive [r] and share the same development as [a]. They normally survive as [a] in stressed position: VĪRGA > [ʼvardʒɐ], FERRUM > [ʼfar], and [ɐ] elsewhere: SERʼVĀRE > [sɛrʼva]. A later change may retract stress unto [ɐ] < [e, ɛ] without modifying its mid-low quality. This mainly occurred in [er] sequences resulting from the metathesis of [re] sequences. Metathesis normally occurred in unstressed position, e.g., ʼCRĒPĀRE > [kɛrʼba] ‘to burst out’ vs. ʼCRĒPAT > [ʼkreɐ] ‘(he/she/it) bursts out’, while stress retraction occurred later, in particular in 1pl/2pl present indicative verbs, as in CRĒBĀTIS > °[kɛrʼba] > [ʼkɛrba:] ‘you burst out’. The development of stressed [ɐ] < [e, ɛ] is thus completely similar to that of other [ɐ]’s as in °[ɐʼma] > [ʼɛma:] ‘(you) love’ mentioned earlier.⁴

The development of stressed [ɐ] is less transparent in two words: TRĒDĒCIM > °[ʼtredʒɐ] > [ʼtɛrdʒɐ] ‘thirteen’ and TRĪCHĪLA > °[ʼtreʎɐ] > [ʼtɛrʎɐ] ‘vine-arbor’. Dauzat (1897) suggested that stressed [ɐ] in these two words might be the result of an independent change. Metathesis is so rare in originally stressed syllables, however, that one would like to say that it always started in unstressed position.⁵ Thus [ʼtɛrdʒɐ] might well be the reflex of an earlier unstressed form found in close syntactic constructions such as [tɛrʼdʒã] ‘thirteen years’ (cf. Dauzat 1900:100 for examples of separate

3a. [added 2009] Although length distinction had been neutralized in Vinzelles Occitan by the end of the twentieth century as discussed in § 1.2 below (cf. also Morin 2000, 2012), one cannot exclude that the stressed vowel of 2pl endings was still long (as in °[ɐʼm-a:]) when the analogical change took place and thus possibly distinct from that of the infinitive ending (as in [ɐʼm-a]). All things being equal, however, if stress retraction had been a regular phonetic change in °[ɐʼm-a:] > [ʼɐm-a:], one would have expected it to apply foremost to verb forms with short stressed [ʼa], as a shorter ultimate stressed vowel should favor retraction to penultimate position even further.

4. The development of stressed [ʼa] in °BRĒCAT > [ʼbardʒɐ] ‘(he) breaks’ is an analogical formation after the infinitive °BRĒCĀRE > [bɛrʼdʒa] on the model of verbs such as FABRĪCĀRE/FABRĪCAT > [fɛrʼdʒa/ʼfardʒɐ] ‘to forge/(he) forges’ as noted Dauzat (1900:155).

5. Metathesis in originally stressed syllable is only found in two other words, both of them frequently used as proclitics: CRŪCEM > °[kro] > [kur] ‘cross’ (frequent in toponyms) and PRŌDE > °[pro] > [pur] ‘rather, enough’, e.g. in [pur grã] ‘big enough’.

developments in close syntactic constructions; in particular [tri] ‘three’ alternates with [trə'zã] ‘three years’ in a neighboring dialect). A similarly evolution is also possible for [tərʌ], although close syntactic constructions with these nouns were certainly less frequent; stress attraction in the plural form could be responsible for the metathesis (cf. § 2.1).

One may conclude therefore that the development of stressed [ɐ] before [r] after metathesis is not an independent sound change but also results from stress retraction.

1.2 Neutralization of length

Deletion of implosive [s] led to the compensatory lengthening of a preceding [a], CAS'TELLUM > [tsa:'te] ‘castle’. In stressed position, however, the reflexes of Romance *as* and *a* are now identical: 'PASTA > ['patɐ] ‘dough’ vs. 'CATTÀ > ['tsatɐ] ‘she-cat’. It is likely that the stressed reflex of *as* was once long, but that the phonological opposition between [a] and [a:] was neutralized in this position. Long [a:] is not in phonological opposition with short [a] in unstressed position either, where former unstressed short [a] became [ɐ]. The former distinction between [a] and [a] + implosive [s] in unstressed position is now replaced by a distinction of vowel quality /ɐ/ vs. /a/, e.g., CA'NĀLEM > °[tsa'nɔ] > [tsɐ'nɔ] ‘canal’ vs. CAS'TELLUM > [tsa:'te], as length is now completely redundant for /a/ in this position.

Reduction of [a] to [ɐ], however, may have been active for some time after this neutralization. This can be inferred from the development of verbs such as °MASTĪCĀRE ‘to chew’, °TAXĪTĀRE ‘to taste’, VAS'TĀRE ‘to waste’. The stem vowel in these infinitives should normally be a long low [a:]: *[ma:'tsa], *[ta:'ta], *[va:'ta]. Instead, one always finds a short low-mid [ɐ]: [mɐ'tsa], [tɐ'ta], [vɐ'ta]. This development can be explained if infinitives (and other forms with unstressed [ɐ]) have been re-formed after the present stressed stems, e.g., °MASTĪCAT > °[ma:tsɐ] > [matɐ], in which [a] received the same phonological interpretation as that of former short stressed [a] and was reduced to [ɐ] in unstressed position: /ma'ts+a/ → [mɐ'tsa].^{5a}

1.3 Phonetic changes in stress patterns

Stress retracted onto the penultimate before word-final [ɪa], a sequence derived from earlier [i'a] or [i'a]: °CAMBA-LĪGAT > °[tsamba'lia] > [tsã'baʌ] ‘garter’, ANĪĀNUM > [aɲɐ] (proper name). This change must be relatively old, as the newly stressed [a] behaves like other Romance stressed [a]'s. (The imperfect form [vɪɪ] ‘(he/she/it) had’ < °[a'via] has been influenced by paradigmatic factors.) This retraction did not occur after a now deleted [r]. Instead, stress moved onto the last syllable: °BUCC+A'RĪA > °[butɐ'ɪɐ] > [butɐ'ɪɐ] ‘butcher shop’. This change must have occurred after unstressed word-final

5a. [added 2009] Infinitives (and other forms with unstressed [ɐ]) could also have been analogically reformed after [a'mɐ] ‘(he/she) loves’ ~ [ɐ'ma] ‘to love’.

[a] has been reduced to [ɐ]. It created stressed [ɐ]'s and contributed to the phonological distinction between [a] and [ɐ].

Stress was also often retracted onto the penultimate in words ending in [ə], [i], and less frequently [u]: °MÖL'LĪTTUM > °[mu'lə] > [¹mulə] 'soft (masc.)' — cf. °MÖL'LĪTTA > [mu'lətɐ] 'soft (fem.)', TE'NĪRE > °[tə'ni] > [¹təni] 'to hold', MA(N)SI'ÖNEM > °[mwi'zu] > [¹mwizu] 'house'. Here again, unstressed [ɐ] retained its quality after receiving the stress: VA'LĒRE > °[vɐ'lə] > [¹vələ] 'to be worth', MATU'TĪNUM > °[mɐ'ti] > [¹mɐti] 'morning', CAR'BŌNEM > °[tsɐr'bu] > [¹tsɐrbu] 'coal'. Retraction before word-final [i] and [u] appears to be relatively recent and is not always observed in traditional songs or idiomatic expressions.

The last of the stress displacements to be mentioned here was triggered by word-final long [a:] which attracted stress in word-final position: 'CELLAS > °[¹sɛla:] > [sə'la]. This sound change is intimately tied to other analogical changes and is analyzed separately in the next section.

2 Analogical changes

2.1 Before word-final *-as*

The evolution of stressed vowels before word-final *-as* is relatively complex. Typically, their reflexes have the same quality as that of unstressed vowels, e.g., 'ALAS > [¹ɛla:] 'wings' vs. 'ALA > [¹alɐ] 'wing', °PĒTTIAS > [¹pəsɑ:] 'pieces' vs. °PĒTTIA > [¹pesɐ] 'piece', but are stressed. Dauzat assumed that they always retained their original stress but were nonetheless reduced in such environments. I propose instead that stress was displaced twice: first final long [a:] attracted stress, followed by the regular reduction of vowels in unstressed penultimates, then stress moved back onto the penultimate after the singular for nouns and adjectives and 3sg for verbs. This morphological regularization belongs to a general process of uniformization of stress patterns in inflectional paradigms which we examine later for verbs. The evolution of 'ALAS, thus, would be [¹ala:] > [a'la:] (stress attraction) > [ɐ'la:] (vowel reduction) > [¹ɛla:] (stress retraction).

The *s* of Romance untressed word-final *-as* is always inflexional and *-as* mostly survived as a plural marker for feminine nouns and adjectives and as a 2sg marker for verbs in Vinzelles Occitan. Most words which ended with the [¹a:] reflexes of *-as* are thus candidates for a subsequent stress retraction on the penultimate, including feminine *pluralia tantum* such as [¹brɛʝa:] 'pants' or [lɛ'tɛʝa:] 'litanies'. Retraction was not conditioned by the existence of specific singulars with penultimate stress, but rather by the following morphological marker. Traces of the original stress attraction on word-final [a:] should be thus quite exceptional and limited to forms which are no longer analyzed as plural feminine nouns nor 2sg verbs. The adverb [dɛvǎ'sa] 'before' is one of them. Its stressed ending [a] is the reflex of the Gallo-Romance adverbial markers *-a+s* which almost completely disappeared from the language. Toponyms historically ending

in *-as*, but no longer easily interpretable as plural feminine nouns (nor verbs, obviously), are also relatively numerous: [sə'la], [rju:l'ta], [trivji'ka], etc. Dauzat explanation for the adverb [dəvã'sa] is not completely satisfying. He assumed that stress was moved to last position because the original form °[də'vãsa:] would look too much like a feminine noun. His analysis of word-final stressed [a] as an analogical formation after other toponyms ending with a stressed [-a] < -'ĀCU is more plausible, but not necessary.

Evidence for former word-final long stressed [a:] is also provided by the two possible pronunciations of PASCHAS > [pa:'tsa] and ['patsa:] 'Easter'. The first pronunciation corresponds to the name of the feast, probably used without article as in French à Pâques, while the second one may correspond to *les Pâques* 'Easter duties' and analyzed as a plural feminine noun (Dauzat's description is relatively vague, however). The long penultimate [a:] in [pa:'tsa] suggests that the neutralization between long [a:] and short [a] in stressed position was not yet accomplished when final long [a:] attracted the stress, as this word would have survived as *[pe'tsa] instead, cf. [mɛ'tsa] 'to chew' derived from the radical of [¹mats+ɛ] '(he/she) chews' < [¹ma:t+sɛ] after the neutralization.^{5b}

2.2 In the verbal morphology

The stress patterns in the current verbal paradigm of Vinzelles Occitan depend exclusively on tense, as can be seen in the representative examples below:

| | | | | | | |
|--------------------|--------|------------|--------|--------|---------|--------|
| <i>Ind. pres.</i> | 'amə | 'ɛma: | 'amɛ | 'ɛmɛ | 'ɛma: | 'amõ |
| | 'vɛdə | 'vɛdɛɿ | 'vɛ | 'vɛdɛ | 'vɛde | 'vɛdõ |
| <i>Ind. impf.</i> | ɛ'mavɛ | ɛ'mɛva: | ɛ'mavɛ | ɛ'mɛvɛ | ɛ'mɛva: | ɛ'mavõ |
| | 'vɛjɛ | 'vɛja: | 'vɛjɛ | 'vɛjɛ | 'vɛja: | 'vɛjõ |
| <i>Ind. pret.</i> | ɛ'mɛ | ɛ'mɛða: | ɛ'mɛ | ɛ'mɛðɛ | ɛ'mɛða: | ɛ'mɛdõ |
| <i>Subj. pres.</i> | 'amə | 'ɛma: | 'amə | 'ɛmɛ | 'ɛma: | 'amõ |
| <i>Subj. impf.</i> | ɛ'mɛsɛ | ɛ'mɛsa: | ɛ'mɛsɛ | ɛ'mɛsɛ | ɛ'mɛsa: | ɛ'mɛsõ |
| <i>Imp. pos.</i> | | 'amɛ | | 'ɛmɛ | 'ɛma: | |
| <i>Imp. neg.</i> | | 'amə, 'ami | | 'ɛmɛ | 'ɛmi: | |
| <i>Ind. fut.</i> | ɛmɛ'ðɛ | ɛmɛ'ða | ɛmɛ'ðɛ | ɛmɛ'ðɛ | ɛmɛ'ðɛɿ | ɛmɛ'ðõ |
| | vɛ'dre | vɛ'dra | vɛ'dre | vɛ'drɛ | vɛ'drɛɿ | vɛ'drõ |
| <i>Cond. pres.</i> | ɛmɛ'jɛ | ɛmɛ'ja | ɛmɛjɛ | ɛmɛ'jɛ | ɛmɛ'ja | ɛmɛ'jõ |
| | vɛ'jɛ | vɛ'ja | vɛ'jɛ | vɛ'jɛ | vɛ'ja | vɛ'jõ |

These examples show that stress is contrastive in the language; in particular, it is the only mark which distinguishes imperfect indicative from present conditional tenses

5b. Cf. also note 5a.

for verbs such as [ˈvɛdrə] ‘to sell’. It falls on the last syllable of future indicative and present conditional verbs. Elsewhere it falls on the syllable preceding the person ending, or on the last syllable when no person ending is present, as in the 3sg pres. ind. [ˈvɛ] of [ˈvɛdrə] and all 1sg/3sg pret. verbs. This stress pattern is relatively recent: traditional songs record the original Romance stress on 1pl/2pl person endings (Dauzat 1900:116). Dauzat did not mention 2sg endings, but it would be surprising that stress should not also fall on this ending, as almost all 2sg and 2pl verbs are identical, usually through analogy after the 2pl form (there is only but one 2sg ending at the rime in the songs published in Dauzat 1897:122, unfortunately in the conditional — [fulɛjˈa] ‘(you) would trample’ — were stress on the last syllable is independently justified). The present tense of [vˈma] ‘to love’, for instance, must have formerly been as follows:

| | | | | | | |
|-------------------|------|-------|------|-------|-------|------|
| <i>Ind. pres.</i> | ˈamə | vˈma: | ˈamɐ | vˈmɛ̃ | vˈma: | ˈamõ |
|-------------------|------|-------|------|-------|-------|------|

The distribution of [a] and [ɐ] in the stem was then completely predictable from stress and followed the original historical pattern with [a] in stressed and [ɐ] in unstressed position. Stress retraction on the stem vowel is necessarily analogical, as it did not occur elsewhere before [a] and [ɛ̃]; in particular neither in future and conditional tenses, nor in non-finite verbs.

The last analogical change responsible for the phonological opposition between [a] and [ɐ] does not result from stress displacement. The 3sg future ending is now a stressed low-mid [ɐ]. The original low stressed [a] has been replaced by the 3sg ending [ɐ], which appeared everywhere else. The same change affected the 3sg form of [ver] ‘to have’ which also became [ˈɐ].

3 Theoretical implications of stress retraction in verbs

I can now examine the changes in the (synchronic) grammars brought about by stress retraction in verbs and their implication for the principles which govern the representation of allomorphic representation in grammar. I must first make a few assumptions on the organization of the grammar in question before the retraction occurred and in particular about the phonological status of the distribution of [a] and [ɐ].

We have seen how some of the previous changes were chronologically ordered: (1) stress attraction on word-final [a:], (2) neutralization of the opposition [a:] and [a] in stressed position, (3) end of the period when [a] was reduced to [ɐ] in unstressed position, (4) other stress displacements. I have not found any direct evidence for a relative chronology between the four stress displacements subsumed under (4). I will assume that (4a) yod-formation after [r], whereby [-ˈriɐ] > [-iˈɐ], and (4b) stress retraction before weak syllables, whereby [-vˈCə] > [-ˈvCə], [-vˈCi] > [-ˈvCi] and [-vˈCu] > [-ˈvCu], occurred before the analogical changes, *viz.* (4c) analogical stress retraction in

verbs and nouns, and (4d) analogical replacement of 3sg [-¹a] by [-¹ɐ]. As will appear later, this choice does not affect the general conclusion that the speaker's strategy for building up his underlying mental representations does not privilege phonological conditioning.

3.1 The alternation [a] ~ [ɐ] before stress retraction in verbs

If we accept this relative chronology, [a] and [ɐ] were already in phonological opposition as a result of yod-formation after [r] and stress retraction before weak syllables *before* analogical stress retraction in verbs began. A reasonable phonemic analysis of the language at that stage would recognize two phonemes: /a/ having the two allophones [a] in stressed position and [a:] elsewhere, and /ɐ/ always realized as [ɐ].

The distribution of stress was governed by three morphological rules, which could be informally represented as follows:

- (1) V → [+stress] / —]_{fut., cond.}
- (2) V → [+stress] / —]_{2sg, 1pl, 2pl}
excepted for 2sg imperative
- (3) V → [+stress] / — C₀(Pers/Gender)]

Rule (1) indicates that stress falls on the last vowel of future and conditional verbs, rule (2) that it falls on 2sg, 1pl, and 2pl person markers,⁶ and rule (3) that, elsewhere, it falls on the vowel preceding the person or gender marker, unless there are none, in which case it falls on the last vowel. (The gender marker accounts for fem. past participles, e.g. [ɐ¹madɐ] ‘loved, fem. sg.’)⁷

Although the distinction between [a] and [ɐ] was phonological, the distribution of [a] was still concomitant with stress, cf. the present tense of the verb [ɐ¹ma] ‘to love’ repeated below:

| | | | | | | |
|-------------------|------|--------------------|------|--------------------|--------------------|------|
| <i>Ind. pres.</i> | 'amə | ɐ ¹ ma: | 'amɐ | ɐ ¹ mɛ̃ | ɐ ¹ ma: | 'amõ |
|-------------------|------|--------------------|------|--------------------|--------------------|------|

A typical synchronic description which assumes that a phonological account is preferable whenever possible, must relate the allomorphic distribution to the stress pattern: [am-] is the stressed and [ɐm-] the unstressed allomorph, whichever way this relationship is expressed.⁸ For instance, one could postulate an underlying represen-

6. The rule was also valid for 2sg verbs ending in [-ɛi], cf. VALES > °[vɐ¹lɛi] > [vɐlɛi] (tu vaux) ‘you deserve’ vs. [va¹lɛ] (il vaille) ‘he would deserve’.

7. Retraction in plural feminines probably occurred earlier than retraction in verbs. Stress clearly falls on the penultimate in [kwi¹fɛda:] ‘combed (fem. pl.)’ of an old song (Dauzat 1897:121, 128) where retraction in verbs is not observed (cf. Dauzat 1900:116). If it were not the case, rule (2) should either be modified to add word-final stress to plural feminines or replaced by a rule stressing word-final /a/ and /ɛ̃/.

8. The same conclusions are also valid if one adopts Dauzat's account of pl. feminines and 2sg form, i.e., where reduction occurred before word-final [a:] without stress changes. Rule (2) should be revised to

tation *am-*, where *A* is realized [a] in stressed and [ɐ] in unstressed position. A non-phonological account is also possible, in which [am-] is the stem for 1sg, 3sg and 3pl persons of present indicative and subjunctive, and [ɐm-] the default case. The non-phonological solution is unquestionably redundant, since the distribution above replicates exactly the cases where rules (1) to (3) assign stress in the verbal paradigm. This was nonetheless a solution that some speakers may have adopted, as we will see.

3.2 The alternation [a] ~ [ɐ] after stress retraction in verbs

Formally, analogical stress retraction in verbs consisted in the removing of rule (2) from the grammar. In the phonological account, there are no reasons why the phonological conditioning which governed the distribution of [am-] and [ɐm-] should be modified. The change in the stress pattern should be automatically accompanied with a change in the distribution. This was not the case. On the other hand, a morphological distribution as we have suggested above correctly predicts that the distribution will not be modified. Before turning to the transition problem in more detail, I would like to examine the implications of a small comment by Dauzat (1900:116) which may suggest that the analogical change was not simply the loss of rule (2).

Dauzat noted that penultimate stress on 1pl and 2pl was not stable: “ces mots redeviennent barytons dans le cours des phrases, lorsqu'ils précèdent un mot frappé de l'accent syntactique: [tsāta:'pa] (vous ne chantez pas?).” The expression “redeviennent barytons” is particularly confusing as it refers to a *status ante* which they did not have. The phonetic notation suggests that these verbs lost their stress before an enclitic. Dauzat's presentation would normally imply that only 1pl and 2pl verbs have that property. Consequently, the prosodic status of stress in 1pl and 2pl forms would not be quite that of the other persons and the historical change might be more complex than a simple loss of rule (2). The next sentence, however, restricts this generalization: “Cette hésitation est favorisée par la présence de la finale longue.” This indicates that stress loss before enclitics might not really apply to 1pl forms — whose nasalized vowel is phonetically short (1897:57). I propose that stress loss now results from a synchronic rule which destresses vowels followed by a long vowel when an enclitic follows. This interpretation also implies stress loss in 2sg verbs. There are but few examples of connected speech in Dauzat's work. Destressing before enclitic is noted in one of them: [purti:pa: 'pənɐ] (portez pas peine) ‘do not worry’ (1900:134); here the enclitic is also unstressed. In the few other relevant examples, however, penultimate stress is always indicated, both when the word-final vowel is short, as in [tsātə'pa] ‘do not sing (2sg)’ (1900:129), or long as in [kã 'vuʎa:'pa dã'sa] (quand voulais pas danser) ‘when you (2sg) did not want to dance’ (1897:121) [ʃə jẽ 'bi:la:'pa] (si en donnez pas) ‘if you (2pl) do not give him any’ (1897:124).

exclude stress attraction on 2sg, and the phonological conditioning for the distribution of [am-] and [ɐm-] would include a provision for [ɐm-] before word-final long [a:], e.g., A → ɐ / — C₀ a:#.

3.3 The transition

The presentation above may give the wrong impression that I assume a model of language change with a direct link between consecutive stages of the grammar as criticized, e.g., by Andersen (1973:766–767). A sound change such as the retraction of stress before word-final [ə] as in °[mu'lə] > ['mulə] ‘soft (masc.)’ or °[vɛ'lə] > ['vɛlə] ‘to be worth’, need not have occurred in any speaker's grammar. For the change to occur, the original grammar G1 must have contained implementation rules which neutralized the underlying opposition between the stress patterns of °/mu'lə/ and /'oʎə/ ‘oil’ or °/py:kə/ ‘a little’ and /'ky:də/ ‘elbow’ in some contexts or in some speech tempos. From these data, the new generation constructed a new grammar G2 in which these words uniformly received penultimate stress: /'mulə/, /'oʎə/, /'py:kə/ and /'ky:də/. If [a] and [ɐ] were still allophonic variants in G1, they necessarily became phonologically distinct in G2. For instance, the underlying form /'varjənə/ ‘alder’ and °/var'nə/ (toponym) in G1 were implemented as ['varjənə] and °[vɛr'nə] (e.g., in slow speech) or ['vɛrnə] (e.g., in fast speech). The new generation which constructed G2 and analyzed both words as paroxytons could only assume that [a] and [ɐ] were distinct phonemes.

Analogical stress retraction in verbs proceeded differently. Morphological regularizations are normally observed *after* children have acquired most of the phonological system. They appear to be a normal part of the process of language acquisition and not of language transmission. I will now examine how this analogical change might have occurred — at least theoretically — in the internalized grammar of a “typical” Vinzelles child. Initially the child learned each verbal form individually. Thus if he learned the 2pl °[ɛ'ma] ‘(you pl.) love’, he would have learned it exactly as he would have the infinitive [ɛ'ma] ‘to love’, with a stress on the last syllable. Later, when he built the verbal system, he postulated rules (1) and (3), but did not take into account the data which would have justified rule (2). Simultaneously, he made hypotheses about the distribution of the stems [am-] and [ɛm-] and we know that he chose to analyse it as follows: [am-] is the stem for 1sg, 3sg and 3pl persons of present indicative and subjunctive, and [ɛm-] the default stem. It is only at that time that 2pl °[ɛ'ma] would switch to ['ɛma:] in his internalized grammar. An *equally valid* analysis, also completely compatible with *all* the acquired data, was available to the child, *viz.* the phonological analysis in which [am-] is chosen when stress falls on the stem and [ɛm-] otherwise. The fact of the matter is that he did not choose it, as this implies that 2pl °[ɛ'ma] would have become °['ama:]. In other words it is not the case that phonological conditioning has any priority over morphological conditioning in the grammars internalized by speakers.

This conclusion also applies to the choice made by the speakers of the previous generation when analogy had not yet retracted stress. As we know, they postulated the stress rules (1), (2) and (3). But, for the distribution of the two stems [am-] and [ɛm-], we cannot determine whether they chose the morphological or the phonological conditioning. Both are equally adequate, and as we have just noted, no universal

property can be invoked to justify the choice of phonological conditioning over the other.

3.4 Can analogical changes create new phonological oppositions?

I assumed in the previous discussion that the analogical stress retraction on verbs occurred when [a] and [ɐ] were already in phonological opposition. Nothing in the argumentation actually depended on this assumption. If [a] and [ɐ] still were allophones of the same phoneme, however, this would mean that speakers were able to make hypotheses about the distribution of stems based on subphonemic information. Recall how the hypothetical learner we examined earlier had already acquired his phonological system and chose to analyse [am-] as the stem for 1sg, 3sg and 3pl present indicative and subjunctive, and [ɐm-] as the default case. But when he did it, the distinction between [am-] and [ɐm-] was not phonologically pertinent. It is only after the change, that it would, i.e., when he created the new 2pl ind. pres. form [ˈɛma:] with a stressed [ɐ]. In other words, the speaker had access to allophonic distinctions. At the same time, he did not use stress position — a simple phonological information — to characterize the distribution of the two stems, but morphological information on persons and tenses, exactly as we argued previously. Of course, I have not shown that [a] and [ɐ] were still allophonic variants when analogical stress retraction occurred in verbs, and in the absence of documentary evidence, it is reasonable to assume that they were not.

4 Conclusion

A very simple and unequivocal conclusion can be drawn from the evolution of the distribution of [a] and [ɐ] in Vinzelles Occitan: the principles governing the organization of grammar do not give priority to phonological conditioning.

This now raises a problem for linguistic theory. Even a reasonably simple phonological conditioning need not be internalized by speakers in their grammar. Another good example is word-final stress which fell on all 2sg, 1pl, 2pl verbs and pl. feminines *before* stress retraction in nouns, adjectives and verbs (cf. note 6). During this period, stress placement in plural feminine nouns and adjectives and in verbs was equally determined by phonological conditions, as these forms could only end with /a/, /ɛ̃/ and /ɛ̃̃/ — three vowels which were then always stressed in word-final position.⁹ The evolution shows that learners did not take into account this regularity in the grammar they constructed. But we cannot decide whether stress placement was then phonologically and/or morphologically defined. All we can be reasonably sure of is that speakers were constructing rules for stress placement, and eventually adopted some system which was different from that of their elders. Linguistic theory, in generative

9. The only apparent exception is the toponym [la: ˈmatrɛ̃j] ‘les Martres’ whose evolution is not clear (Dauzat 1897:46).

grammar, should be an explicit model of the cognitive capacities which allow a speaker to construct his grammar. Whether or not this model can eventually predict which of two competitive analyses, one phonological and the other morphological, is chosen by speakers in some specific conditions, it should be obvious that the relevant data for such theoretical investigation can only come from external evidence.

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Morphological conditioning in transparent phonological processes: evidence from the evolution of vowel reduction in Vinzelle Occitan.

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Dans cet article, je remets en question le principe — explicite ou implicite dans de nombreuses analyses — de la priorité du conditionnement phonologique; principe qui a été remis en cause récemment par la phonologie générative naturelle (Hooper 1976:87, Klausenburger 1979:29–36). Ce principe implique qu'une distribution allomorphique qui s'exprime *simplement* en fonction du contexte phonologique est *nécessairement* adoptée par le locuteur dans sa grammaire intériorisée.

J'examine plus particulièrement un changement historique dans la flexion verbale du verbe occitan de Vinzelles où la distribution des deux allomorphes [am-] et [əm-] du verbe *aimer*, par exemple, semble à l'origine conditionnée seulement par la position de l'accent (morphologique): [am-] lorsque l'accent tombait sur le radical, par ex. ['amə] « j'aime » et [əm-] autrement, comme dans [v'ma] « vous aimez ». Cette distribution s'explique simplement comme une réduction de /a/ en [ə] en position non-accentuée. Cependant, un changement dans la règle morphologique d'attribution des accents dans la flexion verbale montre que telle ne pouvait pas être l'analyse des sujets parlants. En effet, une nouvelle accentuation s'est développée, dans laquelle l'accent frappe la voyelle du radical des verbes au présent de l'indicatif: [v'ma] devient alors ['vma:] et non *[amə] comme on aurait attendu, si la distribution des deux timbres avait simplement été conditionnée par la position de l'accent. On ne peut expliquer ce changement que si la distribution [am-] et [əm-] était déjà conditionnée par la personne du verbe au présent de l'indicatif au moment où il s'est produit.