

THE STATUS OF MUTE "e"*

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In the historical development of French, we observe the emergence of a shwa as the result of the reduction of various vowels in open syllables (mostly unstressed a's, but also sometimes syllable-initial e's and u's, etc.). This process was completed before the appearance of the first written documents in the 8th century, in which these vowels are usually written as e, and are not graphically distinguished from the unreduced [e] and [ɛ]. Shwas were later subjected to various syncope and apocopes. These historical changes lead to the phonological reanalysis of some lexical items, e.g. asseoir /asewer/ > /aswer/, /aswar/. In some cases, however, the changes led to various alternations which are still found in modern French, e.g. une seconde [unsəgɔ̃d]~[unzgɔ̃d]. Later still, a change is observed in the vowel system in which the reduced vowel was reanalyzed as a full vowel, e.g. abeverer > 13th c. abrever [abreve] > abreuver [abruve], beton [bətɔ̃] > beton [betɔ̃].

The questions we would like to ask in this paper are: 1) what are the phonological features of the modern reflexes of shwa; 2) to what degree do the historical syncope and apocopes remain in the present synchronic description of French, and what is their status (in particular, do they constitute deletion rules as advocated by most tenets of generative phonology, or insertion rules as advocated by Martinet and his school); 3) in which cases has reanalysis occurred, and what is the result of this reanalysis.

These appear basically to be the problems to which many linguists have contributed solutions. Note that these questions involve both diachronic and synchronic aspects. Most analyses of mute "e", however, fail to make the distinction clearly, and are limited only to synchronic considerations, while depending upon the spelling (which indicates some of the history of the language) to define what is a mute "e". This may be sufficient when the goal of the description is to give the rules which aid a foreigner in learning to read the letter e in French, as it is explicitly stated in Fouché (1959) or Delattre (1966). It is not sufficient, however, when the goal is to achieve an analysis of French,

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since the spelling may be a poor indicator of the history, as illustrated by the ai in nous faisons which represents a historical shwa, yet does not in nous laissons.

In this paper we shall restrict our analysis to the evolution of shwas in word-internal position (i.e., when they appear neither in the first syllable of a word, as in semaine, nor in word-final position, as in tête). In the first section we shall examine the historical evolution of shwa syncope in the northern French dialects. The second section concerns itself with the determination of the phonological features of the modern reflexes of shwa in Parisian French (PF). The third section treats the status of the modern reflexes of shwa in PF.¹

¹We shall see that the phonological features of shwa and its status in the French spoken in Québec are essentially the same as in the French spoken in Paris. There may be some lexical differences between these two varieties of French, but the overall system is identical. For example, in contrast with most speakers of PF, most speakers of Québec French (QF) will pronounce the "e" in words such as cabaretier, bouquetière, noisetier, papetier, cafetière, cimetière, La Gauchetière (street name in Montréal), gibecière, aqueduc, minéral (but not in the word charrétier, paqueter). I suspect that spelling is in part responsible for the restoration of "e" in the pronunciation, much as p has been restored in words such as dompter, sculpter, prompt, or k as in suspect. Historical shwas have also been retained or restored in Paris (and in Québec) in words such as redevance, dépecer, chapenois, dangereux, and sometimes angelot. The only difference between QF and PF appears to be that the sets of words in which graphic "e" has been retained or restored do not correspond in the two varieties. We shall also see in section 3.5 that verbs such as cacheter, pelletter, etc., have been reanalyzed without the historical shwa, thus giving the pronunciations ja cach'te, je pel'te, etc. We observe that this regularization has taken place (or perhaps has been preserved) in fewer words in Québec than in France. In particular the regularization in QF does not affect such words as fureter, déchiqueter, which perhaps are less common. We shall also see that most speakers in Québec will use only one thematic paradigm "e", where speakers in Paris will employ two paradigms.

In this paper, I shall rely on dialect data that have been published and are given in the references. I shall also refer to my own observations for the following varieties of French: Jouquin, the regional French of Saint-Etienne, QF and PF.

Jouquin is a variety of French spoken in Origny-le-sec near Romilly (Aude) and characterized locally by the use of z for historical intervocalic r, e.g. père [pez]. I shall rely on the data I brought

1. The early history of shwa syncope in French.

1.1 If we look at the results of the evolution of shwa syncope in word-internal position in PF and in the French of Quebec (QF), and also in other varieties of French we observe that historical shwas have disappeared in most words. They remain as a rule in the following contexts:

1) before Liquid+Glide

atteloire	vs. attelage	vs. proménoir
chapelier	vs. chapélet	vs. papétier
vous chanteriez	vs. vous chanterez	vs. vous vous proméniez
bourrelier	vs. bourrélet	vs. charrétier

back from two very limited field trips lasting one day each and conducted during the summers of 1976 and 1977. Consequently, I will not be able to say much about it.

For the regional French of Saint-Etienne, I have been fortunate enough to live in close daily contact with one of its speakers for more than two years. This has afforded me many observations on the shwa deletion phenomena of this variety, which differs markedly from those of PF and QF. I have been able to verify the accuracy of these observations during visits with her family in France during the summers of 1976 and 1977. I observed their spontaneous speech, and followed this casual observation with direct questioning (and sometimes indirect questioning, since my informants at the beginning refused to admit having a pronunciation different from that of PF, e.g. denying the pronunciation *la bēlotte* without "e" a few seconds after using it spontaneously.) I would like to thank them here for patiently bearing with me and my endless questions. It is very likely that the observations I made on the regional French of Saint-Etienne are not limited to that region, and extend to Lyon and Grenoble. (I once heard a speaker from Grenoble who seemed to exhibit many of the same characteristics, but further research is needed on this question).

For QF, I have relied on the pronunciation of my environment in Montréal these last five years, and more particularly, that of my students at l'Université de Montréal. This sample is geographically widely distributed, though I grant that it is socioeconomically very biased. I am confident however, that with respect to the status of historical shwa, their pronunciation reflects the normal pattern in Québec. Again some lexical differences exist. For instance, they will systematically pronounce the "e" in the word *chevreuil* as in PF, while I heard *un chevreuil* [ɛʒvrø] in popular speech.

For the French of and around Paris, I have relied on observations of the speech of Parisians and on my own speech. (I was born

2) after Obstruent+Liquid

écrevisse	vs.	aqueduc
tendrement	vs.	entendement
probablement	vs.	enjambement
sucrierie	vs.	moquerie

3) after Liquid+Obstruent

marguerite	vs.	maquereau
forteresse	vs.	coupéret
orphelin	vs.	gobélet
tourterelle	vs.	sauterelle
fortement	vs.	sottément

4) after two obstruents

modestement	vs.	battément
exactement	vs.	vaguement
abruptement	vs.	promptement
brusquerie	vs.	moquerie
advenant	vs.	avénant

in Saint-Germain-en Laye (Yvelines), and my maternal family has been living around Saint-Germain for many generations. My father is a Gallo speaker who lost his dialect in the process of receiving his education in Versailles, and since that time he has lived in and around Paris. I spent my youth alternating between la Brie--around Coulommiers, 40 miles east of Paris--and Saint-Germain.)

My observations agree generally with the observations that have been made on PF (cf. references). I have found though, that contrary to most descriptions, mute "e" may delete not only after one consonant, but also sometimes after certain two consonant groups, e.g. pour se contenter--this example has been noted by Oudin in 1632, but no one to my knowledge mentions this phenomenon since that period--pour me parler, une pelouse, une semaine, une petite fille [ymptetfij], sur le chemin [sylsmẽ]. This, however, is irrelevant here, since my analysis is restricted to word-internal "e". I have also observed in PF as well as QF a phenomenon ignored in most descriptions which involves a partial regularization of the alternation [ɛ]~∅, as in j'achète, nous achetons, j'achètrai [ʒaʃtre]. This phenomenon will be discussed in section 3.5. First noted in spontaneous speech, this phenomenon has been studied systematically. I prepared a questionnaire containing all 129 verbs listed in Juilland (1965) which "should" exhibit the alternations [ɛ]~∅ or [ɛ]~[œ] (one third to two thirds of them were either unknown to the subjects or used only in the infinitive and/or past participle, and subsequently ignored). The subjects were required to give their pronunciations of the infinitive,

There does not appear to be any simple rule which accounts for this distribution. A rule such as (1) incorrectly allows the deletion of a shwa before Liquid+Glid groups, e.g. in chapelier. A rule such as (2) incorrectly blocks the deletion of shwa before Obstruent+Glide groups, e.g. in cimetièr, coquétier, vous raméniez. It appears that we need some kind of complex rule (3), which specifies a positive context, as in (1) and (2) where shwa deletion can occur, together with a negative context to overrule this positive context in certain cases.

(1) $\text{ə} \rightarrow \emptyset / \text{VC} \text{ ___}$

(2) $\text{ə} \rightarrow \emptyset / \text{VC} \text{ ___ VC}$

(3) $\text{ə} \rightarrow \emptyset / \text{VC} \text{ ___}, \text{ but not } */ \text{ ___ LG}$

of the first person singular of the indicative, of the second person plural of the future, and of the conditional. Another test was administered for the behavior of historical shwa in other environments: before the suffix -ment, -rie, -té, -ier (as in ratelier), and in the future of non-alternating verbs; the words were chosen to maximize the number of phonological environments and, when possible, to give instances of common and rare words. The test was administered to about 40 Quebec speakers (mostly students in my phonology class of Fall 1976) and 10 Paris speakers. (I would like to thank all these subjects for their cooperation.) In some cases, the tests were followed by direct discussions with the subjects, especially when their answers were difficult to interpret. From these observations, I became convinced that the phenomenon in question was indeed systematic and far from anecdotal in nature, although most speakers were completely unaware of it before taking the tests (and even in some cases after the tests; one of my students, who had claimed throughout the tests that she could not have used regularized forms such as j'ach'trais, confessed two months later that she had since caught herself doing it several times). As I was conducting this test, I observed that there were fluctuations between paradigms I and IIa (discussed in section 3.4) both in Paris and in Québec which occurred much more frequently than I anticipated from my direct observations. (For all practical purposes, the only difference between the two paradigms is found in the second person plural of the conditional, which does not have a high frequency of occurrence.)

The phenomena I shall present in this paper referring to the French spoken in Paris, Québec, and Saint-Etienne should be regarded as systematic in occurrence, unless there is explicit mention to the contrary.

This extra requirement leads us to suspect that rule (3) could not have been the initial form taken by shwa deletion in French. I have argued elsewhere (Morin [1976]) that it is very likely that shwa syncope as a variable rule was initially possible before Liquid+Glid groups in all northern French dialects, but that there later appeared a constraint which restricted the application of shwa deletion in most of these dialects in Consonant+Liquid+Glide sequences, and more particularly in those of Obstruent+Liquid+Glide. I would like to argue here that some of the shwas, if not all, which reflect in MF after Obstruent+Liquid and Liquid+Obstruent groups have also been preserved because of similar constraints, and that originally the rule of shwa syncope had a much simpler form, something like (4):

$$(4) \text{ ə} \rightarrow \emptyset$$

The modern reflexes of shwa which appear after groups of two obstruents, as in abruptement, are not the result of historical phonetic processes, since these groups did not exist (except perhaps -st-) in the period which interests us here. Originally, the initial obstruents of such groups were mere graphic signs, and began to be pronounced only later--probably in 16th century court usage, and later in the speech of the less aristocratic strata (for instance, many Québécois now say abruptement [abrytmã]).

1.2 By the proposed analysis of the historical facts, then, there was a simple rule of shwa deletion such as (4), and a set of constraints, which I shall refer to as the constraint against CLG groups, the constraint against OLC groups, and the constraint against LOL groups. We shall give evidence for these constraints in a few (rather randomly selected) dialects and varieties of French.

1.2.1 We have shown (Morin [1977]) that the CLG group constraint applies in the Vendéen dialect described by Svenson (1959), and blocks the change of unstressed o to w. Thus alternations such as ēpój/ēpwe 'un puits':pwezéj 'puiser' are permitted, but not those like trój/troe 'trois':troezjæm 'troisième'. In this dialect, however, the historical passage of [ɛ] to [jɛ] and ariu to [jer], which led to the creation of numerous OLC groups in so many dialects of French, did not occur (e.g. ratlej 'ratelier', fuvrej 'février') and thus limits the cases in which this constraint operates.

We observe that the constraint favors, but does not prohibit, retention of modern reflexes of shwa before the verbal inflections corresponding to '-ions' and '-iez', e.g. idunroj 'je donnerais': idunrjan~idunrjan 'nous donnerions'. (No indication of what happens to verbs such as atlej 'atteler' is provided by Svenson.) The constraint has also triggered the change of -jan and -jej to -ian and -iej in the conditional of athematic verbs, e.g. *ivivrjan > ivivrian 'nous vivrions'. Generally speaking, however, most historically

athematic verbs appear now to follow the thematic paradigm in the conditional, e.g. itēd(æ)rjaŋ 'nous tiendrions', ivajdærjaŋ~ivajdriaŋ 'nous viendrions', if(æ)rjaŋ 'nous ferions', iprad(æ)rjaŋ 'nous prendrions'.

The constraint against LOL groups does not seem to have operated in this dialect, as illustrated by kartraŋ 'quarteron', žerbri 'gerberie (gerbier)'; the data however are sparse.

The constraint against OLD groups does not operate in this dialect, for there occur such variants as dræsej~dr̥sej~dærsej 'dresser', grœnuj~gr̥nuj~gœrnuj 'grenouille', krævej~kr̥vej~kævej 'crever', etc. (the phenomenon described here is quite general). For this dialect, we have no indications whether -ment may appear after two obstruents, and only a few examples are noted of -ment after one obstruent, e.g. fōmüz̄mō 'fameusement'.

1.2.2 In the Gallo dialect of Pléchatel (Dottin and Langouet [1901]), the constraint against CLG groups accounts for the retention of the modern reflex of shwa in words such as ratœlwoer 'rateleuse', trābœlwoer 'trembleuse', šapœljœ 'chapelier' (compared to ratlo 'rateleur', trāblo~trābjo 'trembleur', šapletœ 'dire des chapelet'), also in the epenthesis of [œ] in words such as survōtœrjœr 'sous-ventrière', særkœlwoer 'sarcleuse' (cf. særklo 'sarcleur'), and in the vocalization of yod in særklijœ 'cerclier'. In thematic "e" verbs, this constraint is responsible for the preservation of the modern reflex of shwa in the conditional before '-ions' and '-iez', e.g. ždōnrō 'nous donnerons': ždōnrjō 'nous donnerions'. Verbs which historically should follow the athematic paradigm have been all apparently reanalyzed as thematic "e" verbs in the conditional, e.g. žapursœvrjō 'nous apercevrons', šsjetœrjō 'nous assoierions', žbevœrjō 'nous boirions', žvudœrjō 'nous voudrions'. There is only one case of a verb that still follows the historical athematic paradigm, but it also has a thematic variant, viz. žvjēdrjō~žvjēdœrjō 'nous viendrions'. (This is the only case of a -OLj- sequence appearing in a description of that dialect. In fact, I suspect it to be žvjēdrjō.)

The constraint against LOL groups does not seem to have operated in this dialect; not only do we observe the forms dœturbr̥ij 'dérangement' (from dœturbœ 'déranger'), and dœrsrij 'repassage' (from dœrsœ 'repasser'), but also many cases where historical rō sequence have been reanalyzed as rōr sequences: pœdr̥i 'perdrix', žardrē 'jardin', sardrēn 'sardine' and šardrō 'chardon'. On the other hand, the constraint against OLC groups now applies in the dialect. The existence of forms such as vōdœrdi 'vendredi' may indicate that this was not always so: vōdrēdi>*vōdr̥di>vōdœrdi. We have no indication in this dialect whether '-ment' and 'té' appear after two obstruents; examples are found only in words such as kmōwsmō 'commencement' and grœsjœrtœ 'grossièreté', where they are preceded by one obstruent.

1.2.3 In the Picard dialect of Gondecourt (Cochet [1976]), the historical evolution is such that no CLG groups could have been produced, so that the constraint against CLG groups is not observable in this dialect. However, the constraint against LOL groups is attested and accounts for the loss of r in: ab 'arbre', mab 'marbre', mabrej 'marbrer', and magrit 'marguerite'. The last example is quite significant, for it shows that the shwa can in fact be deleted in margërit, thus placing the resulting [-rgr] sequence under the domain of applicability of the constraint, and causing it to simplify to [-gr-]. It appears, however, that in the present stage of the language LOL groups are again permissible, as evidenced by such words as mørdrø 'mordeur', kartrō '25 (un quart de 100)', and šykardri(ž) 'sucrerie', and also in the behavior of future tenses forms such as ikervra 'il crevera', and ikuršra 'il couroucera'.

The constraint against OLC groups is also observable now in this dialect. The presence of forms such as sēpelmē 'simplément', ēgeltër 'Angleterre', ēgernej 'engrener', kotermët 'contremaitre', seem also to indicate that this was not always so. We have no indication for this dialect whether '-ment' may appear after two obstruents. (It is found in the word œrlœmē~yrloamē 'hurlement', where the [œ] reflex of shwa instead of [e] indicates a borrowing from PF.)

1.2.4 In the Normand dialect of Guernesey (Sjögren [1964]) a homorganic vowel tends to appear between a consonant and a glide, particularly when this consonant is r, e.g. karijer 'carrière', curijew 'curieux', karuwōjn 'charogne', salwet~salywet 'visière', pikwe~pikuwe 'piquoir'. Before this epenthetic homorganic vowel was introduced, the constraint against CLG groups caused the epenthesis of a shwa before the liquid, so that we now find both epenthetic vowels, e.g. gaberijole 'cabriolet', feveriye 'février', berywël 'bruyère', gerywe 'gruau', iveruwōjn 'ivrogne', rōferuwōni 'renfrogné'. These epentheses are also observed in morphophonological alternations, e.g. astōbri 'to become cold': astōberijaj (past participle), makre 'maquereau (sing.)': makerijo (plur.).

The constraint against LOL groups also applies in this dialect, and leads to the epenthesis of a vowel after the obstruent, e.g. purtere 'portrait'. It accounts for the retention of the reflex of shwa before the morpheme -rie (e.g. in the words korderi 'corderie [appareil pour corder]' and eperkeri 'sècherie'), which otherwise disappears (e.g. mātri 'menterie'). The constraint is responsible for the retention of the reflex of shwa in the future and conditional tenses of thematic verbs whose stem ends with an LO group (e.g. imerkerej 'il marquerait', štoršerej 'je torcherai') which normally disappears elsewhere (e.g. zgažrej 'je gagerai') although it is observed between m and r in igrimera 'il égratignera'. If we turn to athematic verbs, we observe that they remain stable when their

stem ends with a vowel or with a single consonant (e.g. žmetrej 'je mettrai', žmudrej 'je moudrai', šprōdrej 'je prendrai', šerševrej 'je recevrai'), but add a thematic vowel when it ends with an LO group, as in štetoerderej 'je te tordrai', imōrderej 'il mordrait', which means that the historical distinction between the two paradigms has been neutralized in the future and conditional.

The constraint against OLC groups is now observed in the dialect. The existence of forms such as aderšjej 'adresser' here also may indicate that it was not always so.

Concerning the morphemes '-ment' and '-té' in the description, we observe the former only after a single consonant (e.g. očermā 'entièrement'), but the second is found with a preceding e in ekarsetaj 'rareté' (from ekars 'rare (fem.)').

1.2.5 We have very little information on the Jouquin dialect (see fn. 1). However, it appears that it was subject to the constraint against COL groups, (e.g. tōbōerjo 'tombreau') and to the constraint against LOL groups, as shown by the forms mēkroadi 'mercredi', pēdri 'perdrix', and by morphophonological alternations in the verb 'perdre' (zēperdy 'j'ai perdu': špēdre 'je perdrai').

1.2.6 The regional French of Saint-Etienne (see fn. 1) is not different from PF with respect to the constraints against CLG groups, and against OLC groups but it diverges with respect to LOL groups. In this variety of French, historical shwas are not normally pronounced in the words marguērite, tourtērelle, bordēreau, orphēlin, nor before the r-initial suffixes -rie, -ron, -rette, -resse unless they are preceded by an OL group, thus: gardērie, fourbērie, brusquērie, forgeron, fortēresse, (but sucrerie). More generally, historical shwas are not pronounced after LC sequences (e.g. fermēture, verdēlet, orgēlet, appartēment, versēment) or before [r] in the environments enumerated. This means that the historical thematic shwa will always be absent in the future and in most persons of the conditional (i.e., everywhere except before -ions, -iez). There appears to be a strong tendency in this variety of French for verbs which historically follow the thematic paradigm in "e" to follow the athematic paradigm. It was noted that all the verbs which exhibit the alternation [ɛ]~[œ] or [ɛ]~∅ will normally follow the athematic paradigm, e.g. j'achète, nous achetons, nous achēterions [nuzašetrijō]. I suspect it also to be the case for the other verbs.

When the suffix -ment appears after a sequence of two obstruents, it was observed that the modern reflex of shwa is present after sk, st, as in chevalēresquement, ajustement, tristement, but that it does not normally appear after pt, as in abruptement [abryptmā] (which becomes [abrypmā] in fast speech.)

1.2.7 Finally, if we turn to PF (or to QF, where the situation is in every respect similar, except that we have no earlier descriptions from grammarians to chart its historical development), there appeared a constraint against CLG groups which is responsible for the loss of some of these groups. In some cases it caused the vocalization of the glide, e.g. ouvrier [uvrje] > [uvrije]; in other cases the glide was deleted, e.g. hébricux > hébreux. In certain instances, epenthesis of shwa before the liquid must also have occurred (e.g. février [fevrje]), although this is not clearly recorded (it is only found in some socioeconomic groups both in Paris and in Québec nowadays, although dialectal influence cannot in such cases be completely excluded).

The constraint against LOL groups was apparently operative in PF under about the same conditions noted for the Picard dialect of Gondecourt, i.e., it was not operative during the early period of shwa syncope, thus accounting for the spelling margrite, tortrelle, and bordrel for MF marguerite, touterelle, bordereau (12th to 14th centuries, according to Fouché [1966]). Later, the constraint against LOL groups became operative, and is manifested by the reduction of LOL groups, as indicated by the changes from Old French berfroï to beffroï, and in popular PF from arbre, marbre, mercredi to the pronunciations abre, mabre, and mecredi still attested in Paris in the 17th century (Bourciez [1967:183]). It is to the same influence that we owe certainly the restoration of e in modern French marguerite, tourterelle, bordereau, and probably also in garderie, forteresse, quarteron, etc. If shwas have been restored in some of the LOL groups from which they have been previously eliminated (variably, certainly), they have not been restored in some of the thematic verbs in the future and conditional, e.g. je garderai, je porterai. The constraint against OLC groups also appeared not to have existed in PF until the 17th century, if we believe Oudin's testimony (1632). That grammarian pointed out that the reflex of shwa could delete after pr, tr, and kr and cites the example prenez:prnez (compared to more traditional syncope such as redire:rdire, levons:lvons, etc.).

Finally, the morphemes -ment, -té, -rie, etc. are always represented with a preceding e, and we cannot establish at which time they received their modern status. I suspect that the shwas in words containing these suffixes (e.g. bercement, appartement, fermeture, fermeté) could delete variably, as they still do in the imperative such as bercé-moi, apporté-m'en, porté-moi, affirmé-toi, etc. Only later was the distribution established in which the shwa before the suffixes -ment, -té, -rie, etc., was restored after a sequence of two consonants, but not before the enclitics -moi, -toi, etc., of the imperative.

1.3 If we try to determine the chronology of shwa syncope, we observe that rule (4) did not apply at once in all environments. Rather, it

applied in a limited set of environments and was extended later to larger context roughly as follows (according to Fouché [1969]):²

- 1) 10th cent.: n-r denerée > denrée ~ derrée
 donnera > donra ~ dorra
- 2) 12th cent.: r-r dererain > derrain
 durera > durra
- 3) 12-15th cent.: after a liquid alebastre > albastre
 alleman > alman
 serement > serment
 before a liquid belouse > blouse
 chauderon > chaudron
 surpelis > surplis
 torterelle > tortrelle
- 4) 15-16th cent.: everywhere

Concerning the chronology of the various constraints, we can make the following educated guesses for the dialect spoken in Paris:

- 1) 13-15th cent. (as late as the 17th cent. in courtly French): constraint against CLG groups
- 2) 15th cent. (?): constraint against LOL groups (tortrelle found in the 14th cent.)
- 3) 17th or later: constraint against OLC groups (cf. Oudin [1632]).

²Some remarks made by 17th century grammarians may lead us to think that certain reflexes of *shwa* were being restored in the verbal paradigm at a time when *shwa* syncope seems to have reached its peak. Oudin (1632), for instance, condemns the pronunciation demourray, and insists that it should be demoureray. This is intriguing, since in the very same book, Oudin insists that historical *shwas* are not pronounced in achéter, il n'y en a que trois, en ce point, je ne sais, etc. This may be an indication that the historical *shwas* were reanalyzed as non-reduced vowels that were stable in the verbal paradigm, but fleeting in some other words. We find no trace of this in most verbs of MF. I am inclined to believe that the distinction the grammarians intended to make between the graphic representations demourray and demoureray was not a distinction between the presence or the absence of *shwa* (or of its current reflex), but rather between a single and a geminate r. We know that geminate r's were reduced later than other geminate consonants, viz. after *shwa* syncope created new geminate r's, as evidenced by spellings such as demouray, demourois found in Cauchie (1570). Another bit of evidence is given by de la Touche (1696), who criticizes the pronunciation trouverrai instead of trouverai.

1.4 The various constraints listed above did not necessarily survive as surface phonetic constraints. Thus if the constraint against CLG groups explains synchronically why [u] does not alternate with [w] in PF in the pair il troue [itru]:il trouait [itruɛ, *itrwɛ] as it does elsewhere, (e.g. in the pair il noue [inu]:il nouait [inwɛ]), it still cannot be considered a surface phonetic constraint as evidenced by the pronunciation of words such as trois [trwa]. There are some dialects where the constraint against LOL groups is almost a true phonetic constraint, in particular the Normand dialect of Guernesey (there are only three words which violate this constraint in the description given by Sjögren: kardrunet 'chardonneret', perdrigan 'perdrigan', and sometimes murtraj 'montrer' which is, however, far less frequent than the normal murtaɟ). On the other hand, in Paris (and in Québec) this hardly constitutes a phonetic constraint at all: LOL groups have been restored in words such as mercredi, marbrer, and they are found not only in the future and conditional tenses of athematic verbs such as je perdrai, but also in thematic verbs such as je garderai, although the constraint still seems to apply to the suffixes -rie, -ron, as in garderie, forgeron. This is also true for the mechanism that accounts for the distribution of the modern reflexes of shwa before the suffixes -ment, -té. It may probably be considered a phonetic process in the regional French of Saint-Etienne where apparently no distinctions exist between these suffixes and the imperative enclitics -moi, -toi, etc. As mentioned before, oppositions such as bercement:bercé-moi, appartement:apporté-m'en, illustrate that this cannot be a simple phonetic process for PF and QF. We shall see that one of the reasons for this heterogeneity of treatments for the modern reflexes of shwa in Paris and Québec is to be found in the evolution of the phonetic characteristics of shwa and its reflexes, a topic to which we turn in the next section.

2. The phonetic and phonological features of the modern reflexes of shwa in the French of Paris and Québec.

2.1 Two main phonetic features of the modern reflexes of shwa will be investigated in this section: (a) their coloring and (b) their status as reduced or full vowels. In the various dialects of French many different qualities or colorings exist for the modern reflexes of shwa. It may assume the color of [œ], as in the Vendéen dialect described by Svenson, in the Gallo dialects of Pléchatel, of Plouguenast (cf. Hervé [1973]), and of Loudéac (cf. Bourel [1976]). Or it may assume the color of mid front vowels: [e] and [ɔ], as in the

in cases where it is clear that the distinction between the two concerns the quality of the preceding vowel and not the nature of the consonant "on doit remarquer que l'e qui précède la syllabe rai dans le futur des verbes de la première conjugaison est toujours féminin."

Gallo dialects of Yffiniac, of La Poterie, of Vitré, etc. (cf. Petiot [1977]),³ in the Norman dialect of Guernesey, in the Picard dialect of Gondecourt (Cochet [1932]), or that of Amiens (Debré [1974]), or [ɛ], as in the Wallon dialect of Hainaut. In the Wallon dialect of Verviers it assumes the color of the high front rounded [y], but of unrounded [i] in the Wallon dialect of Liège (cf. Remacle [1972]). In Paris and Québec it can be either [y], [e], [ɛ], or [œ], depending on various factors. It is not clear in the descriptions of most dialects whether these modern reflexes of shwa are reduced or full vowels. It is clear, however, that in PF and QF the reflexes of shwa inside a word are full vowels and that, for instance, the vowel in the first syllable of chevreau, premier, or bedeau is no more reduced than the first vowel of givre, prémisse, breuvage, or badaud. In this section, we shall (1) examine the historical evolution of the color of shwa in PF and QF, and (2) show that in these two varieties of French the modern reflexes of shwa cannot be distinguished distributionally from the other vowels whose color they assume, and further, for some of them a distinction can be made only in terms of whether or not they are still subject to some form of syncope.

2.2 It is generally assumed that shwa was originally a reduced vowel whose quality was close to [e]. Evidence for this is based on the spelling e and on leonine rhymes of the following kind: sera:plaira, simples on:saison (13th century, Roman de la rose, according to Fouché [1969]). Its first change to [y] occurs from the 12th century on and affects only shwas adjacent to a labial consonant [p, b, f], and [m], e.g. femier>fumier, bevant>buvant, gemeaus>jumeaux. (There have been some variations and fluctuations. For instance, the pronunciation fumelle for femelle, which is attested very early, has disappeared in PF, but still exists in QF, although it also is disappearing in that dialect as a result of the normative influences of PF.) It is also assumed that in the other environments, shwa kept its [e] coloring until the 15th century, when it began to take [œ] coloring. Evidence for this is found both in leonine rhymes such as renom:peu, non, and more particularly in descriptions by 16th century grammarians. The testimony of the latter is not clear-cut. Meigret (1542) claimed

³In the Gallo dialects, there is a strong tendency to round all the historical [e] vowels, whether or not they were historically reduced to shwa, except in the northwest, where they tend on the contrary to remain [e] in all positions. Thus, in the northwestern villages such as Yffiniac, we have [e] in le petit [lepeti] and in chanter [šäte]. In the south and the east, all the historical [e] vowels tend to be rounded, as for instance in Pléchatel, where we have [lepeti] and [šäte]. In transitional areas we have a distribution similar to that in Paris and Québec, in which only reduced shwas are rounded, as in [lepeti], but not in [šäte].

that shwa was a reduced [e], whereas Des Autels and Peletier noted it as [œ]. It is hard to determine what was the actual pronunciation in Paris during that period. Meigret, who was a Lyonnais, and Peletier, a Manceau, could have been influenced by their regional pronunciations. It is likely, though, that there was considerable variation in Paris, which is partly reflected in MF. Thus the reflexes of shwa tend to be [e] before a vowel (e.g. séance, créance). This change appears mostly in semi-learned words; in the other words the shwa is simply deleted before a vowel (e.g. in asseoir). Still it appears to be a genuine change, for it also occurred in dehors, a word in which the shwa has been preserved by the h, and whose pronunciation déhors is reflected by the variant [deʝɔr], still attested in PF and QF. Many examples of reflexes of [e] can be found in the initial syllable of a word when the historical shwa is followed by a consonant. This occurs particularly before the consonant [r], as in péril, périr, quérir, féru, (there are a few exceptions to this evolution before r, as in cerise, querelle, and the two future forms vous ferez, vous serez, where differences could be attributed to the influence of the future-conditional paradigm) and before the consonant [s], as in blessé (from OF. blecier), cresson (although in some varieties of PF, and that includes my Saint-Germain-en-Laye family, cresson is pronounced with [œ]). The evolution is less regular before other consonants. Thus, we observe [e] in the words désir, frémir, béton (in Paris, but not always in Québec, where we also hear beton), séjour, félon, lézard. The accepted norm sometimes changes, as shown by Oudin's (1632) prescription of [e] for sémençe, séquestrer (next to semonce). This pronunciation has not survived in MF, which employs instead [œ]: semence, sequestrer. It is hard to ascertain what proportion of shwas in word-initial syllable are now pronounced [e], since in many cases we do not know the original pronunciation of these recent Latin loanwords. The proportion could be very high, perhaps one out of two. In word-internal position, the situation may have been similar, although the frequency is not known. We note [e] in the word genévrier, corresponding to what must have been a shwa historically. This early variation is reflected in the [e] that occurs before the adverbial suffix -ment of MF, as in commodément, communément, confusément, énormément, immensément, précisément, profondément, uniformément, etc., (sixteen forms altogether, according to Grévisse [1964]). In the sixteenth century, according to the Marseillais Rambaud, who normally distinguishes the reflexes of shwa from the other [e] vowels, the adverbial suffix -ment preceded by [e] was found everywhere in Paris. He also notes [e] as the normal reflex of the thematic shwa in the future and conditional, as in parlera. This pronunciation of the future and conditional theme e is still mentioned (and condemned) at the end of the seventeenth century by de la Gouche (1969) (see fn. 2). Variation between [e] and Ø survives before the suffix -naire in learned derivations or Latin borrowings: thus, nonagénnaire, millénaire with [e], but centénaire, cinquanténaire with Ø. There are also alternations between [e] and Ø in learned/popular pairs such as minéral/minérai.

Finally, the graphic e found in the future and conditional of verbs such as mener is regularly pronounced [ɛ] in MF (in what we shall call in §3.5 conservative speech). We do not know whether this graphic e ever was a reduced vowel. In MF we observe many words in which the normal evolution should have resulted in a sequence of two syllables each of which contains shwa, yet where the first of these potential shwas is actually realized as [ɛ], e.g. chènevis, chènevière, chènevotte, sèneçon, grènetis, grainéler. There are some apparent exceptions to this rule in words such as (res-)semeler, échevellé, chevelure, ensevelir, Geneviève, Genevois, where the first of these vowels is realized as [œ]. But it seems that [œ] in these words is a recent reflection and it appears as [ɛ] in the 18th or 19th centuries. For instance, Littré (19th century) notes the following alternations:

chef: chevet: chevecier: chèveteau	[ʃɛf:ʃœvɛ:ʃœvɛsje:ʃœvɛto]
chèvre: chevrette, chèvreter	[ʃœvr:ʃœvrɛt:ʃœvrɛte]
graine: grenette: grenetis	[grɛn:grɛnɛt:grɛnɛti]
graine: grener: greneler	[grɛn:grɛne:grɛnɛle]
bref: brevet: breveter	[brɛf:brœvɛ:brœvɛte]

We can also infer from the spelling genevois in Littré's dictionary (noted at the entry for sènebière) that the pronunciation [ɛ] in the initial syllable existed at his time (it is also given by Fouché [1959], and I have heard it recently in radio broadcasts. Littré lists, however, a different pronunciation for genevois, namely, [ʒœnœvwa]. From his discussion of the pronunciation of breveter, we gather that the quality of the vowel in the initial syllable was determined by the quality of the following vowel. Thus, he certainly posited alternations of the type il brevette [brœvɛt], il brevetait [brœvɛtɛ] (and also possibly il brevetera [brœvɛtɛra]). Littré's indications are confirmed by Hatzfeld and Darmesteter, who give similar pronunciations (although they contend that word internal [œ] is limited to poetry). They also offer as new evidence the two pronunciations of genevrette [ʒœnevɛrɛt] and [ʒœnvɛrɛt], and note that the vowel in the initial syllable of semelle [sœmɛl] becomes [ɛ] in the verb ressemeler [rɛsɛmle]. Still, at the time Littré and Hatzfeld and Darmesteter made their observations, the process was already opaque because some reanalysis already must have taken place. For example, Littré notes genevois, and ressemeler with shwas for all graphic e's. Littré and Hatzfeld and Darmesteter agree that the first graphic e in chevelure and écheveler, and the second e in ensevelir, is [œ], which they all distinguish from regular [œ]. In the eighteenth century, however, the regularization had not yet reached these words, since Richelet (according to Littré) wrote chévelu, chévelure, and ensevelir. It appears clearly that there was an early constraint against the appearance of two consecutive syllables containing shwas word internally. A tentative explanation could be that in Old French there existed sequences of consecutive syllables containing shwas, but that as shwa syncope developed, some shwas appeared in closed syllables, e.g. chevecier [ʃœvɛsje]>[ʃœvsje]. This was the

phonetic factor which caused the change of [ə] to [ɛ]. There are some indications from Hatsfeld and Darmesteter which seem to show that the [ɛ] in a word such as resemeler [rəsemle] alternated with [ə] in poetry when the historical shwa in the following syllable was pronounced (i.e., in [rəseməle]). They note the same phenomenon in écheveler [eʃevle], which becomes [eʃevəle] in poetry. Still this usage does not apply consistently, for the poetic variant of chevecier [ʃevsje] is [ʃevəsje], not *[ʃevəsje], and this usage is not noted by Littré. This account of the [ɛ] reflex of shwa can only with difficulty account for the fact that we observe [ɛ] in a verb such as je jetterai [ʒəʒetərə], where the shwa which changed to [ɛ] occurs in an open syllable ([ʒəʒetərə]), unless one is willing to concede a syllabic cut such as [ʒə.ʒet.rə]. In Morin (1977b), I suggested that there might have been an alternating stress in Old French in which a pre-pre-stressed syllable received a secondary stress. If this was the case, the initial syllable of chevecier or similar words was never reduced to shwa, but had an [ɛ] quality from the beginning. But this would require an explanation of why we find [ɛ] and not [e], as we would expect. More research is required to settle this point.

2.3 We do not know precisely at what time the shwa lost the character of a reduced vowel and assumed that of a full vowel as it appears now. We know that word-final shwas were always reduced, and eventually disappeared completely in the 17th century. As long as there was a model for reduced vowels in word-final position, it is reasonable to assume that shwas were also reduced in the other positions. The only reduced vowel remaining in the French vocalic system after the disappearance of those in word-final position was a shwa of limited distribution. It is possible then that the change of shwa to a full vowel occurred at the same period, and was also completed by the end of the 17th century.

If we examine the modern [y], [e], and [œ] reflexes of shwa, we observe a striking difference between [y] and [e] on the one hand, and [œ] on the other. When the shwa has been reanalyzed as [y] or [e] no trace remains of its historical syncope. For instance, we do not find pronunciations such as un lézard *[ɛlzar], du fumier *[dyfme] corresponding to those of la leçon [lalsɔ̃], or la fenêtre [lafnɛtr], where the syncope of the reflex [œ] of shwa is still possible. It would be interesting to know whether this distinction between these various reflexes of shwa has always existed, or whether, for instance, initially the reflex [e] of shwa could also syncope, its stabilization being a later development. We know, for example, that as late as the eighteenth century the graphic e found in the plural determiners les, des, ces, ses, mes, tes, and in the demonstrative cet was syn-copable when these determiners were attached to a word beginning with a vowel, e.g. lés enfants, dés enfants, cét enfant, etc. Before a consonant the final s or t was deleted and the preceding e must have been pronounced [e] or [ɛ], as in MF, e.g. les garçons [legarsɔ̃].

But what was the pronunciation of this graphic e when the determiner was attached to a word beginning with a vowel, yet did not syncopate? Did we have les enfants: [lezãfã], as in MF, or simply [lœzãfã]?⁴ If we interpret the description of this phenomenon given by Vaudelin in 1713 in the most reasonable light, then it appears that these e's were pronounced [œ] and not [e]. If the reflex [e] of shwa actually did initially syncopate in PF and QF, then it has left almost no trace. I am aware of only three words where syncopation of [e] or [ɛ] seems to occur, viz. cet as in cét enfant, c'est as in c'est important, and déjà [deʒa~dʒa]. The alternation in the first of these three examples is the direct result of the syncopation of e in the determiners that we have seen above. However, it can no longer be regarded as a case of syncope. In Paris and probably also in Québec, we observe that the demonstrative cet has been reanalyzed as two distinct determiners, one demonstrative /sɛt/ with a variant /s(œ)/ for masculine words beginning with a consonant, and a second determiner /st(œ)/ for both genders, as in ste garçon, st'homme, ste fille. The two demonstratives have some semantically different properties, and in particular we can find ce but not ste before nouns such as matin, soir, etc., e.g. ce matin but not *ste matin. For the word c'est it could be argued that the [ɛ] is not the modern reflex of a shwa, since normally [e] did not reduced to shwa in a syllable closed by [s] before a voiceless stop, e.g. destroit > détroit, mestier > métier (but note however sestiere > setier with [œ] in MF, which indicates that this [e] was reduced to shwa). For the word déjà it could also be argued that e was not a reduced vowel since the word derives from des ja. Still, [s] seems to have deleted early before the voiced consonant in word-initial syllables, cf. Lat. presbytere > preveire. Furthermore, we observe in Québec some pronunciations of déjà as [dœʒa] which, as in the case of beton, seems to indicate a possible early pronunciation with shwa. These last two words could then be genuine cases of the survival of a syncope which affected the [e] reflexes of shwas.⁵

⁴As we mentioned in note 3, in the Gallo dialect of Plouguenast, the historical [e] vowels have been rounded to [œ] when they were reduced to shwa. In the modern stage of the dialect, however, the historical [e] vowels of the plural determiners, which must have been reduced to shwa when they appeared in open syllables (e.g., les enfants), have been regularized to [e] on the model of les gars. This also occurred in PF. The only difference is that in Plouguenast, these [e] vowels may still undergo syncope, e.g., les enfants [lezefã ~ lɛzefã] (cf. le gars [lœga ~ lga], les gars [legã] ~ *[lga]).

⁵One cannot exclude the possibility of another kind of syncope for these words. This is similar to the syncope found nowadays in Paris and Québec in the words papa [ppa], and maman [mmã], and in the expressions tu sais [tsɛ] or tout a l'heure [tɔlœr].

If it was the case that the [e] reflex of shwa was initially syncopable, we must explain why it became stable so quickly, why unlike the [œ] reflex of shwa, it has left practically no trace. There must have been at this period in French two different kinds of [e] vowels: one stable [e] found in words such as métier and détroit, where the vowel originated in a closed syllable, or in words such as dévot that had been recently borrowed from Latin, and a fleeting [e] which was the reflex of a former shwa. In the absence of phonetic support for the distinction, we should expect to see a levelling of the opposition between the two kinds of [e], as advanced for instance by Kiparsky (1968) in his defense of diacritics in phonology. Apparently then, the [e] reflexes of shwa have been re-analyzed as regular [e] vowels.

2.4 The fact that the same process did not happen with the [œ] reflex of shwa leads us to investigate the historical paradigmatic relationship between the [œ] reflex of shwa and the other mid-rounded vowels. We have seen that the [e] reflex of shwa merged with an already existing [e]. Apparently, there were at that time no [œ] vowels with which the [œ] reflex of shwa could have merged. Although in some dialects of French (and in particular the Picard dialect of Gondecourt and the Gallo dialect of Pléchéat) the opposition observed between [ø] and [œ] correlates strongly with the opposition between Romance [ō] and [ṽ], it is generally assumed that the opposition between [ø] and [œ] began to develop in Paris only after the second half of the seventeenth century (cf. Fouché [1969:253]). It is assumed that the diphthong [ew], coming from Romance stressed long [ō]

We also note syncope in the word voilà ~ vlà. Actually vlà is not historically derived from voilà but rather from the attested form vela, which contained a shwa. Apparently, the same phenomenon could account for similar syncopes found in Quebec and Jouquin in words such as commencer, raccomoder, which become c'mencer, rac'moder. Actually these syncopating [ɔ]'s may have been historically reduced to shwa, as happened for example in the word quenouille (from med. Latin conucula). Pronunciations with a shwa or its current reflex also are recorded in Paris (cf. Vaugelas [1507], who criticizes the substandard pronunciation quemencer of commencer).

There is another group of syncopes found in Québec but not in Paris which involves high vowels i, y, and u, as in université (Gendron [1966]). Some of these syncopes appear to be recent innovations of QF, as in for example, université. Others may result from a reduction to shwa which may or may not have occurred in Paris, as in décôlage-moi pas, tout en vœlant, vous vœs trompez.

(e.g. fleur) or from Romance [eɪ] (e.g. feutre), and the diphthong [we], coming from Romance stress long [ɔ̃] (e.g. in coeur), were all reduced to [ø] both in closed and open syllables during or before the 13th century. This [ø] vowel, because of its historical development, could only occur in stressed syllables (there are no instances of Romance [eɪ] > [ew] in unstressed position). Soon however, the vowel [ø] appears in unstressed position, because: (a) of some paradigmatic regularizations (plourer > pleurer after il pleure, plouvoir > pleuvoir after il pleut, etc.); (b) of some derivations from words with stressed [ø] or from the diphthong [ew] or [we], if the derivation took place before the monophthongization (e.g., seulet (12th cent.) from seul, gracieusement (14th cent.), gracieuseté (15th century) from gracieuse, or gueuler (17th cent.) from gueule); and (c) of learned borrowings with the spelling eu, which has been interpreted as a diphthong or as [ø] (e.g., eucharistie (12th cent.), Europe, Eulalie, Eustache). During the rounding process of shwa (maybe as late as the 15th century, if it was reanalyzed as some kind of [œ], it did not necessarily conflict with any other existing vowel, which may account for why its development was different from its [e] reflex. The respective distribution of the [ø] and the [œ] reflexes of shwa was then as follows: [ø] occurring in all positions and [œ] occurring only in open unstressed syllables. (We have no indication on how the e of the prefix re- was pronounced in verbs such as restatuer, if they existed at all at this period. They were probably realized as [e] or [ɛ], but not as [œ], as in MF.)

Sometime between the 16th and 17th centuries, we observe that enclitic -le in imperatives became stressable, thus the final e in perds-le (which was homophonous with perle) began to take on stress. This seems to correlate in time with the change of shwa from a reduced to a full vowel. Again, there seems to have been some variation as to the actual pronunciation of stressed -le; for some speakers it must have been [le], as still observed in Québec, for instance, or it could have been [lø] with the close vowel, generally found today in PF, but for others it must simply have been the non-reduced [œ] reflex of shwa which was emerging at that time. The use of such stressed [œ] reflexes of shwa increased in later French, and is now very widespread in PF and QF as shown by the examples below.⁶

⁶This is also observed in other varieties of French. In the regional French of Saint-Etienne, there is a further case of an [œ] reflex of shwa in stressed position. It occurs in the clitic adverb que 'only', which has been generalized to other positions, e.g. je passe que 'I am only passing', corresponding to je ne fais que passer.

- (5) a. enclitic -le in the imperative:
prends-le, donne-le, etc.
- b. enclitic ce after et, sur, and sometimes pour:
et ce, en compagnie d'un ami
et sur ce, je te quitte
et pour ce, il ferait n'importe quoi
- c. enclitic que after conjunctions:
parce que, comme tu t'y attends, les résultats ...
tandis que, contrairement à ce qu'on disait, les Américains ...
étant donné que, contrairement à ...
parce que (used alone to refuse to answer a why-question)
- d. the prefix re used in isolation:
et re 'he did it again'
- e. the name for the vowel e in the alphabet and in acronyms:
tu as oublié un e
P.M.E. [peɛmɛ] for 'Petites et Moyennes Entreprises'
P.C.E. [pesɛɛ] for 'Parti Communiste Espagnol'
- f. the emphatic marker e at the end of utterances:
merde
un tanke (emphatic for 'un tank')
mon amiee (contrasting with 'mon ami' masculine)
- g. the lyrical marker e in songs:
allons, z-enfants de la patri-ije
pour me voiree (regular 'pour me voir')

It was most likely during or shortly after the time of this change in the nature of shwa and its appearance in stressed position that [ø] changed to [œ] in closed stressed syllables (during the second half of the seventeenth century, according to Fouché [1969]). This change affected such words as seul, seule, peur, jeune, aveugle, but not others such as meule, jeûne, meugle, meute, honteuse (with some variations, meule may be heard with either pronunciation). It is possible to interpret this partial phonetic change as a case of residue caused by competing change (cf. Wang [1969]). The change of [ø] to [œ] in closed stressed syllable was just a case of allophonic change. However, when the opposition between the [œ] reflex of shwa and the vowel [ø] which existed primarily only in unstressed open syllables was extended to stressed open syllables, the opposition between [œ] and [ø] gained significance in the language, and appears to have been extended to closed syllables, thus blocking the change of [ø] to [œ] in words such as jeûne, meute, etc. which had not yet been affected by this change.

Other evidence that the [œ] reflex of [ø] has been reanalyzed as a distinct phoneme is provided by the behavior of unstressed [ø] in open syllables. As noted by Fouché (1959, 1969), the only occurrences of graphic eu pronounced [œ] in MF are found in words that have a paradigmatic variant where this eu is stressed and open,⁷ e.g. gueule : gueuler. This indicates that there has been a paradigmatic regularization in the words where this eu was historically closed. Actually, we observe that the regularization of these unstressed eu vowels has been variable and that in many cases where an unstressed eu opened, the closed variant is still possible, e.g. oeuvrer [øvre]~[œvre] regularized on the basis of oeuvre, aveugler [avøgle]~[avœgle] on the basis of aveugle, esseulé [esøle]~[esœle] on the basis of seul, pleuvoir [pløvwar]~[plœvwar] on the basis of il pleuve, jeunot [zøno]~[zœno] on the basis of jeune, and peureux [pørø]~[pœrø] on the basis of peur, etc. On the other hand, eu remains stable when it corresponds to a closed stressed [ø], as in ameuter [amøte]~*[amœte], which corresponds to meute [møt]. If the variation between [ø] and [œ] in unstressed position is the result of a regularization modeled on the vowel in stressed position, we should not expect to see any variation in words which have been derived after the time of the opening of [ø] to [œ] in stressed position. For example, if the verb bluffer is derived after this change from the noun bluff [bløf], then it must have been pronounced [blœfe] from the time of its creation, and we should not expect to hear *[bløfe]. This appears to be partially true, e.g. gueuler [gœle]~*[gøle] derived from gueule [gœl], oeufrier [œfrije]~*[øfrije] from oeuf [œf], and bluffer [blœfe]~*[bløfe] from bluff [bløf]. However, this evolution is sometimes obscured since, at least in PF, the alternation [œ]~[ø] in unstressed position has been taken as a model and has been extended in some cases to create a new process which is sometimes referred to as vowel harmony, which we shall discuss briefly in subsection 2.5.

The historical evolution of PF thus shows that the modern sources for [œ] are (1) modern reflexes of shwa in open unstressed syllables (these were later extended to some stressed open syllables) and (2) the opening of [ø] in stressed closed syllables, which was also later extended to some unstressed open syllables. The opposition between [ø] and [œ] in unstressed position was initially possible only in open syllables, but after shwa syncope and new derivations, the opposition can be found in some closed syllables, thus: Eustache [østaʃ] vs. restructuration [rœstryktyrasjɔ̃], meunerie [mønrɪ] vs. feuilleter [fœjɛt] and breveter [brœvɛt]. These kinds of oppositions, however, are very limited. We can therefore say that there was never a widespread opposition between the [œ] reflex of shwa and the [œ] reflex

⁷In fact, this generalization should be qualified, for in particular, before r we sometimes hear [œ], as in pleurésie, pleurote, although the pronunciation with [ø] also occurs very frequently: [plørezɪ], [pløʁɛt].

of [ø]. Still, in MF the grammar must eventually distinguish between two kinds of [œ]: one stable /œ/ as in *vous gueulez* [vugœle]~*[vuglœ] and one fleeting /œ/ as in *vous gelez* [vuʒœle]~[vuʒlœ], and we shall therefore expect some reanalysis to take place, as we shall see in section 3.

2.5 But first, we must turn to a question which is often raised: is it true that the [œ] reflex of shwa is to be equated with the [œ] reflex of [ø]? For instance, there appear to be some indications that the two varieties of [œ] were distinct in the eighteenth century. In his *Remarques sur la grammaire générale* (of Arnauld and Lancelot) Duclos distinguished two series of velar obstruents which must correspond to the distinction between palatalization and non-palatalized velars. Thus he says that *k* and *g* are strong (i.e., non-palatalized) in the words *calendes*, *gomme*, but weak in the words *bouquet*, *queue*, *vainqueur*, *cuiller*, *gueule*, *guide*, *gué*, *baguette*. And although he describes the reflex of shwa in the word *tombe*, which he takes as an archetype for the other reflexes of shwa, as "la voyelle *eu*, surde et affaiblie" (although I doubt that it was "affaiblie" in the initial syllables of words such as *guenon*), he specifies that *k* and *g* are strong before these reflexes in the words *banqueroute*, *quenouille*, *guenon*, *bague*. This could be taken to indicate that the [œ] in *gueule* was distinct from the [œ] in *guenon*, since only the former palatalized a preceding *g*. This can also be interpreted as an indication that palatalization became contrastive in the language. This kind of contrast is described by Cochet (1933) in the Picard dialect of Gondecourt, in which he observed that *k* and *g* are normally palatalized before front vowels, e.g. [ker] 'choir', [kœr] 'coeur', [gerɛy] 'jarret', [gœl] 'gueule'. They remain velar before the reflex of shwa (which is [e] in this dialect) both when it is realized as the alternation [e] ~ Ø, as in [kmẽ]~[kemẽ] 'chemin', [gnil]~[genil], 'guenille', or as stable (i.e., not syncopable) [e], as in the words [kenœl] 'quenouille' or [gerny] 'grenu'.⁸ In modern PF, this opposition has disappeared, and *k* and *g* are palatalized before both varieties of [œ]. Most modern linguists agree that there is no phonetic

⁸The same kind of opposition seems to be developing in PF, where [ɔ] is fronted to [œ] (Martinet [1958]), as for instance in *rhum* [rœm]~[rœm], *somme* [sœm]~[sœm], *joli* [ʒœli]~[ʒœli]. However, (as in *comme*, *gomme*) *k* and *g* are not palatalized when they precede an [ɔ] realized as [œ]. This contrasts with the palatalization of *k* and *g* before the other occurrences of [œ], as in *cueille* and *gueule*. This means either that the fronted reflex of [ɔ] is not as centralized after *k* and *g* as it is after the other consonants, or that the opposition *k/k* and *g/g* is contrastive: *gomme* [gœm] vs. *gueule* [gœl]. Precise phonetic studies are needed to settle this point.

opposition between the two kinds of [œ] in Paris, cf. Fouché (1959, 1969:519 et seq.), Grammont (1954:115), Dell (1973a). Martinet (1969:210) claims that there are some speakers for whom the two vowels are distinct, "qui doivent représenter encore la majorité, au moins dans la France non-méridionale", although he says (Martinet [1958]) that in Paris "on ne sait trop si l'on doit ou non compter certains 'e' muets comme des /œ/ dans premier et brebis par exemple". Pleasants (1956) conducted a series of experiments to show that the two kinds of [œ] have phonetically different characteristics. Her conclusions, however, should be taken with some reservation. Her study was both biased and normative; she selected her subjects from higher socioeconomic groups, since she believed, as noted by Martinet (1956), that "la tendance à la confusion [of both kinds of [œ]] est un fait largement répandu dans les usages populaires." She trained her subjects to distinguish in isolation the [œ] reflex of shwa from the [œ] reflex of [ø] (cf. page 28), which means she was able to produce, or have someone produce, the [œ] reflex of [ø], a sound that is never found stressed in an open syllable. She also asked her subjects to compare the phonetic values of the [œ] reflex of shwa in the normally unstressed clitic ne with the [œ] reflex of [ø] in neuf (cf. page 32), both of which are in totally different environments, one being in an open syllable, the other in a closed syllable. In spite of this selection of subjects, and the training to which they were subjected, two from a total of eight (subjects A and B) could not distinguish between je ne vaux rien and jeune vaurien, and two again (subjects B and E) could not distinguish between le rô and leur eau.

In a recent socio-linguistic study on the speech of women in Paris, Peretz (1977) also notes that the historical shwa is realized everywhere as [œ] or [ø]. According to her study, historical shwas which appear in stressed position in bois-le and sur ce are realized as [œ] in higher socioeconomic groups, and as [ø] elsewhere. When historical shwas appear in unstressed position, the distribution is almost inverted, and they are realized mainly as [œ], except among younger speakers of the lower socioeconomic groups, where they tend to be [ø]. My own observations indicate that for many speakers (I have no idea of what proportion, nor what socioeconomic groups they represent) in Paris and Québec there is no phonetic opposition between the two kinds of vowels. I have, for instance, observed frequent confusions between the symbols [ə] and [œ] in the otherwise reliable phonetic transcriptions of many students both from Paris and Québec (e.g., feuille [fəj], jeunesse [ʒənəs], or menu [mœny]). (Needless to say, most of them learned later to make the proper distinction between the symbol [ə] and the symbol [œ], especially when their grades were at stake.)⁹

⁹*It also appears that in dictionaries of pronunciation, the spelling of the word is a guide for the distinction between [ə] and*

The same confusion is observed frequently in the secondary schools of Québec when the students are presented with the IPA for the first time. I have heard several teachers complain that their students were unable to make the distinction between [ə] and [œ]. The same "mistake" is found in le Petit Larousse (1973 to 1976) where we find the "normal" transcription [œ] in the English borrowings bluff, club, turf, nurse, puzzle, rush, tub, hold-up, etc., but [ə] in night-club. Nonetheless, I must admit that the results from discrimination tests that pair off the two vowels are difficult to evaluate. As we have noted above, most [œ] reflexes of [ø] in open unstressed syllables may still have a closed variant, and a test using the pair abreuvait:à brevet may be instead comparing [ø] with [œ]. In closed syllables the situation is clearer, since in this position the [œ] reflexes of [ø] show less tendency to revert to [ø], especially when they are closed by [r], e.g. je ne vaux rien:jeune vaurien or le retour:leur tour. Other cues, however, may be used to distinguish between almost identical pairs. For instance, in le retour, the consonant [r] may be distinctively more devoiced than in leur tour, thus producing the contrast [lœrtur] : [lœxtur]. A better test for the distinction between these two kinds of vowels would involve contrasting the two in stressed closed syllables, where the [œ] reflex of [ø] does not normally revert to [ø] in Paris and in Québec, e.g., ils veulent [ivœl]~*[ivøl]. Normally the [œ] reflexes of shwa do not occur in such contexts. A small number of cases which involve the abbreviation of words (e.g. the common prof for professeur, or the more restricted circul for circulation) create such contexts. Thus we hear prem for premier (spoken frequently in Paris schoolboy slang), rem for remise 'incomplete' (heard at the University of Montréal), and also (jokingly) bret for bretelle, brel for brelan (these are non-standard). In all these cases, the [œ] reflex of shwa appears undistinguishable from the [œ] reflex of [ø].

2.6 Still there may be some basis for the notion that some [œ] reflexes of [ø] may be phonologically distinct from the [œ] reflexes of shwa in unstressed open syllables. Thus we have seen that the eu in breuvage could correspond either to [œ] or [ø], which is not, for example, the case for the e in fermeté. It appears that in Paris (I have not observed the same tendency in Québec) the variation between [ø] and [œ] observed in breuvage tends to be conditioned by the following vowel. Thus before [ə], and more particularly before [ø], we observe that the variant [ø] is frequently retained, e.g. pleureur [plœœr], but not *[pløœr]; note, however, pleureuse [plœrøz]~[plørøz], malheur [malœr]: malheureux [malœrø]~[malørø]. Not all [œ] reflexes

[œ]. For instance, Juilland (1965) opposes the two vowels in couleuvreau [kulœvro] and coulevrine [kulœvrin], but Robert (1968) does not, for it lists: couleuvreau [kulœvro], coulevrine [kulœvrin]. In both cases, the pronunciation indicated is in conformity with the spelling.

of [ø] follow this pattern, e.g. gueuleuse, bluffeuse. On the other hand, some [œ] reflexes of shwa do behave this way, e.g. demeurer [dœmœre]~[dœmœre], plus de cheveux [pydœœvø]~[pydœœvø], plus de neveu [pydnœœvø]~[pydnœœvø], dangereux [dœzœœrø]~[dœzœœrø]. The effect of this vowel harmony is to cause the two varieties of [œ] to merge.

Another kind of harmony typically applies to the [œ] reflex of shwa: when this [œ] is followed by [ɔ], it may become [ɔ] (and since sometimes [ɔ] may also become [œ], we have three possible variants), as in e.g. menotte [mœnœt]~[mœnœt]~[mœnœt], frelon [frœlɔ̃]~[frœlɔ̃]. This harmonization affects the [œ] in words such as breloque, pelotte, belotte, grelotte(r), chevrotte(r), but fails to apply in words such as rebord, tenon, quenotte. It is hard to find examples in which an [œ] reflex of [ø] is subject to this harmony; the only two words that I can find are the learned pleurote, and the rare jeunotte. If we turn to sequences of words, we find cases which indicate that the [œ] reflexes of [ø] may also be subject to the same kind of harmony, e.g. dans leur loge, pronounced as if it were dans l'horloge. Here again, it does not appear that this phonological process distinguishes the two kinds of [œ].

3. The modern status of shwa in word-internal position

3.1 We have seen previously that the shwa in French changed its status from that of a reduced vowel to that of a full vowel. The rules of shwa syncope which affected it when it was a reduced vowel necessarily lost their phonetic or phonological conditioning. The nature of these rules then must also have changed, and we should expect to see some reanalysis, probably along the line advocated by Venneman (1972, 1974a) and Klausenburger (1976, 1978). We should expect to see some partial or complete morphologization of the rules and/or their inversion. In other words, the modern counterpart of shwa syncope could either be a rule of /œ/-deletion (in which case the rule would not have been inverted), or a rule of [œ]-epenthesis. Furthermore, this rule should be partially or completely morphologized. It is clear that some morphologization has taken place. If we compare the modern reflexes of shwa before the suffixes -rie, -ron, -ment, -té on the one hand, and before the future-conditional suffixes -rai, -rons, etc., and the imperative enclitics -moi, -m'en, -toi, on the other, we observe a striking difference. The historical shwa has been preserved after LO groups before the suffixes -rie, -ron, -ment, -té, as in la garderie, le forgeron, le versement, la fermeté, but not before the others, as in je garderai, nous forgerons, renverse-m'en, affirme-toi, as we have seen in 1.4. The difference of treatment for the modern reflex of shwa can easily be described in morphological terms: after LO groups, the modern reflex of shwa is preserved in derivational morphology, but not in the inflectional or clitic morphology (unless it is followed by LG groups, as in vous garderiez, ne renverse-rien, or preceded by OL

groups, as in vous soufflerez.) It is not clear, however, whether or when there has been inversion of the rule of shwa syncope in each particular case. We shall examine these cases in the following subsections.

Note that this argument contends that the reanalysis of shwa syncope must have taken place because a change occurred in the phonetic nature of shwa. The fact that the [œ] reflex of shwa came to be identical to the [œ] reflex of [ø] could only augment, but was not a requirement of, the necessity for reanalysis. When the two reflexes became identical, there existed two kinds of [œ] in the language: the reflex of [ø], which was stable in every position, as in the verb gueuler, and the reflex of shwa, which could be omitted in some cases, as in the verb geler. We would also expect here a levelling to occur between the two kinds of [œ], as we have previously seen happen between the [e] reflex of shwa and the other kinds of [e].¹⁰ Still, there is a fundamental difference between the two phenomena: when the [e] reflex of shwa emerged in the language, other [e] vowels already existed in the language, whereas when the [œ] reflex of shwa emerged, the language contained no [œ] vowel. It was only later that the [œ] reflex of shwa came to be identical to the [œ] reflex of [ø] (and this was not achieved in certain conservative socioeconomic groups, according to some descriptions). In particular, we would not be surprised that in words such as gobélet, hannéton, cannévas, hamécon, allémand, tafélas, the historical shwa was never restored as [œ] because the words have been reanalyzed without an underlying shwa before the levelling took place, as we will discuss later.

In the following subsections, we shall examine the status of the non-alternating reflexes of shwa (§3.2), the reflexes of shwa before derivational suffixes (§3.3), and before the future-conditional suffixes (§3.4), as well as before the reflexes of historical shwas alternating with [ɛ], as in appeler [aple] ~ j'appelle [ʒapɛl] (§3.5).

3.2 If we accept the postulate of natural phonology (Venneman 1973, 1974b, Hooper 1976) that non-alternating morphemes are underlyingly identical to their phonetic realization (minus possibly some late phonetic details), then we must assign to words in which the reflex of shwa is always absent, (as in hannéton, cannévas, hamécon, samédi, allémand, carrefour, massépain, cassérole, tafélas, gobélet, chapélet,

¹⁰We note that Southern speakers will do some levelling, but in this case by extending the rules of shwa syncope to the [œ] reflex of [ø], as has been noted for instance by Martinet (1974:216) in déjeûner, pharmaceutique, à dix mains. It should be pointed out that this does not constitute a historical change within French, but rather a case of bilingual contact. Sociolinguistic factors are involved here, [œ]-deletion being socially more prestigious than its retention.

matélas, cadénas, haquénée, médecin, cliquétis, brodéquin) underlying representations without any vowel for the historical shwa (/antō, kanva, amsō, etc./). In words such as marguerite, tourterelle, bordereau, mercredi, vendredi the [œ] reflex of shwa is always present, and thus will appear in the underlying representation. It has sometimes been argued that a consonant before a non-pronounced historical shwa is different from the same consonant before another ordinary consonant. Thus Damourette and Pichon (1911-1927:172 et seq.) contrast acné and haquénée. Apparently the [k] of acné is not released, whereas it is in haquénée. If such a contrast has ever existed at some period in some socioeconomic classes, it has left no trace in modern French, and no contrast can be observed in the articulation of the first consonant in pairs such as Annécy: stencil, samédi: rumba, haméçon: Ramses, allémand: almanach, carréfour: parfait, massépain: aspect, cassérole: Israël, tafétas: aphteux, gobélet: douplet, chapélet: couplet, matélas: atlas, cadéna: adné, haquénée: acné, médecin: adsorber, cliquétis: actif. If our hypothesis is correct, namely that words in which the shwa is not pronounced have no underlying vowels, then we predict that when the [œ] reflex of shwa becomes reanalyzed as a stable /œ/, it will not resurface in words such as samédi, haméçon, etc. On the other hand, if the underlying forms of these words had an underlying /œ/ (diacritically marked to indicate that it is subject to a rule of /œ/-deletion), i.e. if these words were underlyingly /samœdi, amœsō, kasœrɔl, kadoœna, etc./, we would expect to find pronunciations such as [samœdi, amœsō, kasœrɔl, kadoœna], etc., when /œ/ is reanalyzed as a stable /œ/. This kind of reanalysis seems to occur frequently when the historical shwas occur in initial syllables (cf. the historical shwas in bedaine, bedeau, bedon, belette, belote, benêt, benoit, besace, besogne, besoin). We know that the [œ] reflex of shwa could delete in these words in some environments, but could remain in others, thus leading to some alternations, e.g. la belette:uné belette. This is reported by grammarians and is still observed in some conservative PF speech (incidentally, it is still the norm in the regional French of Saint-Etienne). For these words, it is possible to postulate that the underlying form contained a fleeting /œ/ (i.e., /œ/ diacritically marked to undergo /œ/-deletion), as in /bœlet, bœlot, bœzwě, etc./, since this [œ] appeared in some environments. When /œ/ is reanalyzed as a stable /œ/, we would expect the pronunciation [bœlet], [bœlot], [bœzwě] in every environment. And this is exactly what is observed in the speech of many both in Paris and in Quebec. The historical shwa in these words is simply no longer deletable. This reanalysis is actually rather systematic and affects the great majority of historical shwas found in the first syllable of a word. For instance, most speakers I have observed now exhibit an underlying stable /œ/ in the initial syllable of most words in which the historical shwa is followed by a liquid, e.g. la querelle, la belette, la belote (il veut) la peler, la pelote (basque), unless the word had already been reanalyzed without an underlying /œ/, as in the words

péluche, pérote (de laine), where the historical shwa is never pronounced.¹¹ These historical shwas in the initial syllable of a word which are frequently reanalyzed as stable /œ/ in Paris and Québec contrast with word-internal shwas which show no such tendency. This evolution, therefore, gives strong support to the claim that no underlying vowels exist in these words.

Still, we observe some isolated cases where the historical shwa appears as [œ] in environments where we would expect it to have historically syncopated, thus weakening the claim we made that all syncopated shwas have been eliminated from the underlying phonological representation of the words. We shall show that there are other explanations for these facts. In PF we observe stable /œ/ in the following examples:¹²

- (6) a. échevélé, ensevélir, décevrai, reseméler
 b. empennage, champenois, dépenaille, dépecer, happening
 c. redevance, concevoir
 d. derechef,
 e. dangereux, papetier, papeterie
 f. hallebarde, souverain(e), gantelet, écheveau

We know that some of the words in (6a) historically had a stable [ɛ] and that the current [œ] was probably introduced later as a back formation. It is also possible that for the contexts in which examples (6a) and (6b) are found, shwa syncope was less frequent or impossible.

¹¹I am aware that within the framework of a theory requiring that every time an allomorphic variation is levelled, the phonological form underlying the allomorph is necessarily the surviving form, the fact that a word such as péluche [plyʃ] has been reanalyzed without an underlying vowel in place of the historical shwa will require that its underlying form be /plyʃ/, even when it still had two allomorphs [pœlyʃ] and [plyʃ]. It is not impossible that such a reanalysis took place for péluche, pélotte, and not for belote, belette, which could be later reanalyzed with a stable /œ/. It could be that other explanations are available to account for allomorphic levelling. Whatever theory we invoke, it will have to explain why the historical shwa has been completely eliminated in words such as pélotte but retained as stable [œ] in almost identical words such as belote.

¹²In my own speech, this restoration is optional in words such as concevoir ~ concévoir (but not in the future and conditional where the "e" is always pronounced: concevrai.), dangereux ~ dangéreux, and souverain(e) ~ souvérain(e).

We know, for instance, that in modern PF a historical shwa never deletes in the context $\check{s} - vr$ in the initial syllable of a word, e.g. chevreau, chevrette, chevreuil, etc. It is probable that shwa deletion was also impossible, or at least less frequent, in the environments $\check{s} - vl$, $s - vl$, $s - vr$, $s - ml$, as found in (6a), or $p - n$, $p - s$, as found in (6b), although the case for (6b) is less clear than the case for (6a). We find French pn and ps sequences in the learned borrowings hypnose, absent showing that there is no strict phonotactic constraint against them. The treatment of English borrowings, however, indicates that the pn sequence is not favored in MF. The borrowing travelling is pronounced [travliŋ], without the English e. However, this e is pronounced [œ] in the borrowing happening, thus breaking the pn sequence. The case for ps is not as clear, since the word gibécère is normally pronounced without any vowel between b and s. Examples in (6c) are even less clear, because the retention of shwa could be due to the phonetic environment, or to the fact that these words are not common. Shwa retention may also be due to the fact that the root in these words may be found after other prefixes where shwa is retained, (as in les rédevances, percevoir), or to the fact that the [œ] appears in the future tense (as in percevoir: je percevrai), or to any combination of the above factors. Example (6d) is a typical case of learned borrowing from Old French. The first word of (6e) is also difficult to interpret; it could be a real case of restoration of the historical shwa as [œ]; it could also be an archaism. Poisson (1609) says that the normal spelling of dangereux was at this period dangeureux. The examples (6f) appear to me to be cases in which [œ] is restored through the influence of the spelling, although they are not real cases of borrowings as in (6d). They are relatively infrequent words of literary usage. It seems then that their spelling has influenced their current pronunciation. For instance, we observe no such example of restoration in the words riverain or allemand, which appear much more frequently in ordinary speech. The same situation is found in Québec. The constraint against the deletion of shwa in the environment $\check{s} - vr$ could be recent (and probably borrowed from PF), since we sometimes hear the pronunciation des chevreuils [deʒvrø]. There might also have been a further constraint on shwa deletion in Québec; thus accounting for the fact that it surfaces as [œ] in the examples (7):

- (7) a. bouquetière, noisetier, papetier, cafetière
 La Gauchetière, guichetière, cimetière, lunetier,
 gibecière
 b. pelletier, cabaretier
 c. aqueduc, mineral, ennemi

In at least some of the words in (7a) the shwa thus could have been preserved all the way through. In the words in (7b), however, such a position is more difficult to maintain, since no [œ] is found in charrétier. These are rare examples (as may be some of the words in (7a)) and can be considered learned words, much as those in (7c).

From the analysis of such words, it appears that these are not cases of restoration of a shwa as [œ] in word-internal position, as is common for the shwa in the initial syllables of words. These examples appear to be mainly cases where the shwa had never syncopated originally (nor restored) or cases of literary or learned borrowings (in some cases it is hard to know whether the word is a survival or a borrowing). I should insist again that even these cases involve a very small portion of word-internal historical shwas.

Before we turn to the analysis of alternating shwas, we shall look at some of the objections that have often been raised against an analysis in which the historical shwas do not appear underlyingly, and finally at Martinet's position on word-internal shwas.

It is sometimes argued in abstract analyses that the presence of internal shwas is necessary to account economically for the phonotactics of the language, and in particular for the distribution of nasal sounds. I refer to Tranel (1974, 1978) for a refutation of these arguments.

It is also sometimes argued that the [œ] vowels should be underlying because they appear in Southern French. Tranel (1974) again argues against this position, claiming that there is no reason to believe that Northerners and Southerners have identical underlying phonological representations, and that anyway, this position leads to many difficulties. He thus observes that Southerners will pronounce [eksœpre] for expres, but that this in no way can be the proper underlying form for Northern French because the historical reflex of shwa does not delete in this position [cf. fixement]. The same line of argument could be offered to account for the pronunciation of the words rumba, samba [sœmba], which must be roughly identical with respect to shwas in both Northern and Southern French. In this case, if the underlying form is /rumba, samba/ we get the wrong phonetic form for Northern French; if it is /rumœba, sam(m)œba/ we get the wrong phonetic form for Southern French. Actually, there is a simpler, long noted empirical observation which indicates that Southern and Northern French have completely different phonological systems with respect to the [œ] reflex of shwa. For instance, Martinet (1969) notes that when upper class Southerners try to imitate PF, they apply the rules of /œ/-deletion to both the [œ] reflexes of [ø], and to [ø] itself, e.g. déjeuner. This indicates that in this variety of French no distinction exists between the phonological status of the [œ] reflex of shwa, the [œ] reflex of [ø], and [ø], thus making it unlike Northern French where such a distinction is observed, for instance, in the verbs geler /ʒœl+e/, gueuler /ɡœl+e/, and meuler /møl+e/. If the two systems are so different at such a superficial level, how can we expect to find a correspondance at a higher level? In particular, how can we justify an underlying /œ/ distinct from /œ/ in Southern French, if such a contrast is never observed in this variety?

The last argument concerns the status of internal historical shwas in poetry and songs. It is a fact that the historical shwa in words such as samedi may be sounded in poetry or in songs. All that can be said here is that most speakers of French know how to read French, and were taught when a graphic e must or must not be pronounced. In classical poetry these rules have been laid down by versifiers, and are relatively easy to state in terms of the spelling. In songs, the rules are slightly different, in that the pronunciation of lyrical [œ] is often more optional and may also be used at the end of a word, even though it is not indicated in the spelling (at least in folk songs; conventional verse will not allow this extension), as in the following: Grand Dieu! Quelle dommage! ("L'oiseau des bois" by le Rêve du Diable, record TAM-27009). I do not see why these facts should constitute an argument for or against an underlying shwa in French words such as samedi. Singers and readers of poetry have to learn when and where to introduce this [œ], a skill that is difficult to acquire, as any elementary school teacher well knows, and one that clearly depends on the spelling. I think that these facts, however, could more properly be relegated to another register, containing secondary aspects of the language. For instance, in this secondary register some speakers will have the information that although the normal pronunciation of a word is (A), it should be pronounced (B) when it rhymes with (C) in seventeenth century poetry, as in the examples below:

A	B	C	
<u>net</u> [nɛt]	[nœ]	<u>baudet</u> [bodɛ]	La Fontaine, <u>Les animaux malades de la peste</u> , 54-55.
<u>tous</u> [tus]	[tu]	<u>loups</u> [lu]	La Fontaine, <u>Les obsèques de la lionne</u> , 36-37.
		<u>fous</u> [fu]	La Fontaine, <u>La laitière et le pot au lait</u> , 32-33.
<u>rieur</u> [rijœr]	[rijø]	<u>Monsieur</u> [mœsjø]	La Fontaine, <u>Le savetier et le financier</u> , 17-18.

Included in this same register are the instructions that hiatuses in poetry and in songs must be broken by consonants, thus yielding the typical liaison pattern observed only in poetry and in songs. It is clear in this case that the speakers will learn some set of rules to that effect. This can be shown by the observation that school children will introduce in songs false liaison which they never would in ordinary speech, as in the following verse of the folk song "A la claire fontaine":

Tu as le coeur à rire
Moi, je l'ai-z-à pleurer

It is clear, therefore, that in this second register not every expression is memorized, that some rules do exist. It is evident that these rules may be related to the spelling when the speakers know how to spell (one may pronounce a [z] in j'avais-z-un chapeau, but not in j'ai-z-un chapeau). In linguistic communities where the conventional spelling does not play the same role, the rules of epenthetic consonants have no orthographic basis. For instance, we observe in Québec (from a collection of folk songs by Marguerite et Raoul d'Harcourt [1956]) that [t] is regularly introduced between a verb and its complement, as in the examples below:

il m'ont donné-t-un don
 au château de mon père y a-t-une princesse
 j'ai-t-un lit garni
 ma mère me renvoie-t-au marché
 j'ai-t-aperçu-t-un' réelle beauté
 apprends-moi-t-à parler

No doubt, this second register can give us some indication about the phonology of present-day French. For instance, the fact that we hear a yod in the expression enfants de la patri-ije may indicate that there is, or was, a productive rule of yod epenthesis between i and a following vowel. On the other hand, I do not see what can be drawn from the pronunciation of historical shwas in words such as samedi, except that the spelling is relevant for this second register. For example, some French-speaking Catholics have some knowledge of Latin by having attended church at the time when Mass was conducted in that language. It is clear that they relate many pairs such as dieu and deum, much as they relate pairs such as samedi (spoken French) and samedi (poetic or lyric French). Does this imply, however, that dieu and deum are related at the phonological level?

This does not mean that spelling pronunciations may not eventually make their way into the language. We have clear examples of this from the restoration of preconsonantal obstruents as in object, suspecte, dompter, sculpter. It is likely that this same kind of influence led to the restoration of [œ] in words such as souverain in Paris, or aqueduc in Quebec, much in the same way that mea culpa has been borrowed from Church Latin.

Martinet (1969) proposed that the [œ] reflex of shwa should be absent from the underlying representations, and that therefore, it should be introduced by epenthesis. This approach may be adequate to describe what happens between words; there are, however many examples to show that this is not generally the case. Martinet assigns a special status to the [œ] reflex of shwa in dehors [dœr], which constitutes a minimal pair with dors [dɔr], but not to the [œ] reflex in other words, apparently because no true minimal pairs are attested. However, there are many cases of near-minimal pairs which are a result

of some of the reanalyses of historical shwas we have observed before. It is not sufficient to show that there are no minimal pairs between the [œ] reflex of shwa and Ø to demonstrate that they can all be introduced by epenthesis. We must also propose a rule of epenthesis which is simple and general enough to account for all cases. If a language user must learn for each word whether or not, and where, [œ] should be introduced, then it is simpler to posit this [œ] as part of the phonological representation of the word. Apparently, there are no rules which could account for the presence of [œ] in the words in the left column of (8), nor for its absence in those of the right column.

(8) a.	tourter <u>e</u> lle	arthrite	*[artœrit]
	marguer <u>i</u> te	Margrite	(proper name)
	border <u>e</u> au	perdrix	*[pœrdœri]
	malter <u>i</u> e	pellét <u>e</u> rie	
b.	d <u>e</u> hors	il dort	*[dœor]
c.	dere <u>c</u> hef	torchon	*[tœrœʃ]
	halle <u>b</u> arde	albâ <u>t</u> re	*[alœbatr]
d.	dere <u>c</u> hef	brebis	*[bœrœbi]
	qu <u>e</u> relle	crê <u>m</u> e	*[kœrœm]
	be <u>l</u> ette	blett <u>e</u>	*[bœlɛt]
	sque <u>l</u> ette	sclérou <u>s</u> e	*[skœlɛroz]
	chaper <u>o</u> n	apprê <u>t</u>	*[apœrɛ]
	sou <u>v</u> erain	ouvrag <u>e</u>	*[uvœraʒ]
	Kat <u>e</u> ri	Cath <u>e</u> rine	
e.	secr <u>e</u> taire	scrutin	*[sœkrytɛ]
f.	dép <u>e</u> cer	éclipser	*[eklipœse]
	emp <u>e</u> nnage	hypnose	*[ipœnoz]
	pap <u>e</u> tier	captiez (vous)	*[kapœtje]
	pap <u>e</u> t <u>e</u> rie	dioptr <u>i</u> e	*[diopœtri]

It is clear that there is no way to predict whether [œ] will appear in an LOL group as in (8a), before a vowel as in (8b), in an LO group as in (8c), in an OL group as in (8d), in an SO group as in (8e), or in ps, pn, and pt groups as in (8f). The only possible solution is to posit [œ] in the phonological representation.

3.3 In this subsection we shall turn to the reflexes of shwa which appear before the derivational suffixes. We shall first look at the suffixes -ment₁, -ment₂, -té, -rie, -ron, -let, listed in the examples below. Of these suffixes only -ment₁ and -rie appear to be really productive in modern French, although -ment₂ is also very

frequent, and could be considered productive.¹³

- (9) a. sifflement, encerclement
hurlement, gouvernement, débarquement
désistement
gisment, battment
reniement, éternuement
- b. pauvrement, tendrement, probablement
expertement, fermement
tristement, exactement
bravement, sagement, froidment
hardiment, absolument
- c. acreteé, tendreteé
fermeté
chasteteé
rareé, faussé, honnêé
bonté
- d. diablerie, sucrerie
fourberie, garderie
dentisterie, brusquerie
duperie, ânerie
chierie
- e. forgeron, percheron
tacheron, beauceron, puceron
- f. aigrelet
verdelet, orgelet
rondélet

Note in the examples above that each of these suffixes has a variant with an initial [œ] when it is preceded by two or more consonants:

¹³We should possibly add to this list the suffixes -lot, and -reau. The first one is very restricted, and occurs at most in a few words. The suffix -reau is limited to rare and technical words such as hachéreau, mâtéreau, hottéreau, mottéreau (listed in le Grand Larousse Encyclopédique, for instance, but not in le Petit Larousse). It appears only in one common word, lapéreau. We would have to assume that this word is derived from lapin, and we would have to analyze -in as a suffix which is truncated along the lines suggested by Aronoff (1976:88 et seq.). The rare word raméreau could be derived from ramier through the addition of the suffix -reau and truncation of the suffix -ier. It could also be derived through the adjunction of the suffix -eau also found in lièvre:levr(e)au, couleuvre:couleuvreau, baleine:baleineau, etc.

[-amõ, -ete, -eri, -erõ, -elɛ], but none elsewhere: [-mõ, -te, -ri, -rõ, -lɛ]. We shall call this initial vowel derivational [œ]. The only apparent exceptions are observed in connection with the suffix -rie, which appears after two consonants in words such as grainétérie [grɛntri], pellétérie [pɛltri], louvétérie [luvtri], or briquétérie [briktri]. For these words, however, there is some evidence suggesting the sequence [-tri] to be an allomorph of the suffix -rie, which is found also in the words bijoutérie, cloutérie, etc. as we shall see in §3.4. It is clear that the rules accounting for the presence or absence of derivational [œ] cannot be strictly phonological. If we take the basic form of the suffixes to be /-mõ, -te, -ri, -rõ, -lɛ/, we will need a rule of epenthesis which will introduce a derivational [œ] in the words gouvernement, fermeté, garderie, forgeron, verdet; yet there is no phonological necessity for this [œ] since there is no similar obligatory epenthesis in the expressions gouverne-moi, affirme-toi, il perdra, nous forgerons, garde-les. We must then specify that it is only before derivational morphemes that this epenthesis is obligatory. If we take the underlying forms to be /-amõ, -ete, -eri, -erõ, -elɛ/, then we will have to postulate a rule which deletes /œ/ after a vowel or a single consonant only when it belongs to a derivational suffix, yet does not affect the /œ/ occurring in the words déjeuner, chaperon, derechef. It is sometimes assumed that there are independent justifications for this rule, the same rule would also be responsible for the loss of the [œ] reflex of shwa elsewhere. It is true that all the potential rules of /œ/-deletion share some properties, and this is normal if we remember that their historical source is shwa syncope, but there are some properties which they do not share and which suggest that they are in fact different. For instance, in normal speech, and even more so in fact speech, the [œ] reflex of shwa will optionally delete in the initial syllable of a word in environments where the derivational [œ] is obligatory, e.g. dans cinq semaines vs. prolixement, (c'est pas) pour demain vs. raccordement. We observe that under the same circumstances, the [œ] reflex of shwa will delete in proclitics in environments where derivational [œ] is obligatory, e.g. pour le mettre vs. parlement, pour te mettre vs. appartement, pour se mettre vs. versement, pour me taire vs. fermeté, pour te rendre vs. sparterie, pour se rendre vs. mercerie. It will also delete optionally before enclitics in contexts where derivational [œ] must be pronounced, e.g. apporté-moi vs. appartement, soufflé-moi vs. sifflement, ouvte-moi vs. pauvrement. Finally, it also deletes before the future and conditional endings in environments where the derivational [œ] must be pronounced, e.g. je garderai vs. la garderie. It is not certain whether all these historical shwas (and in particular the shwas in the proclitics, before the enclitics, and as we shall see in §3.4 in the future and conditional endings) should be synchronically analyzed as underlying fleeting /œ/. If they are not, then they cannot be used as evidence that the rule accounting for the deletion of inflectional [œ] is independently motivated. In conclusion, there does not appear to be any

internal motivation to show that derivational [œ] is deleted or inserted. If we turn to the evolution of these suffixes, the two hypotheses make different predictions. The hypothesis according to which derivational [œ] is inserted would have phonological representations without any vowel corresponding to the historical shwa, and we would expect derivational [œ] to disappear progressively in environments where this would lead to possible consonant clusters, as for instance in the words appartement or garderie. On the other hand, the hypothesis in which derivational [œ] is underlyingly a fleeting /œ/ deletable after a single consonant or a vowel would lead us to expect that as /œ/ is reanalyzed as a stable /œ/ the historical shwa should resurface as [œ] everywhere, e.g. in the words chierie, duperie, éternuement, etc. We observe one case of reanalysis involving the suffix -rie: thus we have gendarmerie with a derivational [œ], but infirmérie without it. It is hard to decide which of the two words ending with the suffix -rie after a [rm] sequence. It is likely though that gendarmerie corresponds to the original form since derivational [œ] appears normally after two consonants. The evolution in infirmérie would then favor the hypothesis according to which derivational [œ] is inserted. However, this change is very limited and does not show any tendency to extend to other -rie suffixes. It could also be argued that infirmérie is no longer analyzed as derived from infirmé (which is possible, due to the semantic difference between the two words; cf. gendarmerie which, on the other hand, is closely related to gendarme). Another frequently heard restoration of derivational [œ] in Québec (but not in Paris, according to my observations) is sainteté (particularly in sa sainteté, le Pape N.). But here again, no firm conclusion can be drawn, since this phenomenon does not show any sign of being extended to other -té suffixes. (I have also observed this [œ] in netteté and (mal-) honnêteté in the speech of some persons, although it cannot be excluded that on these occasions they may have been trying to speak "properly".)

If we turn however to the suffix -resse we observe a clear tendency to pronounce a derivational [œ] in the words demanderesse, défenderesse, enchanteresse, chasseresse, vengeresse, though its absence is certainly at least as frequent. In this case there is another way to deal with the phenomenon in question. The feminine suffix -resse corresponds often to the masculine suffix -eur [-œr]: demandeur, défendeur, enchanteur, chasseur, vengeur. It can be argued that the feminine suffix has been reanalyzed as the sequence of the two suffixes /-œr/ and /-es/, this last suffix being the feminine suffix found in tigresse (from tigre), maïresse (from maire), or maîtresse (from maître), etc. Some justification for this reanalysis is provided by the fact that a word such as sécheresse, which cannot be analyzed as an animate feminine word, is never reanalyzed with [œ]; it appears also to have been extended in the speech of school-children in Paris to a word such as docteur, whose feminine is often docteresse instead of doctoresse (although it cannot be excluded that herē the change of [ɔ] to [œ]

is a case of centralization of [ɔ], see note 8). The reanalysis observed here does not therefore provide evidence for or against underlying derivational [œ].

Thus in conclusion it appears that there is no real empirical evidence to favor epenthesis over deletion in accounting for the distribution of derivational [œ] and we shall leave the problem open.

3.4 We turn now to the evolution of thematic shwa in the future and conditional tenses. In Old French there were three paradigms for the future and conditional tenses, exemplified by the conjugation of the verbs devoir, porter, and sortir in the conditional, as given below:

Paradigm I	Paradigm II	Paradigm III
dēv rojə	port ə rojə	sort i rojə
dēv rojəs	port ə rojəs	sort i rojəs
dēv rojt	port ə rojt	sort i rojt
dēv rijens	port ə rijens	sort i rijens
dēv rijets	port ə rijets	sort i rijets
dēv rojənt	port ə rojənt	sort i rojənt

In paradigm I, the endings -roie, -roies, -roit, -riens, -riez, and -roient appear directly after the verbal stem; in paradigm II, the endings are similar but are all preceded by shwa, and in paradigm III the endings are again similar to the endings of paradigm I but are all preceded by [i]. Following Schane (1968a), we shall call this augment the theme of the future-conditional. By this definition, paradigm I will be athematic, paradigm II will have a shwa theme, and paradigm III an [i] theme. Note that in this definition the theme belongs to the verbal ending, and not to the stem as in the traditional analyses in speaking of thematic vowels. The [i] theme of the future is actually an infinitive theme which has been extended to the future-conditional. In MF most verbs which have an [i] theme in the infinitive, also have an [i] theme in the future-conditional. Standard French verbs such as mourir, courir, secourir, cueillir, (re-)quérir, which have an [i] theme in the infinitive but no theme in the future-conditional constitute exceptions (although all of these verbs have been described ever since the 17th century or earlier as verbs which may be conjugated with an [i] theme in the future-conditional by at least one grammarian). Surprisingly, the [wa] theme of the infinitive has not been extended to the future, and all verbs taking a [wa] theme in the infinitive are athematic in the future-conditional, e.g. pleuvoir and il pleuvra, not *pleuvra. (This is to be distinguished from the cases il promouvoyait, il promouvra, where [wa] has been reanalyzed as belonging to the verb stem.) Two main historical changes have affected these future-conditional paradigms. First, the first and second person plural endings of the conditional changed from -iens, -iez to -ions [-jɔ̃(ns)], -iez [-je(s)].

Second, shwa syncope applied to these shwas. In the seventeenth century, therefore, we should expect a merging of the first two paradigms, except for the first and second person plural endings of the conditional, where the sequence [rj] prevented the loss of the preceding shwa. Still, the two paradigms are very close, and we have seen that in some dialects there is no contrast between the two, e.g. in the Vendéen dialect described by Svenson (1959) (in favor of paradigm II), and in the Gallo dialect of Pléchatel (also in favor of paradigm II). In Paris, there appears to have been some tendency to level the opposition. Billecoq (1711) claimed that paradigm I had replaced paradigm II everywhere and said in particular that -iez was di-syllabic (i.e. is pronounced [ije], which is indicative of paradigm I, as we shall see) in the second person plural of the conditional "de quelque verbe que ce soit: comme vous aimeriez, vous crieriez, vous devriez." (cited by Fouché [1966:742]). Still, these tendencies have not run to completion, and what we observe now is a lot of variation between the two paradigms. Furthermore, we find that paradigm II has split into two paradigms. Thus we have four paradigms, as exemplified by the conjugation of the verbs perdre, garder, darder, and sortir in the conditional below:

Paradigm I	Paradigm IIa	Paradigm IIb	Paradigm III
šperd rɛ	žgard rɛ	ždard [œ] rɛ	ššort i rɛ
typerd rɛ	tygard rɛ	tydard [œ] rɛ	tysort i rɛ
iperd rɛ	igard rɛ	idard [œ] rɛ	isort i rɛ
nuperd rijɔ̃	nugard [œ] rjɔ̃	nudard [œ] rjɔ̃	nusort i rjɔ̃
vuperd rije	vugard [œ] rje	vudard [œ] rje	vusort i rje
iperd rɛ	igard rɛ	idard [œ] rɛ	isort i rɛ

In Québec we find basically only the three paradigms I, IIa, and III (although apparently paradigm IIb is advancing, probably under the influence of PF), and our discussion in this subsection will be restricted to PF.

In paradigm IIa the [œ] theme is found only before [rj], i.e. with the first and second person plural endings of the conditional. In paradigm IIb, the [œ] theme is found in all the future-conditional endings.

Verbs with an [i] theme in the infinitive generally follow paradigm III, except possibly for certain speakers for whom verbs such as mourir, courir, secourir, (re-)quérir, cueillir, bouillir, saillir, assaillir, and tressaillir, will instead follow paradigm IIa. Thus most speakers of PF will use thematic [œ] in the first and second person plural endings of the conditional of the verbs courir, mourir, etc., e.g. vous moureriez, vous coureriez, vous secoureriez, instead of paradigm I, as the traditional spelling would lead us to expect. (This also occurs in Québec.)

Verbs with a [wa] theme or without a theme in the infinitive can all follow paradigm I, as they were all historically athematic in the future-conditional. However we observe that most of these verbs may also follow paradigm IIa when their stem ends in a consonant. I have observed the use of paradigm IIa with verbs whose stem ends in [rd], as in perdre, tordre, in [t], as in battre, mettre, in [d], as in tendre, prendre, vendre, in [p], as in rompre (the only instance of verbs which historically followed paradigm I to end with [p] in MP), in [v], as in vivre, suivre, concevoir, décevoir (in fact, a great proportion of the speakers that I have questioned could only use paradigm IIa with vivre and suivre). Most verbs whose stem ends with a consonant can follow this paradigm but not all: I have never observed it with devoir, for instance. Verbs such as vouloir and connaître, in which the consonant is part of the stem only for the future-conditional and sometimes for the infinitive, can sometimes follow paradigm IIa. I have observed vous voudriez, vous connaîtriez, vous paraîtriez. These verbs can also follow paradigm IIa with the present stem: vous écriveriez, vous paraîseriez. $IIc = IIb \text{ sans } [oe]$

Verbs with an [e] infinitive follow ~~paradigm I~~ when their stem ends with a vowel, e.g. il sciéra, vous jouerez. They normally follow paradigm IIa when their stem ends with a single consonant, e.g. il lavéra, vous laveriez. They follow paradigm IIb when they end with an OL group. In the other cases, i.e. when they end with a LO group, or an OO group, they may follow either paradigm IIa or IIb. The choice between paradigms IIa and IIb is not completely clear. Common verbs will tend to follow paradigm IIa, e.g. garder, rester, adopter, whereas less common verbs tend to follow paradigm IIb, e.g. darder, promulger, capter. In my speech the verb percer, which is ambiguous and may mean "to drive a hole" or "to become famous", will follow paradigm IIa when it has the first meaning, but paradigm IIb, when it is used with the second meaning. Verbs with an [e] infinitive may follow paradigm I, but how frequently, and in which contexts, is hard to determine. Occurrences of a verb in the second person plural of the conditional are very low, not to mention those of the first person plural, which is usually replaced by the third person singular on. I have observed the use of paradigm I with the verbs demander, apporter, rester (in spontaneous formal speech), with regretter (in a film dubbed in French), with acheter (in spontaneous informal speech), and with jeter, rejeter, lever, relever, soulever, achever (in a test where I was observing the nature of the alternation [ɛ] ~ Ø). Tranel (1974) makes the same observation for the verbs demander, aider, and aimer, and Martinet (1969) mentions it for the verb demander. We have seen that, according to Billecoq (1711), this could occur with any verb in the 18th century. I am convinced that in MF it can occur with any verb whose stem ends with a plosive or the bilabial fricatives f and v (i.e., consonants which may form syllable-initial groups with r), but that it is much less frequent in the other cases. Specifically when the radical ends with a liquid, I am unable to use paradigm I. This

is not true of all speakers, however, for I have heard one of my colleagues at the Université Laval say during a television interview, je ne vois pas pourquoi nous retir^{er}ions [roetirrjɔ̃] notre confiance Note that in this case the personal endings -ions is [-jɔ̃] and not [-ijɔ̃], as in the case after an OL group.

From these observations we may conclude that no necessary correlation exists between the infinitive theme and the future-conditional theme, except perhaps for the [i] themes where a stronger suggestion of correlation can be found (even though this is a statistical correlation, not a strict correlation, as we have seen). The distribution between paradigms I, IIa, and IIb partially obeys some phonological constraints. After a vowel we can only find paradigm I. Paradigm IIb can only be found after a sequence of two consonants. It is then only after a sequence of two consonants that we may contrast the three paradigms. There are only three verbs which historically were athematic, viz. perdre, mordre, tordre; their stem ends with two consonants. It appears that these verbs may follow paradigm I and IIa, but not paradigm IIb: *je perdrais, *je tordrais.¹⁴ Verbs such as rester, garder seem to be able to follow all three paradigms, but verbs such as narguer, promulguer seem to be able to follow only paradigms IIa and IIb, but not paradigm I (*vous nargueriez, *vous promulgueriez).

How can we account for these themes and this variation? It has been traditionally assumed (Dell [1973a, 1975], Morin [1974]) that the variation observed between paradigm IIa and IIb was phonological, but that the variation between paradigm I and paradigms II (IIa and IIb) was morphological. In these analyses, it is assumed that there are three possibilities: one athematic future-conditional for paradigm I, an /œ/ theme underlying both paradigms II, and an /i/ theme underlying paradigm III. The variation between paradigms IIa and IIb would be due to a variable rule of /œ/-deletion; thus the underlying form for garderez would be /gard+œtr+e/ > [gardœre] ~ [gardre], and for darderez /dard+œtr+e/ > [dardœre] ~ [dardre]. The fact that in the first pair, [gardœre] ~ [gardre], the second realization is the most frequent, whereas in [dardœre] ~ [dardre] the first variant is preferred, would be attributed to some ill-understood stylistic processes. The rule required to account for this variability differs totally from the rule of /œ/-deletion that we would have to postulate to account for the distribution of derivational [œ]. In particular, thematic /œ/-deletion should be able to delete variably (but not obligatorily) after an LO group or an OO group, in exactly the positions where derivational [œ] must remain. This rule applies only to thematic /œ/ and has no

¹⁴ Still, we can hear in a song sung by Gilles Vigneault the verse perdrerais-je ma peine, perdrerais-je mon temps? where the thematic [œ] is hard to interpret, but could be a poetic license for a thematic [œ]. This is perhaps to be compared to the thematic [œ] that can be heard sometimes in folk songs in verbs such as il viendra.

other equivalent in the phonology of French. This makes a very weak case for a phonological analysis of the variation between paradigms IIa and IIb. But it appears that this analysis cannot account for the data anyway. We have noted before that verbs such as perdre could follow paradigm IIa. In this analysis, the underlying form for perderiez would contain /œ/, which then must also be present in the other persons of the future and conditional. In particular, we should be able to construct a possible underlying form /perd+œ+r+e/, which gives [pærdœre] when the optional rule of thematic /œ/-deletion does not apply. This possibility is not attested. The claim underlying a phonological analysis of the alternation between paradigms IIa and IIb is that they are possible variants of each other, but this claim is disproved by the verbs perdre, mordre, tordre, which may follow paradigm IIa, but not paradigm IIb. In fact, the alternations between the four paradigms could all be considered morphological. The difference between the four surface paradigms would thus correspond to four underlying paradigms.

Two possible analyses of these four underlying paradigms may be proposed. The first hypothesis would be to characterize them as follows:

- paradigm I: theme ∅
- paradigm IIa: theme /œ/ first and second person plural of the conditional
- paradigm IIb: theme /œ/ everywhere in the future-conditional
- paradigm III: theme /i/ everywhere in the future-conditional

The absence of historical shwa in je garderai would not be due to the application of an ad hoc morphophonological rule, but simply to the fact that there is no underlying [œ] in this form, just as there is none in je perdrai. This analysis would regard the loss of historical shwa in je garderai as a case of morphological levelling of paradigm II to paradigm I (the levelling would have occurred everywhere, except in the first and second person plural endings of the conditional). This analysis thus has the advantage of bringing together the paradigms I and IIa, which as we have seen, tend to be rather interchangeable in the language; but it also has some drawbacks. First, it implies that for paradigm IIa the theme would be restricted to some persons and thus complicates the overall analysis of the French verb. (It is possible that this happens elsewhere in the verb system, but this would require more investigation.)¹⁵

¹⁵For instance, I have observed in my own speech that the *i*-theme of the future-conditional of dormir may be optionally ∅ in the future, and [œ] in the conditional, but only for the second person plural: vous dormerez mieux [dœrmre], vous dormeriez mieux [dœrmreje]. I have no idea whether this is purely idiosyncratic or shared by other speakers.

Second, it draws a sharp distinction between paradigms IIa and IIb. Still, we have seen that there is frequent variation between the two paradigms. In this analysis, the [œ] theme of paradigm IIa should be at least as stable as derivational [œ]. The overall situation is not altogether clear. If we look at verbs such as relaxer, which normally follow paradigm IIb, as in je relaxerais, moi, we find that they tend to follow paradigm IIa when the future-conditional suffix is unstressed, e.g. when it is followed by an enclitic, as in je relaxerais pas, moi, although the pronunciation with [œ] is still possible, but less frequent. This behavior of thematic [œ] is unlike that of the usually stable derivational [œ] which appears even when the suffix -ment (the only suffix for which this can happen) is followed by another suffix, as in gouvernemental, gouvernementalisme, départemental, départementaliser. According to this analysis, a verb would be said to follow paradigm IIb when the sentence stress falls on its ending, but paradigm IIa when it does not. Alternations which depend upon the position of the stress are normally felt to be phonological alternations rather than morphological alternations. We shall see a similar problem when we analyze the alternation [ɛ] ~ Ø in vous achèterez ~ vous achèterez (§3.5).¹⁶

The second hypothesis for the analysis of the four underlying paradigms is prompted by the behavior of the alternation [-jɔ̃] ~ [-ijɔ̃] and [-je] ~ [-ije] of the first and second person plural endings of the conditional in paradigm I. In Morin (1976), I proposed that the underlying form for the first and second person plural endings of the conditional be /r+iɔ̃/ and /r+ie/. In these endings, /i/ is prevocalic and is realized as [j] except after OL groups, which can occur only in paradigm I, e.g. mettriez [mɛt+r+ie/ > [mɛtri~~j~~e], where the resulting [j] is a transitional [j] found elsewhere in the language. Elsewhere, /i/ always appears as [j] since a thematic vowel [œ] or [i] precedes the r, e.g. vous garderiez /gard+œ+r+ie/ > [gardœrje], vous sentiriez /sɑ̃t+i+r+ie/ > [sɑ̃tir~~j~~e]. When we examine the four paradigms we observe a parallelism between the [œ] found in paradigm IIa and the [i] found before the [jɔ̃] and [je] endings of paradigm I. In paradigms IIb and III, the thematic vowel is not systematically phonologically motivated: there is no need for a vowel in je mentirais, or in je darderais. This is different in the case of the [œ] vowel found in paradigm IIa. The vowel appears only when it is necessary to prevent the formation of a CLG group. We find something similar

¹⁶We could also propose a compromise between this solution and the traditional analysis, in which the variation dardera-dardéra is phonological, since it is conditioned by such factors as stress and speed, but the variation gardera-gardéra would still be morphological, since it is observed independently of stress and speed. In this case there would be one form /dard+œ+r+ɑ/ underlying the alternation dardera-dardéra, but two forms /gard+r+ɑ/ and /gard+œ+r+ɑ/ underlying the alternation gardera-gardéra.

in paradigm I. It is only in this paradigm that an "extra" [i] occurs before the endings [-jɔ̃] and [-je] to prevent the formation of a CLG group. According to this second analysis, there are only two thematic paradigms: paradigms IIb and III. Paradigms I and IIa could be viewed both as athematic; the vowels [œ] and [i] of the first and second person plural endings of the conditional are epenthetic vowels introduced by morphophonological rules to eliminate CLG groups. These epenthesis rules have to be lexically conditioned, because there are some verbs (very few in spontaneous speech) for which only one of these rules is possible, e.g. devoir, in which [i] must appear in vous devriez [vudœvrije] but not [œ]: *[vudœvɛrje].¹⁷

3.5 In §3.3 and 3.4 we examined the status of historical shwas when they did not alternate with full vowels in stressed position. This remaining kind of alternation (viz. shwa versus full vowel in stressed position) will be the object of this subsection. Of the original cases of alternation between shwa and stressed vowels in French, we still find traces of the following, although it is possible that they were once more extensive:

- (10) (a) [wa] ~ [ə] : poids:peser, doit:devoir
 (b) [jɛ] ~ [ə] : tiens:tenir, pied:peton
 palmier:palmeraie, charcutier:charcuterie
 (c) [e] ~ [ə] : chanter:chanterai
 pensé-je: je pense
 oranger:orangerie, berger:bergerie
 (d) [œ] ~ [ə] : chasseur:chasseresse
 (e) [o] ~ [ə] : chapeau:chapelier, bordeau:bordelais
 (f) [ø] ~ [ə] : cheveux:chevelure, échevelé
 (g) [a] ~ [ə] : achat:acheter, savate:savetier
 champagne:champenois
 (h) [ɛ] ~ [ə] : chèvre:chevreau, fougère:fougeraie
 j'amène:amener, hôtel:hôtelier

(douceur
douceur)

In these examples, the unreduced variant occurs in stressed position, and the reduced variant in unstressed position. Actually, the unreduced variant may also be found in a syllable which historically was in pre-pre-stressed position. This case, however, is limited to the alternation (10h), as discussed in §2.2. In MF most of these alternations have been lexicalized, i.e. they apply only to a very limited set of words or suffixes, and are usually not regular.

¹⁷ I have observed one speaker who inserts an epenthetic i in the first and second person plural endings of the conditional for the verbs courir and mourir. Thus she says je courrais, tu courrais, il courrait, nous courrions, vous courriez, ils courraient. This would be another case of lexically conditioned epenthesis in a consonant-heavy environment [rrj]. In this case, it is clear that the nature of this vowel is related to the thematic vowel of the infinitive.

The alternation (10a) appears in MF as the alternation [wa] : [e] in the pairs croire:créance, foi:féal, espoir:espérance, hoir:héritage, or as the alternation [wa] : /œ/ as in the pairs moins:menu, poids:peser, soir:serein, poil:peler, voile:velet, je dois:devoir, je (re-)çois:(re-)cevoir. This alternation involves very few words (the list given is at least indicative, if not exhaustive); it is not very transparent in some cases, e.g. soir:serein, and except for the verbal radicals devoir and -cevoir, it is completely idiosyncratic, cf. croire:créance but nous croyons, espoir:espérance but j'espère, etc. It is clear that these forms should be regarded as suppletive in MF.

The alternation (10b) appears in MF as the alternation /je/ : /e/ of siège:séance, pied:péage, ciel:céleste, bien:bénir, (j'ac-)quiers:(ac-)quérir, minier:minéral or as the alternation /je/ : /œ/ of grief:grever, nièce:neveu, pièce:dépecer, pied:peton, chien:chenil, papier:papetier, lièvre:levraut, ramier:ramereau, panier:panerée, as well as in the suffix -ier(e):-er- of palmier:palmeraie, charcutier:charcuterie, minier:minerai. In this case too, the alternation involves very few words and only one suffix. Except for the verbal radical -quérir, it is completely idiosyncratic, e.g. pied:peton, but also piéton; pièce:dépecer, but also je dépece. With regard to the suffix -ier, it may not even constitute a case of variation between -ier(e) and -er-. This suffix may only be followed by the suffixes -aie, or -ie (the only exceptions are minier:minerai, if we consider that the two forms are morphologically related, and ouvrier:ouvriérisme, where it is not certain that this is synchronically a case of suffix -ier, and where the alternation does not occur anyhow). There are some indications that we should instead consider -raie, -rie as independent morphemes. We have isolated one morpheme -ier(e), but in fact, we should probably require two homophonous productive -ier(e) suffixes. The first one derives from a noun X, which is normally the name of a fruit, the noun X+ier referring to the tree bearing that fruit, e.g. pomme:pommier, pistache:pistachier, groseille:groseillier. This suffix may be followed by the suffix -aie (and only by this suffix) to indicate the place where this kind of tree grows, e.g. pommier:pommieraie; the suffix -aie is also adjoined to nouns referring to trees which are not derived, e.g. chêne:chênaie, orme:ormaie. The second -ier(e) suffix is used to derive the noun for a profession or an occupation, e.g. serrure:serrurier. This suffix may be followed by the suffix -ie (and only by this suffix) to indicate the activity associated with this profession, the place where this profession is carried on, etc., e.g. serrurier:serrurerie, charcutier:charcuterie. The case for the autonomy of the suffix -raie is not as compelling as the case for the autonomy of the suffix -rie. Still, we find in the word ronceraie, where the morphological analysis is more likely to be ronce+raie (a place where brambles [ronces] grow) than roncier+aie (a place where bramble bushes [ronciers] grow). If we analyze -raie as an autonomous suffix, then we will have to admit that in the derivation of pommieraie [pɔmrɛ] from pommier [pɔmjɛ] there is a rule that truncates the suffix ier [-je] along the line suggested by

Aronoff (1976): /pɔm+je/+/rɛ/ > /pɔm+rɛ/. This kind of suffix-truncation is actually independently motivated to account for the derivation of coudraie from coudrier, and olivaie from olivier. The case for the autonomy of -rie is clearer, and we find many instances of the suffix -rie in derived words which cannot be related to a corresponding -ier(e) suffix. This is true not only in words such as diablerie, ânerie, but also in nouns that clearly refer to occupations, such as orfèvrerie, ébénisterie, fumisterie (derived from orfèvre, ébéniste, fumiste, respectively) and probably also in the words parfumerie, brasserie, (derived from parfumeur, brasseur), for which we would have to postulate the truncation of the morpheme -eur. Whatever analysis is adopted to account for -rie, -raie, it is clear that the historical alternation [jɛ] ~ [ə] has left too few traces in French to be considered even a morphophonological alternation, and that these should more properly be analyzed as cases of lexical alternation.

The alternation (10c) has also almost disappeared from the language. It is limited to three cases. The first is the alternation between the [e] of the infinitive and the [œ] of the future-conditional. These two markers are completely dissociated in MF. The [œ] theme may appear in verbs which historically followed paradigm I and may now also follow paradigm IIa in the conditional, e.g. vous connaîtriez. The corresponding infinitive, however, does not take the marker [e], e.g. connaître does not become *connaître. Similarly the verb fiche follows paradigm IIa, but has no ending [e] in the infinitive for most speakers, e.g. tu vas me fiche la paix, à la fin. The alternation (10c) is also observed in so called subject inversion constructions, as in pensé-je:je pense (cf. Cornulier [1977]), where it has also been completely morphologized. The ending -é-je [-eʒ] (and for some speakers, [-eʒ]) has been reanalyzed as an independent suffix /-eʒ/ (or possibly as a sequence of two suffixes /-e+ʒ/, the last one being the clitic subject je), which has been extended to verbs which historically did not end with a shwa. Thus, I have heard in spontaneous (although upper class) speech croyé-je, instead of crois-je; this indicates that the suffix /-eʒ/ should be analyzed like, for instance, the suffix /-ɛ/ of the imperfect singular in je croyais /ʒ+krwaj+ɛ/, and should be interpreted as a marker of parenthetical verbs. Finally, the alternation (10c) is found in pairs such as boulangier:boulangerie which should receive the same treatment as the alternation charcutier:charcuterie we have examined before. To my knowledge, the alternation (10c) has been extended to a single derivation: café:cafétière. In conclusion, then, the alternation (10c) is no longer morphophonological or phonological in MF.

The alternation (10d) is historically limited to the suffix -eur, as we have seen previously in 3.3. The suffix -resse appears to be in the process of being regularized as /-œr + ɛs/. When and if this restructuring is completed, the alternation will have disappeared. In the meantime, we should consider -eur/-resse as two suppletive

allomorphs of the same morpheme, just as we do in the case of -eur/-euse in the masculine/feminine pairs menteur:menteuse, or -teur/trice in acteur:actrice. Still, we observe some innovations which may indicate that the alternation (10d) has been morphologized: the word speaker has been borrowed as [spikœr] 'announcer', and receives the feminine speakerine [spikrin]. I have also heard several times the feminine successérice [syksɛsris] for successeur [syksɛsœr]. These innovations, as far as I know, are limited to these words (we have seen previously that the alternation in parfumeur:parfumerie should be best analyzed as a case of suffix truncation).

The alternation (10e) has left more traces in French than the others. Historically, it appears to have been restricted mainly to the suffix -el/-eau, which has since lost its status as a suffix. This increased the number of independent lexical items in which the alternation is found. Juilland (1965) lists 25 words which participate in this alternation. Of these 25 words, 18 also participate in the alternation (10h):

- (11) (a) chameau [ʃamo] chamelle [ʃamɛl] chamelier [ʃamɛlje]
 (b) morceau [mɔrsɔ] je morcelle [ʒmɔrsɛl] morceler [mɔrsœle]
 (c) chapeau [ʃapo] chapellerie [ʃapɛlri] chapelier [ʃapɛlje]
 (d) château [ʃato] châtellenie [ʃatɛlni] châtelain [ʃatlɛ̃]

For these 18 words, or at least most of them (the paradigm [11d] is limited to this stem) we could strongly argue that the alternation (10e) is only a byproduct of the alternation (10h). The only independent cases of alternation (10e) are then limited to the following stems: bordeau:bordelais, pinceau:pincelier, manteau:mantelet, anneau:annelé, créneau:crénelé, and perhaps also moineau:moinelet, rondeau:rondelet (these last two diminutives are not listed in le Petit Robert, but seem to me to be quite possible). This alternation should also be regarded as a case of lexical alternation. More evidence for this comes from the fact that new derived words do not necessarily show this alternation (e.g. biseau:biseauter, poireau:poireauter, chapeau:chapeauter) even when, as is the case with chapeau, the variant chapel- exists, cf. chapelier, chapellerie.

To the best of my knowledge, the alternations (10f) and (10g) are limited to the examples given in (10).

The alternation (10h) is much more important than all the other alternations listed in (10). Juilland lists about 130 verbs following the model je mène:mener:je mènerais (of which one third to two thirds are either unknown or limited to the infinitive and/or past participle for the speakers whom I have tested). We observe that the alternation (10h) is found in derivational morphology mainly before the suffix -ier(e). Interestingly enough, this happens only after words ending

in: -el/-elle, as in hôtel:hôtelier, dentelle:dentellière (18 occurrences in Juilland); -ette, as in lunette:lunet(t)ier (11 occurrences); -et, as in robinet:robinetier, sorbet:sorbetière (9 occurrences), and -aine, as in dizaine:dizenier (3 occurrences). This may indicate that most of these words were derivatives containing a suffix which has lost its status. To my knowledge the alternation occurs only unfrequently before suffixes other than -ier(e), and is observed in the following pairs (the list is again indicative, if not exhaustive): chèvre:chevreau, fougère:fougéraie, chapelaine:chapellenie, châtelaine:châtellenie, vilaine:vilénie, soutènement:souténir, avènement:avénir, cuillère:cuillérée-cuilléron, mamelle:mamelon-mamelu, brochet:brocheton-brochetaille, valet:valetaille, mousquet:mousquetaire, haleïne:haleinée, Genève:genevois, Cévennes:cévenol, vipère:vipéreau (this last word has also a variant vipéreau). The alternation (10h) also has the interesting property of being the only one which shows cases of alternation in historically pre-pre-stressed position, as we have seen before. Previous generative analyses have regarded this last alternation (alternation (10h)) as a case of phonological alternation. Selkirk (1972) proposes an analysis according to which both alternations (10b) and (10h) are phonological. In her analysis, the underlying form for the variants in the alternation (10b) is /jɛ̃/; for the variants in the alternation (10h) it is /ɛ̃/. Her analysis involves two phonological rules: one which reduces /jɛ̃/ and /ɛ̃/ to shwa in prestressed position, and another which deletes the shwas in the proper contexts (i.e. not after two consonants, nor before an LG group). She is not concerned with the other alternations which could in her analysis be either (morpho-)phonological or simply lexical. Thus, for instance, the underlying form for nous appelons would be /nuz+apɛ̃l+ɔ̃/. After reduction of /ɛ̃/ to shwa, it becomes /nuz+apɛl+ɔ̃/, and eventually after shwa deletion [nuzaplɔ̃]. The underlying form for serrurerie would be /sɛryr+jɛ̃r+i/, which becomes /sɛryr+ɛr+i/ after reduction of /ɛ̃/ to shwa, and eventually [sɛryrri/ after shwa deletion. This analysis accounts for the fact that in pre-pre-stressed position we find a vowel [ɛ]. This is simply because underlyingly it is /ɛ̃/ which is not subject to change, e.g. hôtellerie would be derived from /otɛ̃l+jɛ̃r+i/; since /jɛ̃/ is in pre-stressed position, it is converted to shwa, thus giving /otɛ̃l+ɛr+i/ and, after shwa deletion, [otɛlri]. In the same manner, j'appellerai would be derived from /ʒ+apɛ̃l+ɛ̃r+ɛ/, in which the stem /ɛ̃/ is unchanged due to the presence of a thematic vowel in pre-stressed position subject to the rule of pre-stress reduction. This results in /ʒ+apɛ̃l+ɛ̃r+ɛ/, and then [ʒapɛlre] (the thematic vowel in Selkirk's analysis is /ɛ̃/ which reduces to /ɛ/; the force of her argument would be unchanged had she chosen instead to have directly a thematic /ɛ/). The vowels /ɛ̃/ and the diphthong /jɛ̃/ which are subject to the rule of pre-stress reduction must be diacritically marked since it is not the case that all underlying /ɛ̃/'s and /jɛ̃/'s are subject to this rule, e.g. the /ɛ̃/ in rêver is stable in all positions: rêver, je rêve, je rêverai, as is the /jɛ̃/ in pierre: pierre, pierreux, pierrerie.

Actually, cases in which /jɛ/ would potentially be subject to this rule are very limited, and for most of them an analysis with diacritics is not possible. Thus /jɛ/ in pièce, pied, papier, je tiens, je viens, should be diacritically marked as undergoing pre-stress reduction to give dépecer, peton, papetier, je tenais, je venais, but not piècette, piéton, papiéter, 'to cover with wall paper', je tiendrai, je viendrai. Furthermore, underlying /jɛ/ should also be underlyingly /ɛ/ in grief, pièce, to account for alternations such as grever:je grève, dépecer:je dépèce, and to account for the behavior of speakers who show the alternation papetier:papeterie [papetri] in the stem for papier. In fact, only for the suffix -ier(e) Selkirk's analysis is relevant. If this is the case, simplicity requires that she analyze -rie and -raie as underlying /-əri/ and /-ærɛ/ (or /-ər+i/ and /-ər+ɛ/), which would still preserve the force of her argument for the alternation (10h) without her having to consider the alternation (10b) as phonological.

Dell (1973a) proposes instead that the vowel underlying the alternation (10h) be /ə/, which means that the historical rule of vowel reduction is inverted in the phonology of MF. This commits him to consider all the other alternations ((10a) to (10g)) to be morphological or lexical. He proposes that the vowel underlying the alternation (10h) is /ə/, and that there is a rule of shwa conversion which transforms /ə/ to [ɛ] in various contexts: first, in a closed syllable, e.g. robinet /rɔbinɛt/ > /rɔbinɛt/ (he has a rule deleting final /t/, thus >[rɔbinɛ]); second, in an open syllable if it is followed by another /ə/, e.g. robinetterie /rɔbinɛt+əri/ > /rɔbinɛtəri/ which gives [rɔbinɛtri] after shwa deletion. This definition of shwa conversion also accounts for [ɛ] in historical pre-pre-stressed position. In this analysis, the underlying representation of the suffixes -rie and -raie are not necessarily phonologically related to the suffixes -ier(e), and can be /-əri/, /-ærɛ/ (or /-ər+i/, /-ər+ɛ/). Still, these suffixes and the future-conditional suffixes must begin with an initial /ə/ to allow for the conversion of shwa in stems. In robinetterie and j'achèterai for instance, if there were no initial shwas, the underlying forms would be /*rɔbinɛt+ri/ and /*ʒ+asɛt+r+ɛ/. The rule of shwa conversion could not apply, giving the wrong form *[rɔbintri] and *[ʒasɛtrɛ], parallel to the current derivation for il sevrail /il+səvr+ɛ/ > [isœvrɛ].

The Selkirk and Dell analyses share the fact that they regard the alternation (10h) as a phonological process which modifies a diacritically marked segment /ɛ, jɛ/ or /ə/ in a completely phonological context. In both analyses, this context becomes opaque at the phonetic level. Underlying /ɛ/ remains [ɛ] (or underlying /ə/ becomes [ɛ]) when it is underlyingly in pre-pre-stressed position, although on the surface it appears in pre-stressed position, e.g. j'achèterai, robinetterie. In particular, both analyses require an underlying thematic vowel to account for the variant [ɛ] in the

future and conditional tenses. But it appears clearly that in MF the presence of a thematic vowel is unrelated to the occurrence of [ɛ] in the future and conditional tenses. We have seen that most speakers may choose to use paradigm I (without underlying theme) instead of paradigm II. This does not influence the nature of the vowel in the stem. Thus, speakers who use [ɛ] in vous achèteriez [vuzaʃɛtɔʁje] will also use it when they choose to follow paradigm I, thus giving [vuzaʃɛtriʒ]. We shall see later that some speakers use the stem /aʃɛt-/ only when it appears bare at the phonetic level, as in j'achète, and the stem /aʃt-/ when it is followed by a suffix, as in nous achétons. Again, this usage is independent of the presence of a thematic vowel in the future and conditional tenses. Some speakers say vous acheteriez as [vuzaʃtɔʁje], and others as [vuzaʃtriʒ]. It appears that the presence of [ɛ] in the verbal paradigm has been morphologized, and that it is conditioned by morphological features (in particular by the markers of the future and conditional tenses) and not by the thematic vowel of the future-conditional phonetically absent in most of the paradigm. It is clear then that the phonological analyses proposed by Selkirk and Dell have to be replaced by morphophonological ones.

Both the Selkirk and Dell analyses treat verbal and nominal stems identically. Still, we observe a striking difference between the two types of stems. The tendency in the nominal stems is to level the historical alternation (10h) to [ɛ] everywhere. Instead of halénée, vilénie, vipéreau, cuillérée, we often hear [alɛne], [vilɛni], [vipɛro], [kwijɛre] on the basis of the pronunciations of haleine, vilaine, vipère, cuillère. This is particularly true before the suffix -ier(e), where we hear variably \emptyset or [ɛ] in such words as robinetier [rɔbintje] ~ [rɔbinɛtje] which are regularized on the model of the stem, here robinet. We see the opposite tendency in the verbal stems, where we hear je cach'te, je fur'te, j'empagu'te on the basis of the infinitive cachéter, furéter, empaquéter. Selkirk's analysis can easily account for the levelling in the nominal stems. In her analysis, the form underlying the alternation (10h) is a diacritically marked /ɛ̃/; thus the underlying form for vilénie, robinetier, would be /vilɛ̃ni/, /rɔbinɛ̃tje/. The passage of /ɛ̃/ to /ɛ/ constitutes a simple loss of the diacritic. In Dell's analysis, however, the underlying form for these words would be /vilɛni/, /rɔbinɛtje/, and the change would require two steps. First the words vilénie, robinetier are lost from the language (or at least in the language inherited by some speakers), which allows the reanalysis of the stem for vilaine and robinet from /vilɛn/ and /rɔbinɛt/ to /vilɛn/ and /rɔbinɛ(t)/. The second step in the evolution would be the derivation of vilénie and robinetier from the new underlying forms: /vilɛni/ and /rɔbinɛtje/. But this evolution is hardly possible for vilénie, as it would require a derivation by suffixation of -ie, which is not productive in MF after adjectives or for most of the other regularized words. This derivation precludes the

possibly (attested in fact) for both the old and new variants to co-exist in the speech of the same individual, e.g. guichetier [gištje] ~ [gišetje], cabaretier [kabartje] ~ [kabarœtje] ~ [kabarētje]. Conversely, Dell's analysis could account better for the levelling observed in the verbal stems. It looks as if we should analyze differently the historical alternation (10h) in the verbal stems and in the nominal stems. I shall argue that this is the case, but that we need actually three underlying forms to account for the alternation (10h): a vowel /ê/, as proposed by Selkirk for the nominal stems (but not for all the nominal stems); a vowel /œ/ as proposed by Dell to account for some of the verbal stems; and Ø for some of the nominal and verbal stems. In particular, I shall argue that the underlying form for étincelle is /etēsɛl/ with an underlying stable /ɛ/ but /etēsɛl-/ for the stem of the verb étinceler. It may seem at first that it would be better if both underlying forms were identical as is the case in the Dell and Selkirk analyses. But it is clear that we cannot as a rule require that the two forms should always be identical without unnecessarily complicating the grammar. We know that there is no necessary identity between related verbal and nominal stems in French. For instance, there are many speakers who have only one stem /kašt-/ , /fyrt-/ , and /pakt-/ in the paradigm of the verbs cachéter, furéter, empaquéter, for which there can be no doubt that the underlying form has no underlying vowel. Still, the corresponding nominals cachet [kašɛ], furet [fyɛ], paquet [pakɛ], will contain an underlying vowel [ɛ]. Actually, there are few cases where we need two underlying forms for the verbal and the nominal stems. Out of some 130 verbs listed in Juilland which participate in the alternation (10h), there are only 19 verbal stems of the type étinceller, where the [ɛ] in the verbal form ça étincelle would be unrelated synchronically to the [ɛ] in the nominal form une étincelle. There are approximately the same number of verbal stems of the type anneau:anneler, carreau:carreler that contain [ɛ] which (assuming that these verbs are not limited to the infinitive and past participle) is phonologically unrelated to [o] in the corresponding nominal stem.

I propose, then, that the vowel underlying the historical alternation (10h) be /ê/ in nominal stems that contain [ɛ] in the underived stem, e.g. lunet(t)ier /lynèt+je/ > [lyntje], hôtelier /otêl+je/ > [otœlje] because of the [ɛ] in lunette, hôtel. I propose a rule similar to Selkirk's which transforms /ê/ to /œ/ in pre-stressed position. This allows us to account for the numerous and variable cases of regularization to [ɛ] in the derived forms. The pronunciation lunettier [lynetje] would correspond to a case where the underlying diacritic /ê/ in the stem /lynèt-/ has been replaced by a stable /ɛ/.

We observe such regularization in the words vilenie, vipereau, cuillerée, halenée, less so in the words which are either rare as chapellenie, châtellenie, or semantically removed from their underived

stem, e.g. plumet:plumétis, mousquet:mousquetaire, probably also mamelle:mamélon, échelle:échelon (for instance, some speakers consulted listed [eʃɛlɛt] as a diminutive for échelle, but kept échelon without reanalyzing it.) The regularization is also frequent before -ier(e). This is the case for the stems ending in /ɛl/, as in prunelle:prunellier [prynɛlje], selle:sellier:sellète, dentelle:dentellière, hôtel:hôtelier. (Le Petit Robert lists an obligatory [ɛ] in the first two examples, and an optional one in the third. I have frequently heard [ɛ] in the last one, though less frequently than in the first three examples.) This is also the case for stems ending in /ɛt/: alumette:alumettier, casquette:casquettier, lunette:lunet(t)ier, raquette:raquettier:raquetteur, noisette:noisetier. (The [ɛ] is obligatory in the first two examples, but optional in the third, according to Le Petit Robert. According to my own observations, it is also obligatory in the fourth example and variable in the fifth. According to Juilland, this regularization extends to limettier, tabletier, but I have no independent observations for these words.) The regularization also occurs in stems ending in /ɛ/: robinet:robinetier, cabaret:cabaretier, gobelet:gobeletier, corset:corsetier. (Le Petit Robert gives only the first example as a case of optional regularization. I have heard it frequently also with the second example, less often with the last two examples.) Finally, it also occurs in stems ending in /ɛn/: fontaine:fontainier, instead of the older fontenier. (Juilland also notes dizainier, centainier; I have personally only observed the pronunciations [diznje], [sɛ̃tnje].) The analysis I propose also suggests that we will not observe any reanalysis of a stem in which a former [ɛ] becomes Ø or [œ] before the suffix -rie if this stem appears underived. That is, we do not expect hôtellerie to be reanalyzed as [otœlri] (on the basis of hôtelier [otœlje]) as long as the stem may appear underived, as in hôtel [otɛl]. This appears to be true. Fouché (1959), however, lists a pronunciation parqueterie [parkœtri] which has been reproduced in many dictionaries and which would be an exception to this tendency, since it is related to the word parquet [parkɛ]. (I have personally never heard this pronunciation.)

On the other hand there are cases where, in the alternation (10h), [ɛ] does not appear in an underived nominal, either because [ɛ] is historically part of a diminutive -et(te), which is no longer felt to be contained in the stem, as in brique:briquettier:briqueterie, or because the underived nominal is no longer felt to be related, as in peau:pelletier:pelleterie. In the first case we do not expect [ɛ] to be generalized, but instead that -tier, and -térie would be reanalyzed as new derivational suffixes, and therefore we expect to see Ø or [œ] everywhere. And such is the case: brique:briquettier:briqueterie, graine:grainettier:graineterie, louve:louvettier:bouveterie. (Fouché claims that [ɛ] can also be heard in briqueterie,

graineterie, louveterie, a pronunciation that I have never heard. I also have no information on the pair buffle:buffleterie, for which Fouche gives the two pronunciations [byflɛtri] and [buflɛtri].) In pairs such as pelletterie:pelletier, which historically should have shown the alternation (10h) ([pɛlɛtəri]:[pɛlɛtje(r)]), the regularization could have gone either way. The fact that the [ə] variant has been generalized indicates that the form ending in -ier(e) has been taken as primitive, and that the form in -rie was felt to be derived. This also occurred in: panétier:panéterie, bonnetier:bonnéterie, papétier:papéterie (the last pair may also appear as [papɛtje:papɛtri] for some speakers). This regularization is less systematic than the regularization affecting triplets such as brique:briquettier:briqueterie, and I have frequently heard pronunciations bonnéterie [bonɛtri], papéterie [papɛtri]. (Fouché [1959] also gives marquéterie, mousquéterie, caquéterie as being possibly [markɛtri], [muskɛtri], [kakɛtri]. I have only heard [markɛtri] for the first word, and I have no observation for the other two.) We can account for these tendencies by deriving panéterie, pelléterie, bonnéterie, papéterie, from panétier, pellétier, bonnetier, papétier. In this case, we can think of two possible derivations. First we analyze the stems as being /pant-, pɛlt-, bont-, papt-/; in which case we should expect to find the derivational [œ] noted when the stem ends with two consonants. I have found some speakers (but very few, however) who use [œ] variably in pelléterie. (Fouché also lists [œ] in louvéterie, panéterie, which I have not observed.) In the second derivation the stem is /pan-, pɛl-, bon-, pap-/, to which are added the suffixes -tier and -terie, cf. grainétier, grainéterie. I note, however, one objection to the analysis of -terie as an independent suffix. This suffix appears only when the corresponding suffix is -tier(e) but not when it is -ier(e), so that we would like to claim that there is a correlation between the two; i.e., that it is not an accident that we have briquettier:briquéterie and pellétier:pelléterie but not, for instance, *briquettier:briquérie or *grainier:grainéterie.¹⁸

¹⁸There is at least one exception to this regularity, but which is slightly different and involves -tier, -raie: the place where noisétiers grow is a noiséraie (it is also the place where noyers grow). Another problem exists with briqueterie, for it seems that the t is also related to the t found in briqueter 'to lay bricks', briqueteur 'brick layer'. But this is not necessarily the case. I have had some informants in Quebec give me briquérie 'brick factory', briquier 'brick maker', but also briqueter 'to lay bricks', briqueteur 'brick layer', or even briqueler 'to lay bricks', briqueleur 'brick layer'.

In the framework of Aronoff (1976) we could say that it is only the morpheme -ier(e) which has a variant with an initial t, and that the forms in -térie are themselves derived by truncation of -ier(e) from the variant -tier(e), e.g. grainétérie and pellététérie would be derived from /grɛn+t+je/ + /ri/ and /pɛl+t+je/ + /ri/, which become /grɛn+t+ri/ and /pɛl+t+ri/ after truncation of the suffix /-je/. But if this is the case, the absence of a resulting derivational [œ] would indicate that the morpheme -rie has no underlying initial /œ/, and that when it appears in derived words such as malterie, it should be introduced by a morphophonological rule of epenthesis. The facts, however, are far from transparent, and more evidence is needed before a firm conclusion can be reached.

If we turn to the verbal stems, we find they are sometimes subject to a change which resembles the regularization in hôtel:hôtelier [otɛlje] [otɛlje], as in for instance, the verb péter. This verb historically followed the same paradigm as jeter:peter [pɛte]:je pète [ʒɛpɛtə]. However in MF its stem is /pet-/ with /e/ opening to [ɛ] in closed syllables. The fact that its stem is /pet-/ with a closed /e/ instead of an open /ɛ/, as we find in the regularized form hôtelier [otɛlje] (cf. péter [petɛ]), and the fact that it occurred very early indicates that this is an entirely different process. The [e] in péter can actually be considered an [e] reflex of shwa, as we have seen happen in périr, (ac-)quérir, etc. The case of verbs such as pener [pɛne], which changed to peiner [pɛne], is different. The change seems to have occurred later (17th century) and it led to an underlying vowel [ɛ] rather than [e], as in the case of [e] reflexes of shwa, e.g. pénible. This may be the result of a true regularization. In this case, however, the regularization could have been made after the isolated verbal stem, as in ça me peine, or after the nominal stem, as de la peine.

I shall now turn to the regularization of verbal stems and examine the paradigms of verbs such as dépecer, peser, ensorceler, marteler, morceler, harceler, surmener, and parsemer. In all these verbs, the historical shwa is now stable and should not be analyzed as a fleeting /œ/. Still, in (conservative) speech, this /œ/ alternates with [ɛ] which is found when the stem is isolated, as in je dépèce. when it is followed by the suffix -ment, as in le harcèlement, or when it is followed by the future and conditional endings, as in je dépècerai. In Morin (1977b) I proposed that the rules accounting for this alternation be respectively (12) and (13)

$$(12) \quad \text{œ} \rightarrow \text{ɛ} / \text{ ___ } C_1$$

$$(13) \quad \text{œ} \rightarrow \text{ɛ} / \text{ ___ } \text{future-conditional}$$

We note that in this analysis we must again diacritically mark those underlying vowels /œ/ which are subject to this change, since it is not

the case that all stable /œ/ vowels are subject to this change (I shall use a different diacritic than the one which is used to mark the fleeting vowels /œ̃/, although a case can be made for not distinguishing between the two), as in gueuler /gœ̃l+e/, bluffer /blœ̃f+e/. In this analysis, an underlying /œ̃/ rather than an underlying /ɛ̃/ accounts for the innovation that we observe in the speech of many speakers both in Paris and Québec. In a first group of speakers that I shall refer to as conservative speakers, both rules are obligatory. In a second group of speakers I shall refer to as regular speakers, rule (12) is obligatory, but rule (13) is disappearing. Regular speakers will apply rule (13) in formal situations, but not in regular speech. Thus they will say je dépèce [ʒdepɛs], je pèse [ʃpɛz], but alternately je dépecerais [ʒdepɛsrɛ], je peserais [spɛzrɛ]. There is a third group of speakers, the innovative speakers, from whom both rules (12) and (13) are reserved for formal situations and are not used under normal conditions. Innovative speakers are numerous both in Paris and in Québec. They regularize verbs such as acheter, jeter, as we shall see later. In verbs where the historical shwa appears as a stable /œ̃/, I have observed such a regularization only in dépecer, and this only in Québec. I would not be surprised if this pattern were actually more widespread both in Québec and in Paris. Innovative speakers will say je dépèce [ʒdepɛs], je dépecerais [ʒdepɛsrɛ]. This variation is easy to account for if the two rules (12) and (13) are morphophonological rules. In the regular dialect, rule (13) is being lost. In the innovative dialect, the underlying vowel /œ̃/ is being reanalyzed as a regular /œ/ without diacritic, as in the verbs gueuler, bluffer.

In Morin (1977b) I suggested that the same rules should account for the fact that in regular dialects the future and conditional of verbs such as acheter, rejeter, crocheter, renouveler have no [ɛ̃]: j'ach'terais [ʒaʃtrɛ], je rej'terais [ʒrɛʃtrɛ], je renouv'lerais [ʒrœnuv'lɛrɛ], yet do have one when the stem is isolated, as in j'achète [ʒaʃɛt], je rejette [ʒrɛʃɛt], je renouvelle [ʒrœnuvɛl]. In this perspective, acheter would have the underlying stem /aʃɛt-/ with a fleeting /œ̃/ which gets deleted in the future-conditional /ʒ+aʃɛt+r+ɛ/> [ʒaʃtrɛ], because it is preceded by a single consonant.¹⁹

¹⁹As I mentioned in note 1, no one to my knowledge has described the alternation between the stems /aʃt-/ and /aʃɛt-/ found in the speech of regular speakers in Paris and Québec. This alternation has been observed in the Picard dialect of Melleville by Vacandard (1964, p. 25-26), who gives the same alternation for acheter and sécher:

<u>j'achète</u> [ʒaʃɛt]	<u>nous achetons</u> [ozaʃtɔ̃]	<u>j'acheterai</u> [ʒaʃtrɛ]
<u>is sèche</u> [isek]	<u>il séchait</u> [iske]	<u>il séchera</u> [iskra]

However, this cannot account for the complete regularization that is sometimes observed. If the underlying vowel is reanalyzed as a stable /œ/, then we would expect to have j'achète [ʒaʃœt] in innovative dialects,²⁰ but we know that in that case we would have [ʒašt]. This last kind of change is observed in Paris for the verbs déchi- queter, empaqueter, étiqueter, becqueter, piqueter, cacheter, épousseter, fureter, se coller, pelletter, fileter, feuilleter, and in Québec in the verbs paqueter, empaqueter, pelletter, piqueter. We know that this kind of regularization occurred very early. It was observed by Pelletier (1549) who writes déchicte for the isolated stem of déchi- queter (Fouché [1969:524]). Mauvillon (1734) mentions that the re- regularization affected acheter, épousseter, empaqueter, dépaqueter. Domergue (1805) lists it for cacheter, fureter, and Littré for caque- ter, carreler, cacheter, décacheter, décoller, épousseter, empaqueter, and fureter (Fouché [1967:20]). It appears then that this regulariza- tion was once more extensive, and that it is now regressing, in par- ticular for the verb acheter, which I have never heard pronounced j'ach'te. This indicates that the basic form for the stem of verbs such as acheter is /ašt-/, just as for verbs such as cacheter it must be /kašt-/, and that the [ɛ] found in j'achète is introduced by a rule of epenthesis. Parallel to rules (12) and (13), we must post- ulate the rules (14) and (15).

(14) $\emptyset \rightarrow \epsilon / C _ C_1 \#$

(15) $\emptyset \rightarrow \epsilon / C _ C_1V \#$ future-conditional

These rules should be lexically marked for some verbs. For instance, rule (14) is obligatory for acheter, but not for cacheter. Rules (14) and (15) are optional for empaqueter, but do not apply to contrac- ter. However, there is a class of verbs for which we may think that

²⁰In the verbs achever, lever, and the latter's derivatives, relever, enlever, soulever, it is possible that the underlying stem contains a fleeting /œ/. We often note [œ] in the future-conditional of regular speakers, as in j'acheverais [ʒaʃœvrɛ], je souleverais [ʒœsulœvrɛ]. For these verbs, we would expect that [œ] could appear in je leve, j'achève. Some of my informants from Québec tell me that this is indeed possible, and that they can say leve-toi [lœvtwa], acheve-les [aʃœvle]. They add that such pronunciations are stigmatized and that they repress them. I have not observed speakers for whom this pronunciation is normal. Thus it is difficult to evaluate such reports. We should first determine whether this change of [ɛ] to [œ] might not be phonetically conditioned. We know for instance that in the Acadian French described by Lucci (1972:55) this change is also observed in words for which it cannot be a regularization such as une lèvres [œn lœv], une fève [œnfœv]. Apparently, the same kind of change has occurred in the area around Chateaugay in Québec and also in County Beauce in Québec (Lorent [1977]).

the rules (14) and (15) do not have to be specified; this class includes amener, amonceler, atteler, celer, ciseler, débosseler, déceler because the non-application of these rules would lead to impossible or highly marked consonant groups, as in [amn] and [amnre]. If for some stems, the rules (14) and (15) do not have to be lexically marked, we would expect to see them generalized to verbs which historically did not participate in the alternation [ə] ~ [ɛ]. For instance, the verb doubler could be subject to rule (14) and, from underlying /ʒ+dubl/, be realized as je doubèle [ʒdubɛl]. Cases similar to these are attested in regional dialects,²¹ but I do not know whether this phenomenon ever occurred in Paris or in Québec.

Another solution concerning these verbs, which would also be compatible with their recent historical developments, would be to say that their stem has two morphologically conditioned allomorphs, e.g. acheter {/aʃt-/, /aʃɛt-/}.

²¹This seems to have occurred in various dialects. For instance, Cochet (1932) notes that redoubler may take an epenthetic [ɛ] when the stem is isolated, as in il redouble [irdubɛl] ~ [irdub]. We find the same phenomenon in the Gallo dialects. In Plouguenast (Hervé [1973]) siffler, which is normally [sybje] (where the [j] is the reflex of a former [i]) may give in the present tu siffles [tysyɛl]. In Loudéac (Bourel [1976]) ronfler [rɔ̃flœ] gives il ronfle [irɔ̃fɛl], and ouvrir [uvri] gives ouvre la porte [uver la port]. In Wallon we observe ouveüre, inteüre, accâbèle, rinoufele instead of ouvre, entre, accable, renifle (Doutrepoint, cited by Fouché [1967:21]). More detailed descriptions of these dialects would be required, however, to show that rule (14), or a similar rule, is involved in the innovation. It could be that what we observe in these dialects is caused by another process, e.g. a process which introduces a vowel in all word-final OL groups. In the examples we have collected, it is always the case that this process involves only verbs, and not nouns which show similar historical shape. In the Gallo dialect of Pléchéâtel, Dottin and Langouet (1901:xlvi) explicitly specify that word-final groups [kl, gl, pl, bl, fl] lose their final [l] except in the third person singular of the present indicative, where sometimes [œ] is introduced, e.g. il enfle [ãfœl], il boucle [bukœl]. It is therefore likely that these are genuine instances of generalization of a morphological rule.

Apparently, there are some dialects where the opposite tendency is observed. Heuillard (1903, cited by Fouché [1967:20]) notes that in the dialect of Gaye, near Sézanne (Marne) rule (14) has disappeared even in environments which are marked in most dialects, e.g. je renouv'le, je mus'le, j'enjav'le, je fur'te, je feuill'te, and je bott'le.

Before we end this section, let us point out a strange particularity of the variation in regular dialects between the two forms in the future-conditional of verbs such as acheter. Both variants are possible for j'achèterais [ʒaʃtrɛ] and [ʒaʃɛtrɛ]. The first variant will be more frequently used when it is unstressed, e.g. when it is followed by an enclitic pas, as in j'en achèterais pas, moi, si j'étais toi, than when it is stressed, as in j'en achèterais. This brings us back to the variation between paradigms IIa and IIb, where we have seen that for some verbs, as for instance, relaxer, paradigm IIa is followed more frequently under the same conditions. As mentioned before, this kind of distribution is exactly the kind that we would like to describe in terms of phonological rules. Still, as far as the alternation between [aʃtrɛ] and [aʃɛtrɛ] is concerned, it seems that we have a clear case of morphologically conditioned alternation.

4. Conclusion

In this paper, we have observed the evolution of the historical shwas and their syncope rules in word-internal position. We have seen that phonetically the modern reflexes of shwa could be zero as in samédi, [œ] as in vendredi, or [e] as in béton. We have seen that it has sometimes been reanalyzed as [ɛ], as in robinetier.

We have seen that most of the historical alternations between shwa and other vowels ([wa] ~ [ə] as in je dois:devoir; [jɛ] ~ [ə] as in pied:peton; [e] ~ [ə], as in oranger:orangérai; [œ] ~ [ə], as in chasseur:chasseresse; [o] ~ [ə], as in chapeau:chapelier; [ø] ~ [ə], as in cheveu:chevelure; [a] ~ [ə], as in savate:savétier; [ɛ] ~ [ə], as in hôtel:hôtelier) have been lexicalized, except perhaps for the last one, which has been morphologized.

We have seen that the historical rules of syncope have not been preserved, except perhaps before the derivational affixes where some kind of syncope or epenthesis may be required to account for the distribution of derivational [œ].

The historical shwas in the initial syllables of words have been stabilized when they reflexed as [e], but have been reanalyzed as a diacritically marked /œ/ when they reflexed as [œ], which in turn has been reanalyzed as a stable /œ/ in some words.

The evolution of shwa elsewhere--in clitics, in compound words, between words, etc.--may still have been different and should also be analyzed in detail. It appears then that we should not expect to find a unified behavior for all the historical shwas found in French, and that we should be prepared to find several subsystems for the modern mute "e", rather than follow the over-optimistic approach characteristic of so many linguists, which tries to capture the total behavior of mute "e" within a simple schema.

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