

THEORETICAL IMPLICATIONS OF SCHWA DELETION IN FRENCH

by

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me, that I have made the decision to remain within the student ranks for the next few years in order to pursue my studies on the doctoral level.

## ABSTRACT

The phonological status and behaviour of schwa ('e caduc') constitutes one of the most widely investigated topics in the synchronic study of French phonology. A considerable amount of research is directed towards the attempt to account for the phonetic level alternation of schwa with zero in certain environments. Proposed explanations vary considerably depending on the theoretical approach taken in the treatment of the synchronic data.

Little attention has been given, however, to the study of the associated diachronic phenomena which constitute a body of substantive evidence from which valuable insights can be drawn for an analysis of the synchronic state.

This thesis presents a description of the historical development of schwa from the Early Old French period up to the present day. This long-range perspective allows the examination of the various historical processes involving schwa deletion in word-final, interconsonantal and hiatus contexts. Their effects on the organization of the grammar (e.g., lexical and phonotactic restructuring) are discussed as well as their evolution into Modern French. The diachronic survey serves as an informative background for a reanalysis of the structure and functioning of the synchronic schwa deletion and insertion rules formulated in Dell (1973b). Modifications

are made in the optional syncope rules found there in order to more adequately express their variable nature. A different scope of application is proposed for the obligatory word-internal syncope process. An alternative, more concrete analysis is also presented for the treatment of final schwa. In addition, modifications are made in Dell's formulation of the rules involving schwa in hiatus so as to reflect their functional role both as phonotactic constraints and as phonological rules.

The investigation also raises a number of problems of both a diachronic and synchronic nature, problems whose analysis involves several fundamental issues in generative phonological theory. The data investigated provide examples of mechanisms assumed to account for historical change, such as the addition, loss, generalization, morphologization and inversion of rules. Evidence in support of certain notions on the way in which phonological change is implemented, e.g., lexical diffusion, variable rules, is also presented. The notion of linear ordering and principles governing rule orderings, such as feeding/bleeding relationships, rule transparency/opacity, receive support from the account. The problem of multiple application of rules is encountered and solved by an alternative proposal to the Simultaneous Application Principle, viz., the Principle of Iterative Rule Application as formulated by Tranel (1974a). Finally, the concept of natural phonological rules and the metatheoretical criteria advanced by Schane for determining whether or not a rule is natural receive corroboration from the analysis of schwa.

In addition to to the basic categories of such rules, the frequent resort to Schane's 1972 proposal for the inclusion of processes involving stress dynamics in the typology of natural rules points to the theoretical well-foundedness of this hypothesis.

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LIST OF ABBREVIATIONS

- H = Henry, Albert. Chrestomathie de la littérature en Ancien Français.
- Rh = Rheinfelder, Hans. Altfranzösische Grammatik.
- Ro = Rochette, A. Anthologie du Moyen Age.
- S = Storey, Christopher. La vie de Saint Alexis.
- V.L.-G.R. = Vulgar Latin-Gallo-Roman: second century-middle of the  
ninth century
- O.F. I = Early Old French: middle of the ninth century-end of the  
eleventh century
- O.F. II = Later Old French: end of the eleventh century-beginning  
of the fourteenth century

## INTRODUCTION

The purpose of this work is to present a detailed study of the development of French schwa throughout the history of the language. The choice of this topic was motivated by several factors. First of all, the subject involves data whose analysis raises a number of interesting problems within the domain of historical phonology. Secondly, the hypotheses developed recently within the theory of generative phonology in an attempt to account more adequately for the facts of sound change made an historical investigation very attractive as a testing ground for certain of these proposals. Furthermore, the recognition of the significant implications that can be drawn from diachrony to synchrony prompted research on the analysis of the complex problem surrounding the phonological status and behaviour of schwa in Modern French. Finally, the conception of the synchronic system, not as a static, homogeneous object, but rather as a dynamic state characterized by on-going change amidst orderly heterogeneity and the precise formalism being developed to allow the facts of variability to be incorporated into the analysis of linguistic structure, provide a more empirical basis for treating both the synchronic and the diachronic data.

Although various purely synchronic analyses have been proposed in an attempt to account for the phonological behaviour of schwa in French, there have not been any comprehensive efforts made to trace

the related historical development from the earliest stages of the language. It is hoped that by extending the time dimension and then viewing the dynamic situation of the contemporary language in this broader perspective, a much clearer insight can be gained into the synchronic behaviour of schwa and a more satisfactory account provided for the processes in which it is involved.

The thesis is divided into two major parts. The first is devoted to an examination of the behaviour of schwa in Early Old French. The circumstances surrounding the synchronic deletion of schwa during that period represent but a stage in a long-term trend that had persisted from the Vulgar Latin and Gallo-Roman periods. The perseverance of the phenomenon is seen to be accounted for by recourse to the concept of 'rule naturalness'. Specifically, the processes of pretonic syncope, apocope and elision that were active in Gallo-Roman are considered to be natural due to their phonetic motivation. They all can be characterized as processes of weakening, their effect being to delete unstressed vowels. Prolonged occurrence of these processes ultimately led to a restructuring of lexical representations to make the latter correspond to the output of the naturally motivated rules. Due to the persistent nature of the stress dynamics, the rules accounting for the synchronic deletion of schwa in Early Old French, although contextually somewhat different, are essentially the reflexes of the early historical processes. By means of the formal apparatus available within generative theory, these similarities in patterning can be readily expressed. Also analogous to the histor-

ical deletion of unstressed vowels, the synchronic rules in Old French were constrained in their application by the phonotactic structure of the language. Again, by using the formalism developed to express sequence structure constraints, these restrictions on schwa deletion can be concisely presented. Moreover, the effacement rules have interesting implications regarding certain theoretical principles related to functional relationships among rules such as opacity/transparency, feeding/bleeding orders, etc.

The second part of the thesis traces the development of schwa from the Later Old French period to the present day. The structural break in the presentation is a consequence of a corresponding change in certain characteristics of the language at that time. Modification in the stress pattern of the language is a major factor in this respect, which serves to distinguish the Early Old French period from subsequent stages. The gradual weakening of the tonic stress, the development of the so-called breath-group as the basic prosodic unit, combined with an increased speed of utterance emission create a natural environment for the deletion of lax schwa. The changes in the accentual pattern, coupled with the influence of syntactic phonetics and analogical generalization result in a much higher degree of schwa deletion.

In addition to the persistence of the Early Old French elision rule in a more generalized form, several new processes enter the language. Each chapter in Part II presents an examination of a particular process--its implementation, development and implications for the

analysis of the present-day language.

Chapter II is devoted to a study of the evolution of schwa in hiatus. Deletion of schwa in hiatus with a preceding vowel, as well as the emergence of the Modern French elision rule appeared relatively early (ca. 13th century) and is explainable by natural criteria such as creation of a preferred syllable structure, maximum differentiation and preferred stress placement. With respect to schwa in hiatus with a preceding vowel, the process of effacement is characterized as a variable rule until around the sixteenth century. The considerable length of time involved in its transition to a categorical rule appears to be due principally to sociolinguistic factors, but also to lexical diffusion. By the end of the sixteenth century, the unconditional application of the rule leads to the restructuring of all intramorphemic sequences of Və to V, with consequent repercussions on the phonotactic system and a change of status for the persistent historical rule. Though it could be claimed that its diachronic effects are now reflected in a morpheme/surface phonetic constraint prohibiting sequences of Və, it is argued that, for reasons of paradigm uniformity, it is methodologically more advantageous to assign a rule-like character to the M/SPC, i.e., formulate it as an A/M/SPC (alternation/morpheme/surface phonetic constraint). The same synchronic treatment is applied to the elision process, i.e., the deletion of schwa before another vowel. The extension of this process to apply intra- and inter-morphemically in Later Old French from its restricted application only across word boundaries in Early Old French,

leads to a considerable amount of restructuring by means of lexical diffusion. Analogical pressures also contribute to broadening the scope of restructuring.

Chapter III examines the behaviour of final post-consonantal schwa. The Modern French rule deleting schwa before a pause is assumed to have been added to the grammar during the second half of the sixteenth century. With respect to natural rule typology, effacement of prepausal schwa falls within the category of natural rules conditioned by stress dynamics. The extension of apocope to pre-consonantal position around the beginning of the seventeenth century, though unnatural from a phonetic point of view since it destroys an optimal syllable structure, is explainable through recourse to notions related to conceptual naturalness and the formal properties of phonological rules. The categorical application of apocope results in restructuring with obliteration of final schwa from the majority of lexical representations. The consequences of the historical change are reflected in the presence of an inverse rule of schwa epenthesis in the present stage of the language.

Chapter IV discusses the development of three Modern French rules of interconsonantal syncope which are added to the grammar around the sixteenth century. Two of the processes, affecting schwa in initial syllables, are classified as variable processes; the third, deleting word medial schwas, is a categorical process. Although restructuring occurred in a number of lexical items due to the persistence of these processes, their continued functioning in the synchro-

nic grammar of Modern French is highly motivated by considerations such as predictability of surface alternants, paradigm uniformity, formal simplicity, etc. The interaction of the various syncope rules has some interesting implications for theoretical notions concerning rule ordering and rule application principles.

Two appendices conclude the text of the thesis. The first deals with an instance of historical rule inversion. A Modern French rule accounting for a set of alternations between schwa and open e where schwa is the underlying form is seen to be the inverse of an Old French rule in which schwa was the derived alternant. The second appendix presents a survey of historical attestations pertaining to the phonetic realization of schwa.

PART I. EARLY OLD FRENCH

CHAPTER I

SYNCHRONIC SYNCOPE, APOCOPE AND ELISION

1.0. Introduction

In this chapter we shall examine the conditions under which schwa was synchronically deleted in Early Old French, a period extending roughly from the middle of the ninth century to the end of the eleventh century. It will be seen that this deletion was determined by three separate phonological processes: a) syncope, b) apocope, c) elision.<sup>1</sup> None of these processes can be considered as novel or idiosyncratic to the character of the French language, but rather must be regarded as synchronic continuations of 'persistent'<sup>2</sup> rules which were active throughout the development of French from its origins in Vulgar Latin, and which have continued to operate, though in a somewhat modified form, to the present day.

Although the extent to which the synchronic deletion of schwa

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<sup>1</sup>I interpret these terms synchronically in the following manner: a) Syncope: the effacement of an unstressed internal vowel (or syllable); b) Apocope: the effacement of an unstressed final vowel in preconsonantal or prepausal position; c) Elision: the effacement of an unstressed (final) vowel in prevocalic position.

<sup>2</sup>I use the term 'persistent' in the sense of Chafe (1968), i.e., to characterize rules which "remain in effect over a long period of time during the history of a language and...exert their influence whenever, through the operation of other changes, their structural descriptions come to be fulfilled" (131).

occurred during Early Old French is relatively limited in comparison with later periods, it is important to examine the dynamic situation of the language at this stage since by doing so, later developments may be better understood by relating them to long-term tendencies.

"Without adequate time-depth, it is often difficult for us to know which changes are sporadic, which will persist, which come from past millennia, which are receding, and which are just coming into the language."<sup>1</sup> Such a view, recognizing the significance of studying long-term trends, is not recent, but is found expressed in much early literature. As Antoine Meillet puts it:<sup>2</sup>

Les changements linguistiques ne prennent leur sens que si l'on considère tout l'ensemble du développement dont ils font partie; un même changement a une signification absolument différente suivant le procès dont il relève, et il n'est jamais légitime d'essayer d'expliquer un détail en dehors de la considération du système général de la langue où il apparaît.

In order to set the synchronic phenomena in a clearer perspective, we shall first of all review the processes which operated historically under analogous phonological conditions to the synchronic rules. Their continued viability as synchronic rules in Old French will be seen to be attributable to their status as 'natural' phonological processes. We shall then proceed to examine in detail the synchronic processes and the consequences that they had with respect to the phonological patterning of Early Old French. Finally, the

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<sup>1</sup>Wang 1969:23.

<sup>2</sup>Meillet 1948:11.

effect that the early schwa deletion rules had on the morphophonemic system will be discussed. We shall deal with these processes in the following (historical) order--syncope, apocope, elision--attempting to characterize each precisely before giving a more general overview.

### 1.1. Historical background to schwa deletion in Early Old French

#### 1.1.1. Gallo-Roman syncope

The type of synchronic syncope in Early Old French which we shall be considering below occurred as an historical process in Gallo-Roman. It involved the deletion of vowels other than a in pretonic, or rather, intertonic, syllables, the pretonic unstressed syllables in this case standing between the secondary stressed counter-tonic syllable and the tonic syllable. Effacement of these vowels was effected slowly over a long period of time (4th-7th centuries), constrained by such factors as the quality of the vowel, phonotactic considerations and analogical influence. Examples of this historical syncope of G.R. i (<ī), e (<ē, ĭ), u (<ū), o (<ō, ŭ) are:

- (1) bōnitáte > bonte(t) 'kindness'  
 clàritáte > clarte(t) 'renown'  
 bèllitáte > belte(t) 'beauty'  
 lìberáre > livrer 'deliver'  
 cèrebéllu > cervel 'brain'  
 pìsturíre > pestrir 'knead (dough)'  
 mànducáre > mangier 'eat'  
 sìmuláre > sembler 'seem'

lèporáriu > levrier 'greyhound'

Pretonic a, due to its greater sonority, did not syncopate.<sup>1</sup>  
 In open syllables, it subsequently closed to e and reduced to ə,  
 except when followed by ʎ or ɲ. In this environment e palatalized  
 to i:

- (2) àtraméntu > arrement 'ink'  
 bàccaláre > bachelor 'novice in arms'  
 Càmpaníscu > Champenois '(native) of Champagne'  
 \*càntarát > chantera '(he) will sing'  
 fèrraméntu > ferrement 'iron weapon'  
 òrnaméntu > ornement 'ornament'  
 òrphanínu > orphelin 'orphan'  
 sàcraméntu > sairement 'oath'

but

- \*càmpaniólu > champignuel 'little bell'  
 \*càmpanióne > champignon 'mushroom'  
 \*èscalióne > escheillon 'rung (of a ladder)'  
 \*wà(i)daniáre > gaïgnier 'take advantage of'  
 \*wàspaliáre > gaspiller 'waste'

In a closed syllable, a retained its quality:

- (3)\*èsparváriu > esparvier 'sparrow-hawk'  
 \*èscarníre > escharnir 'jeer at'

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<sup>1</sup>See Fouché 1969:483-5.

\*èscarguáita > eschargaite 'patrol, watch'

\*mâl(e)-astrúcu > malastru 'coarse'

The pretonic vowels other than a did not syncopate in the following cases:<sup>1</sup>

a) when they were in a closed syllable:

(4) \*grùmiscéllu > grumisseau 'grumbling person'

sùspicióne > \*sùspitsiόne > sospeçon 'suspicion'

\*àlbispína > albespine 'hawthorn'

pàpiliόne > pàvijlόne > paveillon 'tent'

àbellána > avelaine 'hazel-nut'

càncelláriu > chancelier 'chancellor'

àpelláre > appeler 'to call upon'

tàbernáriu > tavernier 'tavern-keeper'

\*èsmeltíre > esmeltir 'to dung (of cattle)'

\*jùvencéllu > jouvenceau 'youth'

càteniόne > càtejniόne > chaeignon 'nape (of neck)'

\*bìhurdáre (Germ.) > behorder 'to joust'

èxcussiόne > escoisson 'shield'

dèspoliáre > dèspojláre > despoillier 'to skin'

\*cìconiόla > cìcojnόla > cëoignole 'pulley'

Gàloniácu > Gàlojnácu > Jalogny

b) when they were required as a supporting vowel after clusters con-

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<sup>1</sup>See Fouché 1969:486ff.

sisting of obstruent+liquid:

- (5)\*pùtritúra > porrëure 'rotting'  
 càprifóliu > chevrefeuil 'honey-suckle'  
 quàdrifúrcu > carreforc 'cross-roads'  
 fàbricàre > favregier 'to fabricate'  
 lùbricàre > lovregier 'to lubricate'  
 pètrosítu > perresil 'parsley'

The subsequent development of the unsyncopated vowels can be outlined in the following way. Pretonic e (<ē, ĭ) was ulteriorly reduced to schwa when in an open syllable: chevrefeuil, carreforc; appeler, aveline (after simplification of the geminate ll); sospeçon (after reduction of the affricate ts). E retained its quality, however, in the following cases:

- a) when followed by the palatals ʎ or ɲ (<ʎl, jn): paveillon, chaeignon. It subsequently changed to i: pavillon, chignon.  
 b) when followed by the alveopalatal ʒ (<dʒ): favregier, lovregier.

Pretonic e in a closed syllable maintained its quality until the twelfth century when it opened to ɛ: tavernier. In esmeltir, the e combined with the w resulting from the vocalization of preconsonantal l to form the diphthong eu which developed into ø in the thirteenth century (émeutir). E remained in aube(s)pine since after the deletion of preconsonantal s it was in an open syllable.

Pretonic o (<ō, ŭ) in an open syllable was generally reduced to ə (perresil). However, o in hiatus with a following accented vowel

was retained, later closing to u (escroeles écrouelles). It was also maintained when followed by ʌ and ɹ: despoillier, ceoignole, Jalogny. Pretonic o in closed syllables retained its timbre, closing to u in the thirteenth century (behorder).

In words with two pretonic syllables, it was the first syllable which regularly underwent syncope if it was not checked: the second syllable was maintained whether checked or not:<sup>1</sup>

- (6) sîmilitúd(i)ne > sebletume 'similarity'  
sûbitaménte > sotement 'suddenly'  
ântecessóre > ancessor 'ancestor'  
âsperitáte > asprete(t) 'anger'  
\*pîperinélla > piprenelle 'burnet (bot.)'  
tèmperaméntu > temprement 'early'  
\*ânotiníscu > antenois 'old'  
aùtoricáre > otreiier 'to concede'  
\*Mèrcuri díe > mercredi 'Wednesday'  
ârcuballísta > arbaleste 'cross-bow'  
Èburodúnu > Embrëun 'Embrun'

As in the cases involving one pretonic syllable, the same constraints applied in words with two pretonic syllables in determining the non-deletion of the first pretonic vowel.<sup>2</sup> The vowel of the first

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<sup>1</sup>See Fouché 1969:477.

<sup>2</sup>Ibid., 477-83.

pretonic syllable was maintained and the second one was syncopated if:

a) the first syllable was closed:

(7) *rèvindicáre* > *reventhier* 'to take one's revenge'

*interrogáre* > *enterver* 'to interrogate'

*rèverticáre* > *reverchier* 'to turn'

\**dòmesticáre* > *domeschier* 'to tame'

\**àdcosturáre* > *acostrer* 'to clothe'

b) the vowel of the first syllable was preceded by a cluster consisting of obstruent+liquid:

(8) \**imprumutáre* > *emprunter* 'to borrow'

Conditions a) and b) could, in fact, be grouped together, since non-occurrence of syncope in these cases, whether it be in words with one (cf. 4-5) or two (cf. 7-8) pretonic syllables, can be attributed to constraints on phonetic patterning in Vulgar Latin/Gallo-Roman. If syncope had taken place in any of these examples, intervocalic consonant sequences would have arisen which would have been incompatible with the surface phonetic constraints (SPC's) in Gallo-Roman; that is, it would have been impossible to resolve the sequences into permissible final and initial consonants or clusters.<sup>1</sup> Such an ac-

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<sup>1</sup>"...syncopation takes place only in phonotactic conditions where it does not produce non-permissible consonant groups or non-permissible single syllable-final or syllable-initial consonants..." (Pulgram 1970:70).

counting of these "exceptions" to syncope is to be preferred, not only because it is more general, grouping all irregular cases into one class, but also because it finds support in the internal linguistic structure. We shall see below how SPC's are integrated into the account, functioning to constrain the application of syncope in the appropriate cases.

Returning to the description of syncope in words with two pretonic syllables, it is seen that the subsequent development of the remaining pretonic vowels likewise paralleled that in cases involving one original pretonic vowel which did not undergo deletion. E (< ē, ĭ) was reduced to schwa when in an open syllable: ancessor, asprete(t), antenois, mercredi. It retained its quality, however, when followed by a palatal segment: otreier. When in a closed syllable, e maintained its timbre until the twelfth century, when it opened to ɛ: reverchier, enterver.

Pretonic o (< ō, ŭ) in an open syllable was reduced to ə: Embrëun. In a closed syllable, o retained its timbre, raising to u around the thirteenth century: acotrer < acostrer.

Pretonic a was likewise reduced to ə if in an open syllable: temprement, sotement. This reduction did not take place, however, if a was in a closed syllable at the time syncope occurred: arbaleste (< arc(u)ballista).

In light of the above discussion, historical syncope of the pretonic vowel may be formalized as follows:

(9)  $V \rightarrow \emptyset / \# C_o \quad V \quad C_o \text{ --- } (C_o V) C_o \quad V$   
 [-low] [2 stress] [1 stress]

Intertonic i, e, u, o (phonetically [ə]) are syncopeated in the first syllable following the secondary stressed counter-tonic syllable.

Among the surface phonetic constraints present in Gallo-Roman which operated in preventing syncope from applying, the following must be included here to account for the cases in (4-5) and (7-8) above:<sup>1</sup>

(10) i. ~ \$ [+cons] [+cons] [+cons] [+cons]

SPC (10i) is to be read: No four-member consonant clusters occur syllable-initially.

ii. IF: \$ [+cons] [+cons] [+cons]  
 ↓ ↓ ↓  
 THEN:  $\left[ \begin{array}{c} +cont \\ +cor \\ -voice \end{array} \right] \left[ \begin{array}{c} \langle -cont \rangle \\ \langle -cor \rangle \\ \alpha ant \\ \alpha cor \\ \langle -del \text{ rel} \rangle \end{array} \right]_1 \left[ \begin{array}{c} +son \\ -nas \\ \langle +ant \rangle_1 \\ \langle -ant \rangle_2 \end{array} \right]$

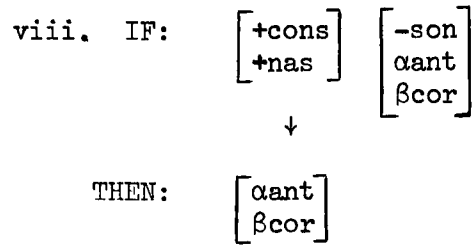
<sup>1</sup>"On the one hand, SPC's are explicit statements about surface phonotactics and redundancies; on the other hand, they function as phonetic structure well-formedness conditions..." (Shibatani 1973: 87). For justification of the formalism used here, see *Ibid.*:88-9.

Although the syllable is adopted here as the basic unit for describing the SPC's, and the consonant clusters are established by observing their occurrence in word-initial and word-final position, we are following the general criterion advanced by Pulgram (1970) who claims that "any syllable boundary in any part of the utterance must obey the constraints that prevail in the language under scrutiny at the word boundary" (46).

On the use of angled brackets, see fn. 1, p. 237.







SPC (10viii) is interpreted as: a nasal consonant is homorganic to a following obstruent.

Although these SPC's are in a somewhat simplified form, since other clusters could potentially occur,<sup>1</sup> they do account for the occurring word-initial and -final consonant clusters in Gallo-Roman and are adequate for the purposes of our exposition here. When the output of (9) is checked against the (unordered) SPC's in (10), it can be seen how they act as well-formedness conditions in blocking the syncope rule from applying in the examples in (4-5) and (7-8). For instance, in tābernāriu, the intervocalic sequence brn would have arisen had syncope applied. However, when this potential output is checked against SPC (10ii), it is revealed that brn is not a possible syllable-initial cluster. Furthermore, according to SPC (10v), br is not an occurring syllable-final cluster, nor, according to SPC (10iii), is rn an occurring syllable-initial cluster. Since the sequence is thus "undissolvable", syncope is blocked from applying in tabernariu. The resultant form, tavernier, need no longer be viewed as an exception to syncope, but rather as the expected outcome in light of the functioning of the surface phonetic constraints.

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<sup>1</sup>See Anderson 1965:77ff.

Before concluding the discussion of historical syncope, a few comments should be made regarding rule (9). Notice, first, that (9) is an abbreviation of two linearly ordered rules, i.e.:

$$(9i) \quad \begin{array}{ccccccc} V & \rightarrow & \emptyset / \# & C_o & & V & C_o \text{ --- } C_o & V & C_o & & V \\ [-low] & & & & & [2 \text{ stress}] & & & & & [1 \text{ stress}] \end{array}$$

$$(9ii) \quad \begin{array}{ccccccc} V & \rightarrow & \emptyset / \# & C_o & & V & C_o \text{ --- } C_o & & V \\ [-low] & & & & & [2 \text{ stress}] & & & [1 \text{ stress}] \end{array}$$

By use of the parenthesis convention, the two rules may be collapsed, and it is assumed that in the case of a rule such as (9), the two subcases (9i) and (9ii) are 'disjunctively ordered' in the sense that, if rule (9i) applies, then rule (9ii) cannot apply.<sup>1</sup> That this ordering is necessary can be seen in cases involving two pretonic vowels. For example, in àsperitáte, the first pretonic vowel is syncopated by (9i). Due to the fact that one pretonic vowel remains in the output of (9i), i.e. àspritáte, (9ii) could then apply since its structural description is satisfied. To prevent, therefore, the deletion of the residual pretonic vowel, (9ii) must be constrained from applying to forms to which (9i) has already applied. Hence the justification for the disjunctive ordering.

Secondly, it is to be noticed that rule (9) assumes previous assignment of stress. As in Classical Latin, words in Vulgar Latin and Gallo-Roman could be proparoxytonic, paroxytonic and oxytonic.

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<sup>1</sup>See Chomsky and Halle 1968:30, 61.

Unlike Classical Latin, though, stress became distinctive in Vulgar Latin subsequent to the loss of the quantitative oppositions in the vocalic system, and is considered to have remained so into Gallo-Roman until the apocope of final vowels around the eighth century.<sup>1</sup>

However, various changes occurred during the period which led to a regularization of stress placement, making it, in fact, predictable to a high degree. Among these developments, which may be considered to function as a "penultimate stress conspiracy",<sup>2</sup> the following may be cited:

a) the displacement of the accent from the antepenultimate to the penultimate vowel (attested around the third century)<sup>3</sup> in cases such as: pariēte > pariēte, abiēte > abiēte, ariēte > ariēte, mulière > mulière, filīōlu > filiōlu.

b) in all Classical Latin words having proparoxytonic stress due to the penultimate vowel being followed by a sequence of plosive+liquid, stress was shifted in Vulgar Latin to the penultimate syllable, e.g.: cōlūbra > \*colōbra, intēgrum > \*intēgru, tēnēbras > tenēbras, tōnītrum > \*tonītru.

c) the extensive occurrence of post-tonic syncope, especially in Gallo-Roman, which reduced proparoxytons to paroxytons, e.g.: cāl(i)dus (O.F. chalt), sōl(i)dus (O.F. solt), vīr(i)dis (F. vert), pōs(i)tus (O.F. -post in compost), dōm(i)nus (O.F. dan--dame), ās(i)-

<sup>1</sup>See Klausenburger 1970:11.

<sup>2</sup>See Walker 1975a:15.

<sup>3</sup>See Pope 1934:100.

num (O.F. asne), cóm(i)tem (O.F. conte).

At the time pretonic syncope applied in Gallo-Roman, then, it can be assumed that stress was in the majority of cases predictable, and assigned by the following rule:<sup>1</sup>

(11)  $v \rightarrow [1 \text{ stress}] / \_ C_0 (V C_0) \#$

In words of two or more syllables, assign stress to the penultimate vowel; otherwise, the ultimate vowel receives the main stress.

The rule assigning secondary stress in Vulgar Latin and Gallo-Roman remained the same as in Classical Latin:<sup>2</sup>

(12)  $v \rightarrow [2 \text{ stress}] / \# C_0 \_ (C_0 V)_1 C_0 \quad v$   
[1 stress]

Assign a secondary stress to the first syllable in words with one or more pretonic syllables.

Notice that (11) and (12) must be applied in that order, since (12) assumes prior assignment of the main stress. Taking as examples words with both one and two pretonic syllables, stress is assigned in the following manner:

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<sup>1</sup>See Walker 1975a:15. The few lexical exceptions to this rule such as áridu (O.F. are 'arid'), ávidu (O.F. ave 'greedy'), cúpidu (O.F. cove 'greedy'), ánate (O.F. ane 'duck') would have to be lexically marked. It is still an open question how the various morphologically determined exceptions are to be handled.

<sup>2</sup>See Pope 1934:101.

C.L.	bonĩtate	subĩtamente	
V.L.	bonetate	sobetamente	
	bonetáte	sobetaménte	Main Stress (11)
	bõnetáte	sõbetaménte	Secondary Stress (12)

### 1.1.2. Gallo-Roman apocope

Historical apocope occurred in Gallo-Roman around the end of the seventh century, effacing final unstressed i (<ĩ), e (<ē, ĩ), u (<ū) and o (<ō, ũ) (realized phonetically as [ə]). Final a ([a]), due to its greater sonority, did not undergo deletion.<sup>1</sup> Following are illustrative examples of apocope of i, e, u, o:

- (13) i. héri > ier 'yesterday'  
 vénis > viens '(you) come'  
 débet > doit '(he) must'  
 múru > mur 'wall'  
 cabállu > cheval 'horse'  
 pórtu > port 'harbour'  
 pérdo > pert 'loss'  
 múros > murs 'walls'  
 cabállos > chevaux 'horses'  
 \*méom > mien 'mine'  
 \*tóom > tuen 'yours'  
 vír(i)de > vert 'green'

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<sup>1</sup>See Fouché 1969:500ff.

óc(u)lu > oeil 'eye'  
 lár(i)du > lart 'salted pork'  
 cáil(i)du > chalt 'hot'  
 sól(i)du > solt 'sou (coin)'  
 cól(a)pu > colp 'blow'

Non-apocope of a is witnessed in such cases as:

ii. vía > voie 'road'  
 múla > mule '(she-)mule'  
 álba > albe 'white'  
 hárpa > harpe 'harp'  
 pórtat > portet '(he) carries'  
 pórtant > portent '(they) carry'  
 auríc(u)la > oreille 'ear'  
 \*fáll(i)ta > falte 'error'  
 déb(i)ta > dete 'debt'  
 fém(i)na > feme 'woman'

As was the case of syncope, apocope was checked if its occurrence would have given rise to word-final consonant sequences which violated the surface phonetic constraints of Gallo-Roman, specifically, SPC's (10iv-v) above. The following words show retention of their final vowel due to the nonapplication of apocope in phonotactically unfavourable conditions:

(14) pátre > pedre 'father'  
       mátre > medre 'mother'

fébre > fievre 'fever'  
 débent > deivent '(they) must'  
 dúplu > doble 'double'  
 véndunt > vendent '(they) sell'  
 rúbeu > rodžu > roge 'red'  
 ápiu > aptšu > ache 'celery'  
 símiu > sipžu > singe 'monkey'  
 ínflo > enfle 'swelling'  
 vénd(e)re > vendre 'to sell'  
 \*villát(i)cu > village 'village'  
 pórt(i)cu > porche 'porch'

The rule for historical apocope may be formulated in the following way:

(15)  $V \rightarrow \emptyset / V C_o \text{ \_\_\_ } (C) \#$   
 [-low]

Final vowels other than a are deleted in words with two or more syllables.

Although the majority of the words undergoing apocope were paroxytons, deletion of the final vowel also occurred in the small class of words lexically marked as receiving antepenultimate stress.<sup>1</sup> Apocope in this case can thus be regarded as constituting part of the

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<sup>1</sup>See above, p. 22, fn. 1.

"antepenultimate stress conspiracy" mentioned above,<sup>1</sup> since its application reduced to paroxytons those proparoxytons which remained as residue after post-tonic syncope had ceased to apply in Gallo-Roman.<sup>2</sup> Examples of this apocope in proparoxytons are:

- (16) áridu > \*areǫe > are 'dry'  
 ávidu > \*aveǫe > ave 'greedy'  
 pávidu > \*paveǫe > pave 'fearful'  
 cúpidu > \*coveǫe > cove 'desirous'  
 sýnodu > \*seneǫe > sene 'synod'  
 ánate > \*aneǫe > ane 'duck'  
 fícatu > \*feieǫe > feie 'liver'

### 1.1.3. Gallo-Roman elision

Elision, like syncope and apocope, was an active rule throughout the history of Latin although, unlike the latter two processes, no instances of lexical restructuring occurred which can be attributed solely to elision. The historical deletion of unstressed vowels

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<sup>1</sup>See p. 21.

<sup>2</sup>"[Les proparoxytons] étaient en petit nombre, et ils constituaient à cause de cela une sorte d'anomalie dans la langue. Sur le modèle du type paroxytonique qui dominait de beaucoup, ils ont éprouvé une tendance à se réduire eux-mêmes à des paroxytons. La syncope des penultièmes atones que le gallo-roman avait pratiquée jusqu'alors ne pouvant plus être utilisée, la langue a profité du moyen que lui offrait, tout à propos, la chute des voyelles finales. Elle a laissé tomber en effet ces voyelles dans les proparoxytons." (Fouché 1969: 470-1)

in internal prevocalic position can be accounted for by pretonic syncope, since stress was the major factor conditioning effacement in such cases, e.g., ècce-ístu > O.F. (i)cest, ècce-ílla > O.F. (i)cele, \*èssereát > O.F. sera(t), ílla-hōra > O.F. lore.

Although unstressed final vowels were regularly deleted in Classical and Vulgar Latin by elision,<sup>1</sup> no change in underlying representations occurred until final vowels were synchronically deleted in all environments, that is, in preconsonantal and prepausal position in addition to prevocalic position. With the levelling of allomorphic variation, lexical restructuring took place with the unique surface representation containing no final unstressed vowel becoming the new underlying representation, e.g., muru > mur, portu > port.

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<sup>1</sup>"En latin l'élision plus ou moins complète semble avoir été la règle après les mots terminés par une voyelle; mais elle ne se marquait pas dans l'orthographe" (Roudet 1910:172). And Lote (1949: 189): "Le classicisme latin a donné l'exemple de l'elision, selon laquelle toute voyelle placée à la fin d'un mot s'effaçait quand le mot suivant commençait par une autre voyelle: Atqu(e) omn(e) immensum peragravit ment(e) animoque, avait dit Lucrèce, et ni l'e de atque, ni celui de omne, ni celui de mente ne comptaient dans la mesure du vers."

Syncope and apocope also existed as synchronic morphophonemic rules in Classical Latin. Reighard (1975:162) presents examples where a synchronic rule of syncope was required in Latin to account for such alternations as: praeco/praedico 'public crier/proclaim', officium/opificina 'employment/workshop', ardeo/aridus 'burn/arid'. Alternation of syncopated and nonsyncopated forms is also attested in Vulgar Latin; it is "probable that rapidity of utterance and external considerations such as the character of the audience and the mood of the speaker helped to determine whether the full or syncopated form should be used" (Sturtevant 1920:206). Synchronic apocope occurred regularly in Latin forms ending in the clitics -que, -ue, -ne: resistere neque-nec dēprecārī 'to resist and not beg off'; quōn(e) malō? 'by what curse', and in certain forms where final ē was preceded by r or l: inger mi, noli me tanger (See Rydberg 1896:41).

Historical apocope, therefore, being context-free with respect to the following segment, accounts for all instances of restructuring involving effacement of final vowels.

Elision remained as a persistent low-level phonetic rule in Gallo-Roman, however,<sup>1</sup> deleting final unstressed vowels in words which had not undergone historical apocope, e.g., patre, matre, febre, via, mula.<sup>2</sup> Synchronic elision in Gallo-Roman after the seventh century can thus be formulated as follows:

$$(17) \quad \begin{bmatrix} +\text{syll} \\ +\text{low} \\ -\text{front} \\ -\text{round} \end{bmatrix} \rightarrow \emptyset / \text{ \_\_\_ } [-\text{seg}]_o [+ \text{syll}]$$

Final [a], [ə] (< e, i, o, u) are deleted in prevocalic position.

### 1.2. Schwa deletion in Early Old French

In this section we shall examine the synchronic deletion of schwa in Early Old French. The rules which account for this deletion, although contextually somewhat different, are essentially the reflexes of pretonic syncope (9), apocope (15) and elision (17) discussed from an historical viewpoint in the previous section. Since the occurrence of these three processes in Gallo-Roman persisted into Old French, they cannot be considered as ephemeral or 'transient' rules, that is, rules that "exert their influence at one stage of a language's history..., and then are gone."<sup>3</sup> Rather, their perseverance is explain-

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<sup>1</sup> See fn. 1, p. 81.

<sup>2</sup> See above, p. 24.

<sup>3</sup> Chafe 1968:131.

able by recourse to the concept of 'rule naturalness!.

It is no doubt due to the perpetuity of the particular nature of the stress dynamics present throughout the development of French that syncope, apocope and elision retained a persistent character. Their qualification as natural processes derives from their phonetic motivation. All can be characterized as processes of 'weakening', their effect being to delete unstressed vowels. Prolonged occurrence of these phenomena ultimately led to an historical change involving a restructuring of lexical representations to make them correspond to the output of the naturally motivated rules.

In addition to being phonetically motivated, apocope and elision qualify as natural rules in other respects. 'Conceptual naturalness'<sup>1</sup> can be further attributed to apocope, since, as was seen above, its occurrence led to a regularization of stress placement in cases where it functioned to reduce proparoxytons to paroxytons. Elision likewise receives additional support as a natural process due to the fact that its application resulted in a 'preferred syllable structure'.<sup>2</sup> Since elision deleted the first vowel in a sequence consisting of Vowel+Vowel, its function can be said to be the creation of a more natural syllable, that is, closer to the universal unmarked type, CV.

Conforming to the order of presentation in the previous sec-

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<sup>1</sup>This concept is presented in Hyman 1975:208.

<sup>2</sup>This notion is discussed in Schane 1972:207, 1973:53.

tion, we shall examine the synchronic processes in Early Old French, beginning first with syncope, followed by apocope, and finally, elision.

### 1.2.1. Synchronic syncope in Early Old French

Pretonic syncope occurred in two environments in the synchronic grammar of Early Old French: a) in clitic-verb constructions containing one or two unstressed object pronouns; b) in certain prepositional phrases involving the definite articles le and les.<sup>1</sup>

#### 1.2.1.1. Syncope in clitic-verb constructions

##### 1.2.1.1.1. Constructions containing one object pronoun

The particular constructions involving one object pronoun can be described as follows: a pronoun--me [mə], te [tə], se [sə], le [lə], la [la], nos [nos], vos [vos], les [ləs]<sup>2</sup>--was positioned between one of a class of weakly stressed proclitic monosyllables-- subject pronoun: jo, tu, il (sg. and pl.), nos, vos; relative or interrogative pronoun: qui, quei; conjunction: que, se=si; negative

<sup>1</sup>Such constructions (a-b) possessed the characteristics which Pulgram (1970) attributes to the morphological unit termed by him 'nexus': "The lexemes constituting the nexus are amalgamated in such a way that (1) only the first in the series has at its beginning ALL the features associated with word-initial position, (2) only the last has at its end ALL the features associated with word-final position, (3) beginnings and ends of lexemes that lie nexus-medially behave as if they were in word-medial position, (4) the suprasegmental configuration of the entire nexus is that of a single word, with those lexemes that are bereft of their suprasegmental identity becoming clitics (proclitics or enclitics) which lean...upon the suprasegmentally complete lexeme for support" (25).

<sup>2</sup>Les in unstressed position was pronounced [ləs] (see Melander 1928:166).

adverb: ne--and a following verb.<sup>1</sup> The sequence of weakly stressed monosyllable+unstressed pronoun+verb formed a rhythmic group. The verb carried the main stress, to which were subordinated the weak accent of the monosyllable and the object pronoun. In relation to the strong tonic accent on the verb, the weakly stressed monosyllable occupied the position of a word-initial syllable and the pronoun that of an internal pretonic syllable.<sup>2</sup> The initial syllable, then, possessed a secondary accent with respect to the verb. The following examples illustrate the distribution of stress in the clitic constructions:

- (18) i. nè me vídrent 'they did not see me'  
 ii. jò te ví 'I saw you'  
 iii. quì se plaínt 'who complains'  
 iv. jò le pert 'I lose it'  
 v. nè les veíent 'they do not see them'

With respect to stress dynamics, it can be seen that in such constructions, the vowel of the unstressed pronoun occupied the same position

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<sup>1</sup>See Melander 1928:78, 122; Foulet 1967:158; Wagner 1974:81. These monosyllables were weakly stressed due to the relatively small logical importance that they possessed in the sentence (see Melander 1928:122). Subject pronouns were accented for the same reason that ego, tu, etc., were in Latin. Since they were redundant features (the persons being distinguished by the verbal flexion), subject pronouns were used mainly for purposes of emphasis (see Wagner 1974:40-1).

<sup>2</sup>"Ces combinaisons forment, au point de vue de l'accentuation, des unités phonétiques qu'on peut comparer aux bases simples. De même que la syllabe accentuée d'un mot ordinaire est le centre autour duquel se groupent les syllabes atones, c'est autour de l'accent

relative to the tonic vowel of the verb as did the intertonic vowel in Latin paroxytons which underwent historical syncope.<sup>1</sup> Following are illustrative examples of Latin words which show syncope of their intertonic vowel after the consonants found initially in the unstressed object pronouns me, te, se, le, les:

(19)	Latin	Old French
	còm(i)tátu	conte(t) 'county'
	sìm(u)láre	sembler 'to seem'
	mèm(o)ráre	membre(r) 'to remember'
	màt(u)tínu	matin 'morning'
	*pòt(e)rájo	pourrai 'I shall be able'
	cò(n)s(u)túra	costure 'sewing'
	*ràs(i)cáre	raschier 'to spit'
	bèll(i)táte	belte(t) 'beauty'
	dèl(i)cátu	delgie(t) 'delicate'
	màl(e)dícere	maleir/maudire 'to curse'

In an analogous fashion to the above examples of historical syncope, pretonic syncope applied synchronically in O.F.I in forms such as

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tonique portant sur le mot d'appui que se groupent les mots atones. Les voyelles de ces mots doivent donc être de même nature que les voyelles atones des mots ordinaires" (Melander 1928:67).

<sup>1</sup>See above, pp. 9-10.

those in (18), effacing schwa in the object pronoun:

- (18') i. #nè mə#vídrənt# → [nəmvídrənt]  
 ii. #jò tə#ví# → [jòtví]  
 iii. #kì sə#plāínt# → [kìsplāínt]  
 iv. #jò lə#pért# → [jòlpért]  
 v. #nè ləs#véíənt# → [nəlsvéíənt]

Parallel to the cases in (2-3) where Latin a did not historically syncopate owing to its high sonority, [a] in the pronoun la did not synchronically undergo syncopation either:<sup>1</sup>

- (20) #sè la#síu# → [sèlasíu] 'if I follow her'

Cf. Lat. \*màlastrúcu > O.F. malastru 'coarse'

Absence of syncope in the pronouns nos and vos could also be attributed to the quality of the vowel, although o did syncopate in Latin, e.g., lèporáriu > lévrier 'greyhound'. Perhaps a more plausible explanation stems from the fact that nos and vos, unlike the other object pronouns, did not exhibit a different allomorph in stressed position. Compare, for example:

(21)	Unstressed	Stressed
	me	mei
	te	tei
	se	sei

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<sup>1</sup>See Melander 1928:6.



propose the rule:

$$(23) \quad \text{ə} \rightarrow \emptyset / \left[ \begin{array}{c} \# [2 \text{ stress}] \\ \text{(OPT)} \end{array} \right] \left[ \text{---} \right] \left[ \begin{array}{c} \# [1 \text{ stress}] \\ \# \end{array} \right]$$

subj prn	prn	v
qui		
quei		
que		
se		
ne		

Schwa is optionally deleted in an object pronoun when it is preceded by a secondary stressed monosyllabic element belonging to the class of proclitic (non)lexical items comprising subject pronouns, qui, quei, que, se, ne, and followed by a verb.

Rule (23), although it satisfactorily accounts for the observed data, is not adequate in its present form. By classing it as an 'optional rule', i.e., by simply stating that it may or may not apply, we are failing to correctly describe the actual state of affairs. This particular rule within the synchronic grammar of Early Old French must, in fact, have represented a linguistic change in progress. Rather than portraying 'optionality', what is happening instead is a "synchronic oscillation in the speech of individuals,"<sup>1</sup> a transition from one stage to another. Specifically, it involves the transformation of the prosodic character of the language and simultaneously, the change in the status of the personal pronouns.

Due to the strong tonic accent characteristic of Early Old

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<sup>1</sup>Weinreich, Labov and Herzog 1968:167.

French, individual words maintained their phonetic identity within the phrase. Unstressed object pronouns, however, not possessing any characteristic stress, could not stand alone in a sentence, but had to subordinate themselves by becoming enclitic to a stressed element within the phrase.<sup>1</sup> Such constructions involving unstressed pronouns and their dependent stressed elements behaved prosodically like a single word.

Towards the end of the Early Old French period (end of the eleventh century), the prosodic situation of the language was in a state of fluctuation. The tonic stress on individual words within the phrase was gradually being weakened and a transition to group-stress was coming into prominence.<sup>2</sup> As long as the tonic accent remained strong, the unaccented pronouns were obliged to retain their enclitic status. However, with the progressive elimination of word-stress, the pronouns no longer had to subordinate themselves to another stressed word or words, but could stand on their own within an

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<sup>1</sup>"Les pronoms personnels atones...n'ont pas d'existence indépendante; ils s'unissent sous le même accent avec un mot de valeur qui précède ou qui suit en faisant corps avec lui" (Melander 1928:67).

<sup>2</sup>"Dans l'ancienne langue, qui tient le milieu entre le latin et le français moderne, la situation prosodique était encore trouble ...mais, après une période de fluctuations et de balancements, a eu lieu un acheminement de la modulation descendante à une modulation ascendante non seulement pour le mot, mais encore pour le groupe de mots. On peut admettre que ce changement de rythme, amorcé dans le latin parlé, qui tend vers le paroxytonisme, évolue vers une modulation ascendante vers le milieu du XIIe siècle, et qu'au XIIIe siècle la langue s'était complètement débarrassée de l'intonation descendante" (Kukenheim 1968:7).

utterance. It thus follows that syncope of the unstressed vowel of the pronoun would tend to become less frequent as the secondary stress on the preceding element was reduced.<sup>1</sup> Moreover, the change from an originally descending modulation pattern within the phrase to one of ascending modulation, enabled unstressed words to stand at the beginning of a sentence, a position which heretofore was reserved only for words carrying tonic stress.<sup>2</sup> This stage, then, marks not only the emergence of the Modern French prosodic character, distinguished by the fundamental rising intonation of the word- or breath-group with nondistinctive oxytonic stress on the final syllable,<sup>3</sup> but also the appearance of the present-day proclitic nature of the object pronouns.<sup>4</sup>

In order to achieve a more satisfying formulation of this change in progress within the synchronic grammar of Early Old French, the

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<sup>1</sup>"Der eigentliche Grund für den allgemeinen Rückgang der Inklination war...die Tonschwächung der am meisten gebräuchlichen Stützwörter...Wenn also die Monosyllaba ihre halbstarke Betonung verloren, verloren sie auch das Vermögen als Stützwörter zu fungieren, da ja ein gewisses Mass von Eigenton die Voraussetzung für die Enklise ist. Wegen der Schwächung mussten sie sich ihrerseits an ein tonstärkeres Satzelement anschliessen, d.h. allgemeine Proklise trat ein und damit wenigstens in der Regel eine andere Wortgruppierung" (Rydberg 1904:499).

<sup>2</sup>"...le plus ancien français n'admettait pas d'élément faible au début de la phrase, indice pour l'existence d'un rythme descendant: Voldrent la veintre (Cant. de s. Eulalie, 3) pour la voldrent veintre, ordre usuel de l'époque [i.e., Later Old French]" (Kukenheim 1967:36).

<sup>3</sup>See Klausenburger 1970:29ff.; Ewert 1969:108.

<sup>4</sup>"Ce qui a accéléré le processus, c'est la transformation du rythme qui, de descendante en latin, se fait ascendante en français, changement qui tend à remplacer l'enclise par la proclise..." (Kukenheim 1967:36).

most suitable procedure would be the adoption of a 'variable rule' formalism (as used in the work of Labov), which has the advantage of reflecting more adequately the transition process in an orderly manner. Rule (23) can be formulated as a variable rule in the following manner:

$$(23') \quad \text{ə} \rightarrow \langle \emptyset \rangle / \left[ \# \left[ \begin{array}{l} \text{subj prn} \\ \text{qui} \\ \text{quei} \\ \text{que} \\ \text{se} \\ \text{ne} \end{array} \right] \left[ \text{prn} \right] \left[ \text{v} \right] \left[ \#1 \text{ stress} \right] \# \right]$$

Variable rules express "lawful co-occurrence relations".<sup>1</sup>

"[A]ngled brackets around the element to the right of the arrow indicate a variable rule," i.e., that "considerations of more ">" and less "<" are linguistically significant" and "angled brackets around an element in the environment after the slash indicate variable constraints which favor the rule."<sup>2</sup>

As formulated, rule (23') states that syncope is the variable deletion of schwa. There are minimal features of the environment if the rule is to apply: the schwa must be contained in a pronoun; it must be preceded by one of the proclitic (non)lexical items--subject pronoun, relative or interrogative pronouns qui, quei, the conjunctions que, se, or the negative adverbial ne--; it must be followed

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<sup>1</sup>Labov 1972b:112.

<sup>2</sup>Labov 1972a:42, 95.

by a verb which carries the main stress of the clitic construction. There is one variable phonological constraint: syncope is more likely to apply if the element preceding the pronoun carries a secondary stress.

#### 1.2.1.1.2. Constructions containing two object pronouns

When two object pronouns were placed between a secondary stressed monosyllable and the verb, the same sort of rhythmic grouping existed. The two object pronouns behaved like pretonic syllables in relation to the following verb. For example:

- (24) i. nè le te dí 'I do not tell it to you'  
 ii. sè les te dónet 'if he gives them to you'

Such constructions involving two object pronouns resembled in their prosodic make-up, Latin words with two intertonic syllables, such as:

- (25) lîberatióne > livraison 'delivery'  
 àntecessóre > ancessour 'ancestor'  
 sùbitaménte > sotement 'suddenly'  
 \*àrboriscéllu > arbreissel 'shrubby tree'  
 àuctoricáre > otreier 'to authorize'

According to the regular historical development of Latin words with two pretonic syllables, it was the first syllable which was syn-copated if it did not contain the vowel a.<sup>1</sup> In Early Old French, the

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<sup>1</sup>See Fouché 1969:477; Schwan-Behrens 1913:66.

synchronic reflex of the historical syncope rule (9) had the same effect, deleting the vowel of the first pronoun. The number of pronouns eligible to occupy the first position was very restricted; it was, in fact, limited to le, la and les. This constraint was due to the conditions on ordering of personal pronouns with respect to the verb in Old French: "Si les deux pronoms appartiennent à la troisième personne, le régime direct précède le régime indirect" and "Si des deux pronoms l'un est de la troisième personne, l'autre de la première ou de la deuxième, c'est, contrairement à l'usage moderne, celui de la troisième personne qui vient en tête."<sup>1</sup>

The rule for syncope in constructions with two object pronouns can accordingly be stated as:

$$(26) \quad \text{ə} \rightarrow \langle \emptyset \rangle / \left[ \begin{array}{c} \# [ \langle 2 \text{ stress} \rangle ] \\ \left\{ \begin{array}{l} \text{subj prn} \\ \text{qui} \\ \text{quei} \\ \text{que} \\ \text{se} \\ \text{ne} \end{array} \right\} \end{array} \right] \left[ \text{—} \right] \left[ \begin{array}{c} [ 0 \text{ stress} ] \\ \text{prn} \quad \text{prn} \end{array} \right] \left[ \begin{array}{c} [ \# 1 \text{ stress} ] \# \\ \text{v} \end{array} \right]$$

Schwa is variably deleted in the first of two consecutive object pronouns when they are preceded by a secondary stressed monosyllabic element belonging to the class of proclitic (non) lexical items comprising subject pronouns, qui, quei, que, se, ne, and followed by a verb.

By rule (26), schwa is deleted in the examples in (24) to give the following output:

---

<sup>1</sup>Foulet 1967:147-9.

- (24') i. #nè lə tə#dí' → [nè↓tədí']  
 ii. #sè ləs tə#dunəθ# → [sè↓stədunəθ]

Since rules (23') and (26) are functionally the same, and structurally very similar, differing only in that (26) has one additional feature in its environment, it is possible to collapse the two rules, thus capturing a significant generalization about the way syncope acts in relation to stress dynamics:

- (27) ə → <∅> / [#<2 stress>] [—] ([0 stress]) [#1 stress]#
- |          |     |     |   |
|----------|-----|-----|---|
| subj prn | prn | prn | v |
| qui      |     |     |   |
| quei     |     |     |   |
| que      |     |     |   |
| se       |     |     |   |
| ne       |     |     |   |

Following are attested examples of pretonic syncope in clitic constructions involving both one and two object pronouns:<sup>1</sup>

(28) One pronoun:

- ME: jom vueil purpenser (Chanson de Guillaume 1463)  
tum reconfortasses (Alexis 78e)  
tum defent (Chanson de Guillaume 810)  
tum laissas (Alexis 170-Ro)  
nem lez tener (Léger 93)  
nem revueil encombrer (Alexis 38c)  
nem mete en lour baille (Alexis 42d)  
nem conoistront, tanz jourz a que nem vidrent (Alexis 42e)

---

<sup>1</sup>Unless otherwise indicated by an abbreviation after the line number, examples are taken from Melander 1928: 24-6, 28.

Ja tote gent nem soüssent tourner (Alexis 98e)  
 Il nem faldrat (Alexis 99e)  
nem plaigne (Charlemagne 801)  
Nem fesis mal (Roland 2029)  
 Jo nem faz mie tenir al pris Guillelme (Chanson de Guil. 90)  
nem giras mais es braz (Chanson de Guil. 1038)  
nem fereit (Chanson de Guil. 1918)  
nem conoissez (Horn C 3746)  
 Et si gre nem savez (Horn C 4016)  
sem puez acorder (Roland 74)  
Sem creïsez (Roland 1728)  
Sem pardonez (Thèbes 8561)  
sim volez maintenir (Horn C 3052)  
sim pais por soe amor (Alexis 50-Ro)  
kim fereit (Chanson de Guil. 1156)  
kim soleit faire (Chanson de Guil. 1740)  
quem prest son halberc (Charlemagne 533)  
 Dites al rei Hugon quem prest son olifant (Charlemagne 801)  
 ne seit quem puisset el cors entrer (Chanson de Guil. 904)  
 les biens quem destine (Yder 4163)

TE: jot vi (Alexis 92c)  
 Se jot soüsse (Alexis 98a)  
jot plevis (Chanson de Guil. 70)  
jot chargerai Guischart (Chanson de Guil. 1035)  
jot ferai...mener (Chanson de Guil. 1646)

Net conoïmes n'encor net conoissons (Alexis 72e)

net poi avisser (Alexis 79e)

Net conoissee plus qu'onques net vedisse (Alexis 87e)

Net vanteras (Chanson de Guil. 426)

net dei rover (Chanson de Guil. 825)

Net chalt a demander (Chanson de Guil. 1007)

net set pro conreer (Chanson de Guil. 1938)

kit comandat ma muillier encuser? (Chanson de Guil. 1877)

SE: Nos coist (Eulalia 20)

A czo nos voldret concreidre (Eulalia 21)

nos defended (Passion 155)

nes soth mesfait (Léger 89)

nes contint (Alexis 28e)

nes volt encombrer (Alexis 77d)

nes mut (Charlemagne 193)

ja nes movrat li altre (Charlemagne 612)

Nes poet garder (Roland 9)

nes volt il desarmer (Roland 2498)

nes dement (Roland 2517)

nes repentent (Roland 3011)

N'a nul reguart que toz nes venche (Troie 21416)

Nes puet tenir sages ne fous (Thèbes 2268)

Qui del defendre nes font fous (Thèbes 2996)

C'unques genz tant nes descorderent (Ambroise 10211)

quis poet tant travaillier (Charlemagne 519)

N'i ad eschipse quis deimt (Roland 1552)

cil kis deivent cumbatre (Roland 3854)

Ço at ques vuelte (Alexis 123d)

N'avrat vertut ques tienget contre nus (Roland 3183)

LE: jel sivrai (Roland 84)

jol sai bien (Roland 760)

jol pert (Roland 840)

jol dei servir aler (Chanson de Guil. 1279)

jol prendrai (Mystère d'Adam 69-Ro)

tul secures (Chanson de Guil. 979)

tul m'as demandé (Chanson de Guil. 1652)

Si tul mangües (Mystère d'Adam 35-Ro)

nol vid (Alexandre 9)

pensar nol poz (Passion 55)

nol gurpira (Passion 116)

nol refuded (Passion 147)

nol consentunt (Passion 222)

nol sab (Passion 332)

nol pod pensar (Passion 339)

qui nol cretran (Passion 456)

nel condignet nuls de sos piers (Léger 59)

nol demonstrat (Léger 78)

nel volt il observer (Léger 136)

credre nel pot antro quel vid (Léger 188)

Nel reconourent (Alexis 24)

nel pourent trover (Alexis 26b)  
nel puet onc enjaner (Alexis 32e)  
 il nel set choisir (Alexis 35e)  
 ja nel puis jo trover (Charlemagne 40)  
Nel deüsez penser (Charlemagne 56)  
nel pout escolter (Charlemagne 408)  
nel die (Charlemagne 683)  
nel poeent porter (Charlemagne 843)  
Nel ferez (Roland 255)  
nel verrai (Roland 298)  
nel dirat (Roland 447)  
nel dit (Chanson de Guil. 80)  
nel dire (Chanson de Guil. 308)  
nel pout tressailir (Chanson de Guil. 394)  
nel verrum (Chanson de Guil. 765)  
nel poi aviser (Alexis 105-Ro)  
nel fist por lui (Léger 23-Ro)  
 vos nel deignastes (Roland 108a-Ro)  
 Jo nel sai (Roland 10b-Ro)  
Nel poes saveir (Mystère d'Adam 64-Ro)  
Sel pois trover (Roland 657)  
sel volez otroier (Roland 1672)  
 En pas quel vidrem les custodes (Passion 397)  
quel vuelent onorer (Alexis 38a)  
quel veiet (Alexis 49e)

mais quel sachet li reis (Charlemagne 491)

tres quel comanderat (Charlemagne 770)

Puis quel comant (Roland 300)

quel rendent a Charlun (Roland 1829)

Ki quel cumpert (Roland 1592)

Ki quel blasme ne quil lot (Roland 1546)

S'est kil demandet (Roland 119)

N'est hom kil veit (Roland 530)

kil nurrit (Roland 2380)

kil succurrat (Roland 3443)

kil purreit acunter? (Roland 534)

kil siwit (Chanson de Guil. 351)

quil quart (Alexis 46d)

quil serveit (Alexis 68a)

LES:<sup>1</sup> Se jos en creit (Alexis 41e)

Joes voell aler querre (Roland 2180)

Jos veintraï bien (Chanson de Guil. 591)

Tus a veüs (Chanson de Guil. 205)

Ses volez amender (Comput. 178)

Sarrazin nes unt mie dutez (Roland 1186)

nes espargniez (Roland 1883)

nes vait envair (Roland 2062)

nes osent aproismer (Roland 2073)

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<sup>1</sup>The l of les was deleted by a process of l-vocalization in preconsonantal position. This process is discussed below, pp. 58-9.

nes poet nule gent cuntrester (Roland 2511)

païen nes desmembrent (Chanson de Guil. 46)

nes derumpent (Chanson de Guil. 501)

nes guarreit (Chanson de Guil. 511)

nes estoüst morir (Chanson de Guil. 513)

nes avriüm tuëz (Chanson de Guil. 581)

Loinz sunt les eues, que il nes (fém.) sout trover (Chanson de Guil. 846)

nes puet garandir (Aliscans 2-Ro)

sis mist en reng (Roland 25a-Ro)

sis prist a chasteiier (Roland 42c-Ro)

Quis conduit (Charlemagne 97)

kis esguardent (Roland 3882)

Païen kis cuntruverent (Comput. 650)

kis(fém.) esgardereit (Comput. 2538)

kis (fém.) cunterat (Comput. 2482)

quis puisset conforter (Alexis 118e)

Ki ques rapelt (Roland 1912)

qui ques prengent (Chanson de Guil. 69)

(29) Two pronouns:

LE: jol vos parduins (Roland 2007)

jol vos recrerai (Roland 3848)

jol vus dirai (Chanson de Guil. 1463)

Jol vus avrai dit (Chanson de Guil. 1738)

tot nol vos pose eu ben comptat (Passion 447)

Jo nel vos os veer (Charlemagne 845)

Se jo nel vos cumant (Roland 273)  
nel se doüst penser (Roland 355)  
 Tant nel vos sai ne preiser ne loer (Roland 532)  
nel ne reproverunt (Roland 768)  
 jo nel te forsfis (Roland 2029)  
Nel te penser (Chanson de Guil. 60)  
Nel me devez ja querre (Chanson de Guil. 165)  
 Si nel me renz (Chanson de Guil. 1038)  
 Tu nel me deis celer (Chanson de Guil. 1358)  
Nel se deüst penser (St. Thomas 2749)  
quil me guardast (Alexis 46b)  
 Tort fait kil me demandet (Roland 833)  
 jo sui quil te di (Chanson de Guil. 978)  
quil me sait enseigner? (Cour. Louis 1953)  
quel nos conservet (Jonas 32)  
 LES: Jes (fém.) lur dirrai merveilluses e pesmes (Roland 2919)  
Jos vus rendrai (Quatre livres d. Rois II 21, 7)  
jes vus sai tresbien dire (St. Thomas 4496)  
 Quant jos vos avrai racontees (Troie 26598)  
jes te vuelle randre (Charrette 57)  
Ques me gardez (Cour. Louis 222)

#### 1.2.1.1.3. Discussion

Although rule (27) appears to have very little formal similarity with the corresponding historical process of pretonic syncope presented above in (9), if we compare the two rules, some interesting gener-

alizations can be made regarding the functioning of syncope. Both rules are repeated here for convenience:

$$(9) \quad \underset{[-low]}{V} \rightarrow \emptyset / \# C_0 \quad \underset{[2 \text{ stress}]}{V} \quad C_0 \text{ --- } (C_0 V) C_0 \quad \underset{[1 \text{ stress}]}{V}$$

$$(27) \quad \text{e} \rightarrow \langle \emptyset \rangle / [\# [\langle 2 \text{ stress} \rangle] \text{ --- } ([0 \text{ stress}]) [\# 1 \text{ stress}]\#]$$

subj prn	prn	prn	v
qui			
quei			
que			
se			
ne			

The differences between the two rules are immediately observable. Whereas (9) applies within the environment of a single lexical item, (27) has as its domain of application syntactic constructions composed of elements from various lexical categories. In (9), no more than one syllable separates the syncopated vowel from the main stress, whereas in (27), not only is the number of syllables irrelevant, but also the main stress occurs in an element other than that which undergoes syncope. All underlying [-low] vowels occurring in the environment of (9) are subject to deletion. Although the only underlying [-low] vowels in the environment of (27) are [ə] and [o], only the former is subject to syncope. Finally, (9) applies categorically to all lexical items which satisfy its structural description and results in a restructuring of their underlying representations. The synchronic O.F.I rule (27), on the other hand, is a low-level, variable rule whose probability of application is determined by the weight of the variable constraints present. Although it produced allomorphic alternation, no restructuring

resulted from its application , since its operation was always sensitive to syntactic and phonological factors external to the affected lexical item.

Despite these differences, (9) and (27) share a certain number of characteristics which identify them as being similar processes. The environment of both is a 'phonological word', that is, "a string of formatives (one or more) contained in the context ## \_\_\_ ## and containing no occurrences of ##."<sup>1</sup> In both rules, the vowel regularly subject to syncope is contained in the second syllable from the beginning of the phonological word. Furthermore, perhaps the most significant resemblance between (9) and (27) is that they both exhibit the same distribution of stress relative to the vowel undergoing deletion. In both cases, this latter is unstressed and is preceded by a secondary stress and followed by a primary stress. It is due to this persistence of stress dynamics, functioning in the same way in Old French as they did in earlier periods, that the prosodic environment remained intact for the naturally conditioned process of syncope to occur.

Just as the historical syncope rule (9) was often impeded in its application by the surface phonetic constraints existing in Gallo-Roman, in likewise fashion, the corresponding synchronic rule (27) in Early Old French was subject to similar restrictions. If we examine the cases in (28) and (29) above, it is discovered that no instances of syncope occur after monosyllabic subject pronouns other than jo/je

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<sup>1</sup>Chomsky and Halle 1968:13.

and tu, the only ones in fact, which terminate in a vowel. The absence of syncope after il, nos and vos is not to be considered accidental, but rather as attributable to the structural principles of Early Old French. If deletion of schwa were to take place after subject pronouns other than jo/je and tu, consonant sequences would arise which were unnatural with respect to the surface phonetic constraints present in Old French. Among the SPC's functioning as phonetic-structure well-formedness conditions during this period, the following may be cited here for purposes of exposition:

(30) i. ~ \$ [+cons] [+cons] [+cons]

SPC (30i) is interpreted as: No three-member syllable-initial consonant clusters exist.

ii. IF:	\$ [+cons]	[+cons]
	↓	↓
THEN:	$\left[ \begin{array}{c} [-cont] \\ [-del\ rel] \\ \langle +cor \rangle \end{array} \right]$	$\left[ \begin{array}{c} [+son] \\ [-nas] \\ \langle -lat \rangle \end{array} \right]$
	$\left[ \begin{array}{c} [+cont] \\ [-cor] \\ \langle +voice \rangle \end{array} \right]$	

SPC (30ii) is a feature representation of existing two-member syllable-initial consonant clusters. Stated in phonetic symbols, these are:

[pr, br, tr, dr, kr, gr, pl, bl, kl, gl, fr, vr, fl]

iii. IF: [+cons] [+cons] [+cons] \$

↓                    ↓                    ↓

THEN:  $\left\{ \begin{array}{l} +\text{son} \\ -\text{nas} \\ -\text{ant} \end{array} \right\}$   $\left[ \begin{array}{l} +\text{cont} \\ +\text{cor} \\ +\text{strid} \end{array} \right]$   $\left[ \begin{array}{l} -\text{cont} \\ +\text{cor} \\ -\text{del rel} \\ -\text{voice} \end{array} \right]$

[+nas]

SPC (30iii) is a feature representation of existing three-member syllable-final consonant clusters. Stated in phonetic symbols, these are: [rst, nst].

iv. IF: [+cons] [+cons] \$

↓                    ↓

THEN:  $\left[ \begin{array}{l} +\text{son} \\ -\text{nas} \\ -\text{ant} \end{array} \right]_{\alpha}$   $\left[ \begin{array}{l} +\text{cont} \\ +\text{strid} \\ -\text{voice} \end{array} \right]$

$\left\{ \begin{array}{l} +\text{cont} \\ +\text{cor} \\ +\text{strid} \end{array} \right\}$   $\left\{ \begin{array}{l} [+nas] \\ -\text{cont} \\ -\text{voice} \end{array} \right\}_{\alpha}$

$\left[ +\text{nas} \right]_{\beta}$   $\left[ -\text{cont} \right]_{\beta}$

$\left[ +\text{nas} \right]_{\gamma}$   $\left[ -\text{voice} \right]_{\beta}$

$\left[ \begin{array}{l} +\text{cont} \\ +\text{cor} \\ +\text{strid} \\ -\text{voice} \end{array} \right]_{\gamma}$

SPC (30iv) is a feature analysis of existing two-member syllable-final consonant clusters. Stated in phonetic symbols, these are: [rf, rs, rm, rn, rp, rt, rk, rts̄, sp, st, sk, sts̄, mp, nt, r̄k, nts̄, ns].

$$\begin{array}{c}
 \text{v.} \\
 \left. \begin{array}{c} \left[ \begin{array}{c} -\text{cont} \\ -\text{ant} \\ +\text{del rel} \end{array} \right] \\ \\ \left[ \begin{array}{c} +\text{son} \\ +\text{cont} \\ -\text{voice} \end{array} \right] \\ \\ \left[ \begin{array}{c} +\text{nas} \\ -\text{ant} \end{array} \right] \end{array} \right\} \$
 \end{array}$$

SPC (30v) states that [tʃ̣, dʒ̣, h, ɹ] do not occur syllable-finally.

$$\text{vi. IF: } [-\text{son}] \left[ \begin{array}{c} -\text{son} \\ -\text{voice} \end{array} \right]$$

↓

THEN: [-voice]

SPC (30vi) states that if an obstruent is directly followed by a voiceless obstruent, then it is necessarily unvoiced.

$$\text{vii. IF: } \left[ \begin{array}{c} +\text{cons} \\ +\text{nas} \end{array} \right] \left[ \begin{array}{c} -\text{son} \\ \alpha\text{ant} \\ \beta\text{cor} \end{array} \right]$$

↓

THEN:  $\left[ \begin{array}{c} \alpha\text{ant} \\ \beta\text{cor} \end{array} \right]$

SPC (30vii) is interpreted as: A nasal consonant is homorganic to a following obstruent.

$$\text{viii.} \quad \sim \left[ \begin{array}{c} +\text{cons} \\ +\text{son} \\ -\text{nas} \\ +\text{high} \end{array} \right] \quad [+cons]$$

SPC (30viii) states that no sequences of [ɭ] (velarized lateral)+cons. or [ʎ] (palatal lateral)+cons. exist.

Since the potential output of rule (27) had to be checked for phonetic well-formedness against the SPC's in (30), it can be seen how they functioned to prevent syncope after subject pronouns ending in a consonant. If (27) were to apply in clitic constructions such as:

- (31) i. vòs me vedéz 'you see me'  
 ii. nòs le punissóns 'we punish him'

the phonetic output would be realized as follows:

- (31') i. #vòs mə#veðets# → \*[vosmveðets]  
 ii. #nòs lə#pünisúns# → \*[noslpünisúns]

Application of syncope in (31') produces phonetic representations with internal consonant sequences of [-smv-] and [-slp-]. In order to be phonetically well-formed, these sequences must be resolved into occurring syllable-final and/or syllable-initial single consonants or clusters. If we try to syllabify [-smv-] following this principle, it is first seen that [smv-] is not a possible syllable-initial or syllable-final cluster (by 30i, iii). Furthermore, according to SPC (30iv), [-sm] is not an occurring syllable-final cluster, nor, by (30ii) is [mv-] an occurring syllable-initial cluster. Being thus indissolvable, the sequence [-smv-] is ill-formed with respect to the phonetic patterning of Old French. Ill-formedness likewise characterizes the sequence [-slp-]. Referring to SPC's (30i, iii), it is seen that [slp-] is not a possible syllable-initial or syllable-final cluster, nor, according to SPC's (30iv, ii) are [-sl] and [lp-]

well-formed final and initial clusters, respectively. As was the case in (31'i), the output in (31'ii) runs counter to the constraints governing phonetic well-formedness in Old French. Consequently, syncope of schwa is blocked in these examples through the functioning of surface phonetic constraints.

In other instances, phonetically ill-formed consonant sequences arising from syncope were modified by other phonological rules which made them acceptable to the SPC's. Consider, for example, the result of schwa deletion in the following cases:

- (32)
- i. ne me dit 'he does not tell me'  
#nè mə#dít# → /nemdit/
  - ii. se me creit 'if he believes me'  
#sè mə#kreít# → /semkreit/
  - iii. ne se venche 'he is not revenged'  
#nè sə#vĕnčə# → /nesvĕnčə/
  - iv. ne se baigne 'he does not bathe'  
#nè sə#bājnə# → /nesbājnə/
  - v. jo le beif 'I drink it'  
#jò lə#beíf# → /jò↓beif/
  - vi. ne le pert 'he does not lose it'  
#nè lə#pért# → /ne↓pert/
  - vii. jo les crei 'I believe them'  
#jò ləs#kreí# → /jò↓skrei/
  - viii. se les pert 'if he loses them'  
#sè ləs#pért# → /se↓spert/

According to the SPC's in (30), none of the consonant sequences resulting from syncope of schwa in the above examples are phonetically well-formed. In violation of SPC (30vii), (32i-ii) present sequences of a nasal consonant nonhomorganic to a following obstruent, i.e., /md/ and /mk/. Furthermore, (32iii-iv) contain sequences of s + voiced consonant, i.e., /sv/ and /sb/, which did not exist in Old French.<sup>1</sup> Finally, in (32v-viii), deletion of schwa results in sequences of ~~z~~ + consonant, which, according to SPC (30viii) were also not to be found.

Although the immediate outputs of syncope in (32) are strings unnatural to the phonetic patterning in Old French, other (natural) phonological rules present in the language at this stage applied to them, modifying the irregular consonant sequences so as to make them phonetically acceptable.

For example, there was a phonological rule in Old French which assimilated nasal consonants in position of articulation to the following obstruent:<sup>2</sup>

(33) Nasal Assimilation

$$\begin{bmatrix} +\text{cons} \\ +\text{nas} \end{bmatrix} \rightarrow \begin{bmatrix} \alpha\text{cor} \\ \beta\text{ant} \end{bmatrix} / \text{---} \begin{bmatrix} -\text{son} \\ \alpha\text{cor} \\ \beta\text{ant} \end{bmatrix}$$

This rule was necessary in the grammar to account for such alternations as:

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<sup>1</sup>See Klausenburger 1970:58-9.

<sup>2</sup>See Walker 1971:59.

- (34) i. aime/aint 'like (3rd sg. pres. indic./pres. subj.)'  
 ii. criem/crient 'fear (1st sg./3rd sg. pres. indic.)'  
 iii. giem/gient 'groan (1st sg./3rd sg. pres. indic.)'  
 iv. feins/feigne 'feign (1st sg. perf./pres. subj.)'  
 v. chans/champ 'field (nom./acc.)'

Although Nasal Assimilation was subject to certain ordering restrictions at this higher morphophonemic level, it persisted simultaneously, however, as a low-level rule due to its natural phonetic motivation, affecting strings such as:<sup>1</sup>

- (35) i. enfes [ɛ̃mfɛs] 'child'  
 ii. son pedre [sumpeðrɛ] 'his father'  
 iii. en bataille [ɛ̃mbataʎə] 'in battle'

Nasal assimilation could, therefore, apply to (32i-ii) in the following manner:

- |       |    |             |     |               |                    |
|-------|----|-------------|-----|---------------|--------------------|
| (32') | i. | #nè mɛ#dít# | ii. | #sè mɛ#kreít# |                    |
|       |    | němdít      |     | sěmkreit      | Syncope (27)       |
|       |    | [něndít]    |     | [sěŋkreít]    | Nasal Assimilation |

The output of Nasal Assimilation is now a well-formed phonetic representation in both the above cases, since the sequences [-nd-] and [-ŋk-] satisfy SPC (30vii).

Another synchronic rule in Old French involved the vocaliza-

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<sup>1</sup>See Pope 1934:169, 219.

tion of  $\downarrow$  and  $\wedge$  to [w] in preconsonantal position:<sup>1</sup>

(36) L-Vocalization

$$\begin{bmatrix} +\text{son} \\ -\text{nas} \\ +\text{high} \end{bmatrix} \rightarrow [-\text{cons}] / \_\_\_ [+cons]$$

L-Vocalization was required as a morphophonemic rule to account for such alternations as:

- (37) i. cheval [čeva $\downarrow$ ] / chevaux [čeva $\wedge$ ws] 'horse (acc./nom.)'  
 ii. travail [trava $\downarrow$ ] / travaux [trava $\wedge$ ts] 'work " '  
 iii. genouil [jəno $\downarrow$ ] / genoux [jəno $\wedge$ ts] 'knee " '  
 iv. fol [fo $\downarrow$ ] / fous [fo $\wedge$ ws] 'crazy " '

L-Vocalization, a phonetically natural process like Nasal Assimilation, persisted also as a low-level rule, applying to non-alternating forms such as:

- (38) i. albe a $\downarrow$ bə → [awbə] 'sapwood'  
 ii. altre a $\downarrow$ trə → [awtrə] 'other'  
 iii. alter a $\downarrow$ ter → [awter] 'to alter'  
 iv. feltre fe $\downarrow$ trə → [fewtrə] 'tapisstry'  
 v. colp kə $\downarrow$ p → [kəwp] 'blow'

whose lexical representations were eventually restructured without the lateral segment.

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<sup>1</sup>See Walker 1971:60.

Since the forms in (32v-viii) satisfied the structural description for L-Vocalization, they underwent the process after the application of syncope (27):

(32')	v. #j <sup>o</sup> lə#b <sup>e</sup> i f#	vi. #n <sup>e</sup> lə#p <sup>e</sup> r t#	
	j <sup>o</sup> ↓ b e i f	n <sup>e</sup> ↓ p e r t	Syncope (27)
	[jow b e i f]	[new p e r t]	L-Voc. (36)
	vii. #j <sup>o</sup> lə s#k <sup>r</sup> e i#	viii. #s <sup>e</sup> lə s#p <sup>e</sup> r t#	
	j <sup>o</sup> ↓ s k r e i	s <sup>e</sup> ↓ s p e r t	Syncope (27)
	[jows k r e i]	[s e w s p e r t]	L-Voc. (36)

The outputs in (32'v-viii) now qualify as well-formed phonetic representations, since they no longer violate SPC (30viii) which prohibited sequences of [↓, ^]+consonant.<sup>1</sup>

Finally, another low-level phonetic rule existed in Early Old French which voiced s to z before voiced consonants:

(39) S-Voicing

$$\begin{bmatrix} +\text{cont} \\ +\text{cor} \\ +\text{strid} \end{bmatrix} \rightarrow [+voice] / \text{ \_\_\_ } \begin{bmatrix} +\text{cons} \\ +\text{voice} \end{bmatrix}$$

<sup>1</sup>Examples can be found which, by their orthographic representation, show that the pronouns did, in fact, undergo L-Voc.: nel > nou/neu, sel > sou/seu, jel > jou/jeu, quil, quel > cou/quo/queu (see Rydberg 1904:457):

sou tenés en prison (Guart de Rossillon, p. 82)  
 Et seu tenoie por ami et parent (Amy. de Narb. 1907)  
 Ou voit le roi seu prist a saluer (Ibid. 2068)  
seu volez creater (Ibid. 2018)  
seu nommerons (Ibid. 2378)  
 Or si vodroie, seu volez otroier (Ibid. 802)  
Jou tenoie a table e a songe (Guiot von Provins 1997)  
Jeu te dirai asses (Amy. de Narb. 669)

Rule (39) accounts for such forms as:<sup>1</sup>

- |      |      |                 |     |                     |
|------|------|-----------------|-----|---------------------|
| (40) | i.   | isle 'island'   | ii. | blasmer 'to blame'  |
|      |      | /islə/→[izlə]   |     | /blasmer/→[blazmer] |
|      | iii. | hisde 'fear'    | iv. | mesler 'to mix'     |
|      |      | /hisdə/→[hizdə] |     | /mesler/→[mezler]   |

In a similar fashion, the forms in (32iii-iv) underwent S-Voicing after syncope of schwa:

- |       |     |               |      |               |           |
|-------|-----|---------------|------|---------------|-----------|
| (32') | iv. | #ne sə#bǎiɲə# | iii. | #ne sə#vĕnčə# |           |
|       |     | nes bǎiɲə     |      | nesvĕnčə      | Syncope   |
|       |     | [nezbǎiɲə]    |      | [nezvĕnčə]    | S-Voicing |

Since the sequences [-zb-] and [-zv-] now satisfy the sequential constraints of Old French, the outputs in (32'iii-iv) qualify as well-formed phonetic representations.

Due to the presence of these natural rules of Nasal Assimilation, L-Vocalization and S-Voicing, functioning in essence as "SPC-oriented rules", syncope was permitted to occur in pronominal constructions such as those in (32). However, as a consequence of the application of these additional rules, there resulted a certain amount of complication as regards the allomorphic realization of the

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Ne cuidiez mie que jeu die a gabois (Ibid. 609)  
 Savez por coi jeu di? (Ibid. 798)  
 [Car] tant est grans la joie com Dex voudra doner  
 A ces cou serviront (Desc. S. Paul (Rom. 1887) 174f.)

<sup>1</sup>See Pope 1934:151.

object pronouns. Syncope, by itself, already had the effect of producing a degree of asymmetry in the surface realizations of the unstressed object pronouns, viz.: [mə]/[m], [tə]/[t], [sə]/[s], [lə]/[↓]. Further application of these other rules (33, 36, 39), added to their possible phonetic manifestation: me [mə]/[m]/[n]/[ɲ], se [sə]/[s]/[s]/[z], le [lə]/[↓]/[w], les [ləs]/[ws]. From a perceptual point of view, this situation was undesirable, since it seriously violated the uniqueness criterion. The allomorphs [n]/[ɲ], [z], [w], [ws], although resulting from natural rules, were so much at variance with the underlying representations me, se, le, les, that the pronouns were threatened with semantic obscurity.<sup>1</sup>

As mentioned above (pp. 35-7), the major factor determining the variable nature of intertonic syncope in clitic constructions in Early Old French, and its subsequent loss in Later Old French, was the transition in the operation of stress dynamics. However, it is probable that the complex situation created by the proliferation of the pronominal allomorphs further contributed to the subsidence of syncope. The assumption of a "perceptual strategy of having a consistent surface representation for the same form"<sup>2</sup> would certainly seem to receive support in this case. Since there was a need to preserve the object pronouns in a form that was unambiguously recognizable as such, perceptual strategies very likely functioned in an ancillary way to arrest syncope of schwa in clitic constructions.

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<sup>1</sup>See Pope 1934:323.

<sup>2</sup>Schane 1972:225.

## 1.2.1.2. Syncope in prepositional phrases

In Early Old French, the unstressed forms of the definite articles le and les underwent pretonic syncope after the prepositions a (<ãd), de (<dē) and en (<ĭn). These prepositions were weakly stressed for the same reason as were the initial monosyllabic elements in the pronominal constructions, that is, because of their inability to stand alone in a sentence and their consequent dependence on a following stressed word. These prepositional phrases, composed of {a, de, en}+[le, les]+Noun, formed phonological units analogous to those clitic constructions involving a single unstressed object pronoun but, unlike the latter, underwent syncope obligatorily:<sup>1</sup>

$$(41) \text{ } \underset{\text{(OBL)}}{\text{e}} \rightarrow \emptyset / \left[ \begin{array}{c} \# [2 \text{ stress}] \\ \left\{ \begin{array}{l} \text{a} \\ \text{de} \\ \text{en} \end{array} \right\} \end{array} \right] \left[ \text{---} \right] \left[ \begin{array}{c} \# [1 \text{ stress}] \# \\ \text{def} \\ \text{art} \\ \text{n} \end{array} \right]$$

[ə] is deleted in a definite article when it is preceded by a secondary stressed preposition (a, de, en) and followed by a noun.

By (41), schwa in the definite article was synchronically deleted in such prepositional phrases as:

- (42) i. de le cor 'of the horn'  
           #dē lə#kɔr# → [dɛɫkɔr]
- ii. de les cors 'of the horns'  
       #dē ləs#kɔrs# → [dɛɫskɔrs]

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<sup>1</sup>See Foulet 1967:47.

- iii. a le mur 'to the wall'  
 ` #a lə#mür# → [a↓mür]
- iv. a les murs 'to the walls'  
 ` #a ləs#mürs# → [a↓smürs]
- v. en le vin 'in the wine'  
 ` #ě lə#vín# → [ě↓vín]
- vi. en les vins 'in the wines'  
 ` #ě ləs#víns# → [ě↓svíns]

The feminine singular definite article la did not undergo syncope before a noun beginning with a consonant. Again, as in the case of clitic constructions involving the feminine singular pronoun as direct object and in words containing pretonic a in Gallo-Roman, the more sonorous quality of this vowel protected it from deletion:

- (43) i. de la feme 'of the woman'  
 ` #de la#fěmē# → [delafěmē]
- ii. a la porte 'to the door'  
 ` #a la#pǔrte# → [alapǔrte]
- iii. en la main 'in the hand'  
 ` #ě la#māin# → [ělamāin]

As can be seen in the output of (42), sequences of ↓+consonant arose due to the application of syncope (41). Since this situation ran counter to the phonetic constraints of Old French (see SPC (30viii)), L-Vocalization (36) applied to these representations as well, with

subsequent deletion of the glide in the plural forms:

(42') i.	deɫkɔr	iii.	aɫmür	v.	ẽɫvi n
	↓		↓		↓
	[dew kɔr]		[a w mür]		[ẽ w vi n]
ii.	deɫskɔrs	iv.	aɫsmürs	vi.	ẽɫsvi ns
	↓		↓		↓
	[deskɔrs]		[asmürs]		[ẽsvi ns]

The facility with which the consonantal elements of the articles underwent further modification as opposed to those of the object pronouns can perhaps be explained by the fact that the article did not normally have any important grammatical function in Old French. It was generally only used when one wanted to give emphasis to the noun: "Au moyen âge sa fonction est bien vraiment de marquer la détermination. Dès qu'un substantif est pris dans un sens vague et indéfini, dès que les limites de son extension s'effacent un peu, l'article disparaît."<sup>1</sup> Moreover, in the prepositional phrases {de+le+Noun}, {a+le(s)+Noun}, {en+le(s)+Noun}, the combination of Preposition+Article was always the same, whereas there was variation in the noun. This constant association between preposition and article very likely exerted a strong psychological influence and ultimately led to the recognition of these groups, not as a combination of Preposition+Article, but as an indivisible unit. The fact that scribal practice consistently accorded these units an autonomous orthographic representation would seem to indicate that restructuring eventually occurred, probably before the beginning of Later Old French. This view

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<sup>1</sup>Foulet 1967:49.

receives support from the fact that, even after the prosodic conditions motivating syncope in the earlier period had changed, the definite articles were still not found represented in their full form after the prepositions à, de, and en. Such was not the case with the direct object pronouns, however, which were rarely represented orthographically in their contracted forms after the thirteenth century.<sup>1</sup> Furthermore, other changes in Later Old and Middle French affected the abbreviated forms al/au [aw], del/deu [dew], el/eu [ew], as [as], des [des], and es [es], treating them as single words. In the thirteenth century, as was replaced by aus [aws] by analogy with au. Also around the same time the diphthong [ew], formed from the vocalization of ↓ in the article le, underwent the regular development of this diphthong in other words and monophthongized to ø. In Middle French, ø closed to ü ([dø>dü] du; cf., buvant [büvã], prudhomme [prüdøm]).<sup>2</sup> Eu (<en+le) likewise changed to [ü] u, but the eastern dialectal form ou [u] was generalized. The western pronunciation of es (<en+les), [es], was also extended in Middle French. Later, ou, often confused syntactically, semantically and phonetically with au, was replaced by the latter (e.g., in the legal formula en mon nom et au sien).<sup>3</sup> Es, by the seventeenth century, was a literary archaism,

<sup>1</sup>"...die gewöhnlichsten Inklinationsverbindungen [i.e., synco-pated pronominal constructions] im Zentrum, Westen und Süden, d.h. in dem grösseren Teil des Sprachgebiets relativ frühzeitig geschwunden waren und vielleicht schon während des späteren Teiles des 12., sicherlich zu Beginn des 13. Jahrh. nicht mehr der lebenden Sprache angehörten" (Rydberg 1904:453). Cf. also Rheinfelder 1967:131; Schwan-Behrens 1913:190.

<sup>2</sup>See Pope 1934:201.

<sup>3</sup>See Ewert 1969:102.

and was preserved only in fixed expressions, such as bachelier ès arts, docteur ès lettres, etc. Finally, the modern pronunciation of au, aux, [o(z)], dates from the sixteenth century when the diphthong [aw] underwent monophthongization (cf. autre [aw trə] > [otrə], faucon [faw kün] > [fokün]).<sup>1</sup>

Following are attested examples of the contracted forms of {a, de, en}+{le, les}, originally arising from synchronic pretonic syncope of schwa in Early Old French, and lexicalized in their syncope surface forms before the end of the period. The orthographic representations clearly illustrate the subsequent changes they underwent:

(44) i. A+LE:

AL: El cuor exastret al tirant (Léger 107-Ro)  
 Bons fut li siecles al tens ancienor (Alexis 1-Ro)  
Al tens Noë e al tens Abraam (Alexis 6-Ro)  
Al rei lo duistrent soi parent (Léger 14-H)  
 Co dist li reis: "Al Jhesu e al mien!" (Roland 66-H)  
 Quant il vindrent al gaiole (La Résurrection du Sauveur 37-H)  
 mandez Carlun, al orguillus, al fier (Roland 29-Rh)

AU: si le noua au piler de le fenestre (Auc. 12-Rh)

ii. A+LES:

AS: Et de granz pels de martre josqu'as piez traīnanz  
 (Pèlerinage de Charlemagne all-Ro)  
 Mais as plus povres le dūnet a manger (Alexis 10-H)

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<sup>1</sup>See Pope 1934:199.

Dunc l'unt saisi as puinz li fil a l'aversier,  
(Vie de St. T. Becket 71-H)

E as sainz de l'iglise se comande erramment, (Ibid. 104)

larges almosnes...dunet as (m.) povres (Alexis 93f-Rh)

as (f.) tables jüent pur els esbaneier (Roland 111-Rh)

j'ay depuis enquis et demandé as bons chevaliers  
(Froissart-1356-Gl. S. 101, 93-Rh)

AUS: aus gens que chaut? (Bernier-end of 13th c.-BW 58, 279-Rh)

AUX: portes honneur aux renommez,  
aux anciens, aux bons nommez! (Chr. de Pisan-15th c.-BW 89d,  
81f-Rh)

iii. DE+LE:

DEL: Les uoils del quiev li fait crever; (Léger 70-Ro)

Cons fut de Rome del mielz qui donc i eret; (Alexis 17-Ro)

al cumand Deu del ciel. (Alexis 53-Rh)

en l'ombre del piler (Auc. et Nic. 16-Rh)

Ne fud nuls om del son juvent (Léger 31-H)

D'une part del pilier en sunt li trei alé, (Vie de St. T.  
Becket 26-H)

E encontre Reinalt del degré descendi. (Ibid. 33)

DEU: a Nicolas vol rendra gueherdon  
deu rei mon pere que gурpist sa raison (Alexis-GF 10, 119f-Rh)

DOU: il fiert Hardré par mi la crois dou chief (Garin-12th c.-  
Hy 33, 41-Rh)

descendus est dou cheval. (Adenet-13th c.-BW 71, 50f-Rh)

En la bataille dou traïtor Hardré; (Ami et Amile-13th c.-44-H)

DO: un autre en fiert do brant (Garin-12th c.-Hy. 33, 34-Rh)

Mainte pierre an abat, do fer atot la hoe, (Les Quatre Fils  
Aymon-14th c.-31-H)

DU: du puing li vole li brans d'achier letré (Huon-13th c.-  
BW 37, 299-Rh)

sor le menuisse du pié (Auc. 12-Rh)

iv. DE+LES:

DELS: En soe amor cantoms dels sanz (Léger 3-Ro)

Primes dirai vos dels honors (Léger 7-Ro)

Et dels laiels que granz sostint. (Léger 152-Ro)

DES: Cons fut de Rome des melz ki dunc i ere[n]t; (Alexis 17-S)

Des melz gentils de tuta la cuntretha. (Alexis 20-S)

Pres est de Dieu e des regnes del ciel; (Alexis 179-S)

A un des porz ki plus est pres de Rome, (Alexis 196-S)

v. EN+LE:

ENL: Enz enl fou la getterent com arde tost: (Eulalie 19-H)

EL: Fenduz en est mes olifanz el gros, (Roland 115d-Ro)

Daint mener el país douz (Pastourelle 60-Ro)

El cuor exastret al tirant (Léger 107-Ro)

El num la virgine ki portat salvetet, (Alexis 89-S)

Danz Alexis le met el consirrer; (Alexis 244-S)

Filz, la tue aname el ciel seit absolute! (Alexis 410-S)

El sel entrer puis m'esforcent; (Voy. de St. Brendan 56-H)

E l'anema en est enz el paradis Deu: (Alexis 544-S)

Qu'o Deu ansemble poissum el ciel regner (Alexis 550-S)

Sainz Alexis est el ciel senz dutance, (Alexis 122-S)

jusqu'el palais (Garin-13th c.-Hy 33, 28-Rh)

el mois de mai (Auc. 12-Rh)

EU: tant cum eu bois nus surjurnames (Tristan-12th c.-BW 24,  
206-Rh)

Vré deauble, eu commencier! (Passion du Palatinus 76-H)

U: quant ele vint u fons (Auc. 17-Rh)

se je vois u gaut ramé (Auc. 17-Rh)

Tes ongles sans oster i fices

U rice qui art et escume (Vers de la mort 27-8-H)

OU: qui fut navrez mout durement ou chief (Garin Hy 33, 8-Rh)

voit la røyne venir ou jardin (Tristan-13th c.-BW 30, 5-Rh)

premierement, ou nom du Pere, (Villon-15th c.-Lais 65f-Rh)

Comment Gargantua fut unze moys porté ou ventre de sa mere  
(Rabelais, Garg. 1534, Chap. 3-Rh)

vi. EN+LES:

ES: Charles esteit es vals de Moriane, (Roland 134d-Ro)

Es autres n'a ne merci ne manaie (Th. de Champagne 18-Ro)

Sedent es bans [e] pensif e plurus (Alexis 327-S)

les chef en prist es puis desuz Haltilie (Roland 209-Rh)

es jours de leur vie(Perceforest-15th c.-BW 98, 31f-Rh)

allons a l'esbat es champs (Rabelais, Garg. Chap. 57-Rh)

### 1.2.2. Synchronic apocope in Early Old French

As was the case with synchronic syncope in Early Old French, synchronic apocope of schwa also occurred in the environment of clitic constructions involving unstressed object pronouns. In this instance, however, the pronouns were in posttonic, rather than in pretonic position, being preceded by a strongly stressed element belonging to the categories Verb, Noun, Adverb, Pronoun, Adjective, Particle

(si<sic 'affirmative marker', ja<jam 'aspectual marker').<sup>1</sup> The combination of stressed word+unstressed pronoun formed a prosodic unit analogous to that found in individual words which had undergone historical apocope (15). Also resembling the historical process, synchronic apocope was most frequent in constructions manifesting paroxytonic stress. For example:

- (45) i. qui me paies 'who pays me'  
 #kí mē#paies# → #kim#paies#
- ii. ceo te vendent 'they sell that to you'  
 #tso tē#vēndent# → #tsot#vēndent#
- iii. si se drecet 'he stands up'  
 #sí sē#drētsəθ# → #sis#drētsəθ#
- iv. ja le veient 'now they see it'  
 #jā lē#vēiənt# → #jal#vēiənt#
- v. si les plains 'pity them'  
 #sí lēs#plāins# → #sí↓s#plāins#/#sis#plāins#<sup>2</sup>

Compare (45) to the following examples of historical apocope showing deletion of the final unstressed vowel after the consonants found initially in the object pronouns:

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<sup>1</sup>See Melander 1928:131-2. The particles ja, si and the neuter demonstrative pronoun ceo<ecce-hoc, are considered to have tonic stress, since they ordinarily required inversion of the subject in O.F., where only strongly stressed elements could stand at the beginning of a phrase due to the characteristic descending modulation (see above, p. 37).

<sup>2</sup>Preconsonantal ↓ was generally vocalized and deleted after high vowels.



iii. miens fiz me creit 'my son believes me'

#fít's#mè# → \*#fít'sm#

iv. li buief me plaisent 'I like the cows'

#tuef#mè# → \*#tuefm#

Apocope of schwa would be blocked in (47iii-iv) because of the phonetically ill-formed final clusters -t'sm and -fm.

The schwa in te could be apocopated only after the consonants r, s and n, since rt, st, nt, rst and nst were the only final clusters existing in Old French which ended in t (see SPC's 30iii-iv). Furthermore, due to the fact that no three-member final cluster rnt existed (SPC 30iii), the n ending the preceding stressed word could not itself constitute the final segment of a cluster:

(48) i. li ber te veit 'the baron sees you'

#ber#tè# → #bert#

ii. li reis te blasmet 'the king blames you'

#reís#tè# → #reíst#

iii. li lion te mangeront 'the lions will eat you'

#liún#tè# → #liúnt#

iv. li cuens te crient 'the count fears you'

#kuens#tè# → #kuenst#

v. li murs te pert haut 'the wall appears high to you'

#mürs#tè# → #mürst#

vi. li coc te semblent grant 'the roosters seem big to you'

#kòk#tè# → \*#kòkt#

- vii. li jor<sup>h</sup>n te semblent lonc 'the days seem long to you'  
 #jor<sup>h</sup>n#tə# → \*#jornt#

SPC's (30iii-iv) would function to check apocope in (48vi-vii), thus preventing the irregular final clusters -kt and -rnt from reaching the surface phonetic level.

Due to the same derivational constraints, se could regularly undergo apocopation only after the single final consonants r and n, since -rs and -ns were the only well-formed final clusters ending in s (SPC 30iii-iv):

- (49) i. li ber se drecet 'the baron stands up'  
 #ber<sup>h</sup>#sə# → #bers#
- ii. li baron se drecent 'the barons stand up'  
 #barun<sup>h</sup>#sə# → #baruns#
- iii. li drap se soillent 'the sheets get soiled'  
 #drap<sup>h</sup>#sə# → \*#draps#
- iv. li jor<sup>h</sup>n se passent 'the days go by'  
 #jor<sup>h</sup>n#sə# → \*#jorns#

Since the outputs in (49iii-iv) violate SPC's (30iii-iv), apocope would be checked in these cases.

Due to the fact that no final clusters of consonant+l or consonant+ls were possible (SPC's 30iii-iv), le and les could not undergo apocopation after a word ending in a consonant:

(50) i. li chat le griffent 'the cats scratch him'

#čat#|ə# → \*#čat|#

ii. li chief les punissent 'the chiefs punish them'

#čief#|ə# → \*#čief|s#

Although somewhat rarer than the above cases of paroxytonic forms, synchronic apocope also occurred in proparoxytonic combinations unvolving clitic object pronouns. Since all words in Old French were phonetically either oxytonic or paroxytonic,<sup>1</sup> apocope in clitic constructions with antepenultimate stress could be considered to function teleologically to derive a stress pattern in conformity with that found in simple words. Recall that historical apocope (15) also served an analogous function, reducing a number of proparoxytons to paroxytons, and was for this reason considered a conceptually, as well as a phonetically natural rule.<sup>2</sup> Synchronic apocope of schwa could occur in proparoxytonic constructions such as the following:

(51) i. sempre me trueve 'he always finds me'

#sēmprə#mə# → #sēmprəm#

---

<sup>1</sup>Stress was assigned in O.F. by the following rule (see Walker 1971:47):  $V \rightarrow [+stress] / \underline{\quad} (C_o \text{ ə}) C_o \#$

Stress the final vowel unless it is schwa, in which case stress the penultimate.

Although such learned spellings as aneme, angele, jovene, ordene, apostele, idele, imagine, etc., would appear to have antepenultimate stress, they were, in fact, paroxytons even in the earliest Old French (cf. Pope 1934:230, Tobler 1885:38, Rochette 1912:67, Fouché 1969:472). This is verified by the scansion of poetry; cf. the following decasyllabic lines from Alexis: Revint li costr(e) | | a l' imagine el muster 176 [imajə] / El num la virgin(e) | | ki portat salvetet, 89 [virjə] / Deseivret l' anem(e) | | dels cors sainz Alexis; 332 [āmə].

<sup>2</sup>See above, pp. 25-6.

ii. triste te sembles 'you seem sad'

#trístə#tə# → #trístət#

iii. aime se promener 'he likes to go for a walk'

#āime#sə# → #āimes#

iv. en terre le mettent 'they put it on the ground'

#tərə#lə# → #tərəl#

Due to the application of apocope, the stress rule retains its 'transparency', since, if it did not apply in cases such as those in (51), there would be phonetic forms with a stress pattern  $*C_0 \overset{\cdot}{VC}_0 VC_0 V\#$ , a situation which would render the stress rule opaque.<sup>1</sup>

Like syncope, synchronic apocope in Early Old French must be considered a variable rule, since its frequency of application in such constructions involving clitic object pronouns diminished with time as the prosodic character of the language changed.<sup>2</sup> When word-stress gave way to group-stress, the unstressed pronouns were henceforth on an equal basis with all other words which preceded the final word of the group, the only one of which carried an accent. The resultant proclitic nature of the pronouns, coupled with the tendency towards open syllabicity within the word-group in Later Old

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<sup>1</sup>The concepts of 'transparency' and 'opacity' as introduced by Kiparsky (1971) are discussed in more detail below, pp. 94-5.

<sup>2</sup>"In Period II [end of the 11th c.-beginning of the 14th c.]... the whole rhythm of the language was gradually changed: the intensity of the tonic stress was gradually diminished and there manifested itself with increasing strength a tendency to link closely together words closely associated in thought. Diminution of stress led to a relatively rapid **levelling** of diphthongs and the disappearance of enclisis" (Pope 1934:103).

French, led to the retention of all word-final schwas (including those of the pronouns) before a following consonant-initial word.<sup>1</sup> The process of posttonic apocope in Early Old French can be formalized in the following way:

$$(52) \text{ ə} \rightarrow \langle \emptyset \rangle / [\#[\langle 1 \text{ stress} \rangle](\#)[\text{---}] [\# \text{prn}]]$$

Schwa is variably deleted in an object pronoun when it forms an enclitic construction with a preceding stressed lexical or nonlexical item.

Rule (52) adequately accounts for the examples of synchronic apocope in (45, 47, 48, 49, 51) above.

As presented, rule (52) is readily comparable to the historical rule of apocope repeated here for convenience:

$$(15) \text{ V} \rightarrow \emptyset / \text{V C}_o \text{ \_\_\_\_\_\_ (C) \#} \\ [-\text{low}]$$

Although (15) and (52) apply in different morpho-syntactic environments, they both can be characterized as operating within the domain of the 'phonological word', since in neither case does there occur an internal sequence of ##. In both rules, apocope affects the final unstressed vowel following the main stress of the phonological word. Although the main stress is not indicated in (15), it follows from the form of the structural description that, since one or more syl-

---

<sup>1</sup>"Dass zu jener Zeit wortschliessendes ə vor konsonantischen Anlaut seine Geltung behielt, dies ist schon aus chronologischen Gründen zu schliessen und wird zur Genüge durch die altfranzösische Überlieferung bestätigt" (Rydberg 1897:72).

lables precede the final vowel, the main stress will fall either on the penultimate or the antepenultimate syllable in conformity with the stress-placement rule (11) and the lexical exceptions to it (16).

As was the case with synchronic syncope (27), the number of segments affected by (52) is more limited than in the historical rule (15). All underlying [-low] vowels (realized phonetically as [ə]) were deleted categorically by (15), resulting in a restructuring of lexical representations. Since the synchronic rule on the other hand, applied solely to object pronouns, the only underlying [-low] vowels subject to its effects were e (me, te, se, le, les) and o (nos, vos). However, due to the fact that e was the only one of the two to be realized phonetically as [ə], it constituted the unique segment to undergo apocope. Furthermore, the synchronic rule was a low-level, variable rule, resulting in allomorphic variation in the object pronouns but no lexical restructuring of underlying forms, since its application was always contextually determined by syntactic and phonological criteria external to the affected lexical item.

Following are attested examples of synchronic apocope of schwa in Early Old French, involving both paroxytonic and proparoxytonic pronominal clitic constructions:<sup>1</sup>

(53) i. Paroxytonic combination:

ME: sim pais por soue amour (Alexis 44e)

Sim guarisez (Roland 21)

---

<sup>1</sup>Examples are taken from Melander 1928:26-8.

Sim cumbatrai (Roland 21)

sim dreciez en seant (Roland 878)

sim socurez el dolerus peril (Chanson de Guil. 1779)

jam veeies vif (Chanson de Guil. 361)

ceo m(e) conta il l'autr'er (Der anglon. Boeve 980)

per quem trades (Passion 150)

per quem gulpist (Passion 316)

por teim vedeies desidrer a morir (Alexis 91c)

Por queim foīs? (Alexis 91c)

TE: Sit guarderai (Alexis 31b)

jat portai (Alexis 91c)

Çot comandet Cristus (Charlemagne 676)

Çot ferai jo assez (Chanson de Guil. 1962)

por queit portat ta medre? (Alexis 27a)

SE: Sis dementet (Roland 1404)

Sis cumbatirent (Roland 1777)

si s(e) drecet en estant (Roland 3110)

Sis vunt ferir (Roland 3568)

si s(e) mette a geniloun (Der anglon. Boeve 636)

LE: chi sil feent (Jonas 25v<sup>o</sup>)

sil conjaudit (Passion 424)

sil collit (Passion 468)

sil recomanda Laudebert (Léger 194)

sil rent as poverins (Alexis 20e)

sil quiert (Alexis 35d)

sil reconout (Alexis 43e)

sil met el considrer (Alexis 49d)

sil conduirat (Charlemagne 786)

luil comandat ciel reis (Léger 20)

cuil comandat (Léger 175)

Devant luil mist (Chanson de Guil. 1223)

ensemble ot teil feruns (Chanson de Guil. 621)

lal (là) dirat a Guillelme (Chanson de Guil. 934)

por queil vi onc ne ne conui? (Eneas 1984)

sil prent (Charlemagne 853)

Sil saluerent (Roland 121)

sil receipt (Roland 464)

Sil fiert (Roland 1294)

sil conut (Roland 1596)

Sil prist (Chanson de Guil. 126)

sil reconut (Chanson de Guil. 959)

Jal vedes ela si morir (Passion 335)

Pur çol di (Comput. 171)

LES: sis penteiet (Jonas 27v<sup>o</sup>)

sil(s) benedis (Passion 467)

sils enflamet (Passion 476)

Sis trait (Charlemagne 420)

Sis (fem) irai estruant (Charlemagne 501)

Sis (fem) facet en chaldieres totes ensemble fondre (Ibid. 568)

Sis aquillit (Roland 689)

Sis prist a castier (Roland 1739)  
sis unt paien vencut (Roland 2042)  
sis veintrum (Chanson de Guil. 70)  
sis i unt acoilliz (Chanson de Guil. 517)  
sis (fem) ai nurries (Chanson de Guil. 1395)  
Jas troveront feus e engrès (Troie 2653)  
Jas covendra d'el a parler (Troie 8701)  
Ços conforte sor tote rien (Troie 21686)  
Ços mist en si grant desperance (Troie 25554)  
a luis tramist (Léger 86)

ii. Proparoxytonic combination

ME: qui semprem vols aver (Léger 94)  
SE: que de sa mort posches neger (Passion 238)  
rovas clergier (Léger 65)  
LE: rumprel farai (Passion 231)  
primeral vit santa Maria (Passion 419)  
ab u magistre semprel mist (Léger 22)  
qual horal vid (Léger 149)  
penrel rovat (Léger 150)  
en terrel metent (Alexis 118c)  
en sa chambrel menat (Charlemagne 421)  
S'altre l(e) desist (Roland 1760)  
Vivre l(e) laissez (Roland 3811)  
qui fairel puet (Troie 8357)  
se fairel puis (Troie 10359)

qui fairel pot (Troie 19097)  
 se fairel poüssiez (Troie 29412)  
 Sa merel prist (Troie 10219)  
 que fairel sot (Thèbes 3913)  
 qui fairel sueil (Thèbes 8704)  
 A destrel fiert sozla mamèle (Thèbes 5331)  
 que fairel dei (Eneas 1852)  
 e fairel deit (Livre des manières 360)  
 LES: de dobpla cordalz vai firend (Passion 75)  
 en grandiliels fai toster (Passion 495)  
roal(s) allar (Passion 453)  
 a gladies percutan (Léger 134)

### 1.2.3. Synchronic elision in Early Old French

Old French inherited in elision a rule that had been in existence for several centuries.<sup>1</sup> Not only was it an active rule in Gallo-Roman (17), but its history also extends further back to Latin, more especially to Vulgar Latin, where the process was very common after the first and second centuries A.D., when the vocalic system changed from one based on quantitative oppositions to one based on qualitative ones, and the case endings lost much of their former significance.<sup>2</sup>

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<sup>1</sup>"...die Elision...des ə+Vok. schon zur Zeit der schriftlichen Fixierung des Französischen feste Regel war. Wer diese Thatsache berücksichtigt und andererseits die Entwicklung der lateinischen Elision in Erwägung zieht, der wird wohl zu dem Schlusse gelangen, der tonlose Finalvokal sei ebenfalls im vorlitterarischen Französisch und im Galloromanischen vor einem nachfolgenden Selbstlaute regelmässig gefallen" (Rydberg 1897:82).

<sup>2</sup>See Rydberg 1897:79.

Elision was further reinforced in Gaul by the strong expiratory accent characteristic of the native Celtic substrat. Under such circumstances, elision is to be regarded as a natural process, not only with respect to the operation of stress dynamics, but also due to the fact that it yielded a preferred syllable structure. In view of its strong phonetic motivation, then, the diachronic persistence of elision as a categorical low-level rule into Old French is not unexpected.

Since all instances of word-final a (other than in the clitic la) affected by the Gallo-Roman rule of elision (17) were reduced to schwa before the end of the ninth century (e.g., femina>fēmə, terra>tərə, ūna>ūnə, porta>portə)<sup>1</sup> the synchronic rule for Early Old French can, as a first approximation, be formulated as:

$$(54) \quad \text{ə} \rightarrow \emptyset / \text{---} \left[ \begin{array}{l} \text{-segment} \\ \text{+word boundary} \end{array} \right] \text{ [+syllabic]}$$

Word-final schwa is deleted in prevocalic position

The presence of a word boundary is necessary in the structural description, since internal schwa in hiatus with a following vowel was not elided in Early Old French, e.g.:

- (55) greille [grɛiʌ] 'grill' (<graticulu)  
 meur [mœʊr] 'ripe' (<maturu)  
 eage [ɛaʝə] 'age' (<\*aetaticu)  
 armeure [armœüre] 'armour' (<arm+atura)

---

<sup>1</sup>See Pope 1934:79, 112.

pecheeur [peʃœur] 'sinner' (<pecc+atore)

deus [dəüs] 'have to (2nd sg. pret.)'

leusses [ləüsəs] 'read (2nd sg. imp. subj.)'

Furthermore, as can be seen from the form of the rule, elision was restricted to applying when only one boundary separated the contiguous vowels. This constraint is of significance in light of the behaviour of the personal pronoun le in post-verbal position. In certain cases, it underwent elision when it was the final element of an imperative construction, and in other cases it did not. The following examples serve to illustrate the presence vs. the absence of elision in le before a vowel-initial word:<sup>1</sup>

- (56) i. Fai l'a povres tuit departir! (Vie St. Gilles 2176)  
 Laissez l'aler a Deu! (Garnier, Thomas 75)  
 Laisons l'aler. (Rich. li Biaus 4454)  
 Brandans lur dist: laissez l'ici! (Brendan 1469)  
 Qu'est ço k'il fait? dites l'ici! (Chrestien, Ev.Nic. 56)  
 Donnés l' aus meseaus de Biauvais! (Voir Dit, p. 137)  
 Estrenez l'en plonc bien boulu, (Geban, Passion 7992)  
 Laissez l'avez elle il est bien! (Grebant, Passion 8356)  
 Prens l'en gré, s'il y a petit; (Guill. Alexis I, 37)
- ii. Esguardez le en l'ur. (Computus 2658)  
 Porte le a sun ni; (Bestiare 875)  
 Amenez le as Deus, (Garnier, Thomas, p. 123)

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<sup>1</sup>Examples are taken from Rydberg 1904:476ff.

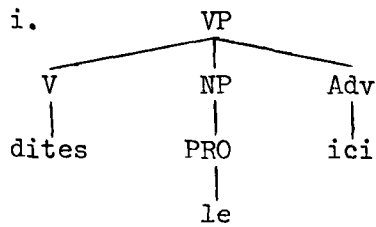
Resaillons le une altre feiz; (Rom. Troie 22144)  
 La toison pren, lai le ester! (Rom. Troie 1739)  
 Dites le a Deu e a nus. (Chrestien, Ev. Nic. 1210)  
 Remetez le arieres an la chartre voutie. (Orson 1541)  
 Contratandons le un petit. (Cligés 3672)  
 Fais le entrer en ce repaire; (Myst. S. Laurent 473)  
 Menons le au roy de l'empire! (Myst. S. Laurent 7370)

If we consider that, just as in Modern French, where liaison contexts are formally defined by the presence of no more than one intervening word boundary,<sup>1</sup> elision occurs in Old (and Modern) French only where at most one word boundary separates the adjacent vowels, then we can assume that where the pronoun le fails to undergo elision in the examples in (56i), that it is separated from the following segment by two word boundaries. The degree of syntactic affinity between the imperative construction and what follows would thus determine whether or not elision occurs.<sup>2</sup> For instance, taking the two examples from Chrestien in (56i-ii), where the first shows elision, but not the second, we can postulate the following derived structures and corresponding labelled bracketings:

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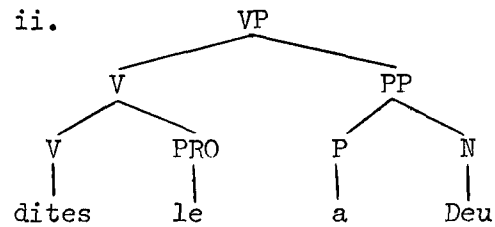
<sup>1</sup>"My theory is that the phonological phenomena characteristic of liaison operate when just one word boundary, #, separates one word from the next. More specifically, the words P and Q are in a liaison context in the string...P[#Q..." (Selkirk 1972:208).

<sup>2</sup>Cf. Melander's (1928) remark concerning elision in the case of post-verbal le: "Lorsqu'il y a elision, la phrase entière est sentie comme formant un tout indivisible; quand le pronom ne s'élide pas, il y a coupe après le pronom, qui forme ainsi l'élément final du groupe" (105).



[#[dites#][le][#[ici]#]  
 VP            V PRO            ADV

dites l'ici



[#[[dites#][le]#][#[a][#Deu]#]  
 VP            V PRO V            P            N PP

dites le a Deu

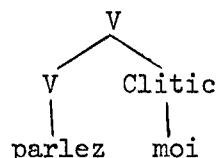
In i., where elision takes place, the pronoun remains sister-adjoined to the verb and the following adverb in its original NP position, and is separated from each by only one word boundary.<sup>1</sup> In ii., however, where the clitic-placement transformation has applied, the clitic pronoun follows the verb, with the unit verb+object clitic regarded as a verb dominated by a verb node.<sup>2</sup> Two word boundaries intervene between the pronoun and the following element, thus blocking elision. The assumption that clitic-placement could apply optionally in Old French is supported by the fact that in cases involving the pronominalization of the indirect object, we find that the pronoun could occur freely either as an enclitic to the verb (e.g., Parlez-moi) or remain in its original position as the object of the preposition à (e.g., Parlez à moi). In the former instance, clitic-placement

<sup>1</sup>We are assuming that in French there is a "convention which says that pronominal clitics do not have their own word boundaries" (Selkirk 1972:217).

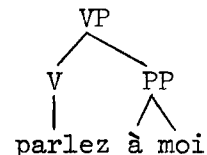
<sup>2</sup>This is the structure assumed for Modern French. For further details on clitic-placement, see Kayne 1969:34ff., Selkirk 1972:220-3.

<sup>3</sup>See Ewert 1969:159.

applies, moving the pronoun from the NP node to a position to the right of the verb, with both the clitic and the verb dominated by the node V, thus:



In the latter instance, on the other hand, the clitic-placement transformation does not apply, and the pronoun remains sister-adjoined to the verb as the object of a prepositional phrase, thus:



Although the above syntactic argument might serve as a basis for the variable elision of schwa in the pronoun le, it would seem more likely, in view of the erratic aspect of the evolution of the personal pronouns and other clitics, that their behaviour with respect to this and other phonological rules is to a large extent idiosyncratically determined, and that their exceptional behaviour as regards a particular phonological rule should be lexically specified by means of rule features. In the case with which we are concerned, it does not seem reasonable that the elision rule should be degeneralized by restricting it to applying only when at most one word boundary is present, merely in order to make the behaviour of a single lexical item seem to conform to a regular pattern and maintain the rule's transparency. There are many instances where elision occurs and where one could argue on syntactic bases that more than one word boundary was present between the schwa and the following vowel.

Since the two-word-boundary constraint has been postulated to account for the non-elision of schwa in le in Modern French, we shall examine the question here once and for all and present our treatment of the problem. Dell (1973b) reasons that, since the plural form of the pronoun les does not exhibit a liaison form in the same post-verbal environment where le does not undergo elision (e.g., emportez-les ici, laissez-les entrer), that this indicates the presence of two word boundaries following the pronoun, this being the formal criterion established for a non-liaison context.<sup>1</sup> Such an analysis is supported by the derived structure of verb-clitic constructions and the conventions adopted for the assignment of word boundaries. However, what seems to be implicitly assumed in Dell's analysis is that the fact that liaison does not take place in this context accounts for why elision does not also occur. This conclusion, which seems to maintain that non-liaison implies non-elision, cannot be accepted. Elision is seen to occur in cases where liaison does not apply. Take, for instance, the phrase Il y en avait trente et quelques à la réunion 'There were thirty odd at the meeting':

...trāt#e#kɛlkə+z##a#la#reünjõ##  
 trāt#e#kɛlkə ##a#la#reünjõ## Final-consonant deletion  
 trāt#e#kɛlk ##a#la#reünjõ## Elision

---

<sup>1</sup>"Notre formulation présente de ELIS[ION] est contredite par le fait que schwa se maintient obligatoirement dans fais-le attendre, rend-le à Jacques. L'impossibilité de faire la liaison dans fais-les attendre, rend-les à Jacques, montre que dans ces formes, le et les sont suivis de deux frontières #. Nous reformulerons donc ELIS de façon à ce qu'elle n'affecte que les schwas qui sont séparés de la voyelle suivante par au plus une frontière..." (Dell 1973b:252).

The occurrence of elision in the above example illustrates that the process is not restricted by the presence of more than one word boundary.

Since the non-elision of schwa in le cannot be justified by the assumption of its being followed by two word boundaries when it occurs as the final element of an imperative construction, we shall adopt the following approach in light of its aberrant behaviour: We consider that in Old French, le was always enclitically attached to the right of the verb (as in ii, p. 85), and that the pronoun was lexically marked with a variable rule feature, say:  $[\alpha\text{elision}] / \left[ \begin{array}{c} \text{ } \\ \text{ } \\ \text{ } \end{array} \right] \left[ \begin{array}{c} \text{ } \\ \text{ } \\ \text{ } \end{array} \right]$

where alpha could assume either the value + or -. By adopting such a treatment, the elision rule (54) can be stated in a more general manner, with no restriction placed on the number of word boundaries permissible:

$$(54') \quad \text{e} \rightarrow \emptyset / \text{---} \left[ \begin{array}{c} \text{-segment} \\ \text{+word boundary} \end{array} \right]_1 \text{ [+syllabic]}$$

Following are attested examples of elision in Old French, with deletion of final schwa taking place according to the conditions of rule (54'):<sup>1</sup>

(57)

Eulalia:

Ell'ent adunet lo suon element; (15)

/el#ënt/

---

<sup>1</sup>Examples are taken from Rydberg 1897:80-1.

St. Léger:Et cum il l'aut doit de ciel'art; (5a)/tsiel~~ø~~#art/De Hostedun evesque en fist; (8f)/evesk~~ø~~##~~ẽ~~n/Un compte i oth pres en l'estrit; (10a)/kunt~~ø~~##i/Rei volunt fair'estre so gred; (10f)/fair~~ø~~ #estrə/Quant ciel'ire tels esdevint; (14a)/tsiel~~ø~~#irə/Pobl'et lo rei communiet; (14e)/puebl~~ø~~#eθ/En u monstier me laisse entrer; (16e)/lais~~ø~~#~~ẽ~~ntre/Cjerj'Evvrui illo trovat; (17d)/klerj~~ø~~#evrui/Ciel'ire grand et ciel corropt; (18c)/tsiel~~ø~~#ira/Hor'en auez les poenas granz; (26a)/or~~ø~~##~~ẽ~~n/Hor'a perdud dom deu parlier; (29a)/or~~ø~~##a/Sed il non ad lingu'a parlier, (29a)/l~~ẽ~~ng~~ø~~##a/

Quatr'omnes i tramist armez (37e)

/katrø#uməs/

Alexis:

Quer fait i ert e justise et amor; (1b)

/jüstisø#eö#ãmur/

Toz est mudez, perdude at sa color; (1d)

/perdüö##at/

Nostre ancessor ourent crestientet; (3b)

/nostrø#ãntsəsour/

Donc se porpenset del siecle ad en avant; (8c)

/sieklø#ad/

Donc li achatet filie ad un noble franc; (8e)

/fi\ø##ad/

Ensemble en vont li doi pedre parler; (9d)

/ënsëmtlø##ën/

Lor dous enfanz vuelent faire assembler; (9e)

/fairø#asëmtler/

La vide est fraile, n'i at durable onor; (14d)

/viö##est/ /dürablø#unour/

Por une imagene dont il odit parler; (18b)

/ünø#imaʃe/

Por nul avoir ne volst estre encombrez; (19e)

/estrø#ënkumbrets/

Or revendrai al pedre et a la medre; (21a)

/peörrø#eö/

Tu m'ies fuiz, dolente en soi remese; (27b)

/m<sup>h</sup>ies/ /dul<sup>h</sup>ent<sup>h</sup>ẽn/

The fact that elision was a persistent rule in Old French led to some interesting consequences as regards its relationship to certain historical changes that took place during this and later periods, in particular, to the results which ensued involving the system of rule ordering.

A persistent rule, according to Chafe, is "operative at depth I", that is, it is a low-level phonetic rule, and furthermore, "has the special property that, when there is interference between it and a new rule which has tentatively entered at depth I, the interference may be such that the new rule has to precede the persistent rule..."<sup>1</sup> By 'interference' is meant the relationship between two rules such that, depending on how they are ordered with respect to one another, the degree of applicability of one or the other rule is either increased or decreased. Borrowing Kiparsky's terminology, such interference can result in a 'feeding' or a 'bleeding' order between two rules. In a feeding order, the functional relationship between two rules A and B is such that "the application of A creates representations to which B is applicable," whereas in a bleeding order, "A removes representations to which B would otherwise apply."<sup>2</sup> Moreover, not only is it claimed that feeding order tends to be maximized, but

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<sup>1</sup>Chafe 1968:132.

<sup>2</sup>Kiparsky 1968: 196, 198.

also, as regards ordering in general, it is held that phonological rules are applied in a certain optimal order, that is, they "tend to shift into the order which allows their fullest utilization in the grammar."<sup>1</sup>

These theoretical claims appear to gain corroboration when one examines the behaviour of the elision rule in Old French. At the time it was operating synchronically at depth I, another rule entered the grammar, also at depth I.<sup>2</sup> This new rule had the effect of deleting final, unsupported t which functioned as the flexional mark in the third person singular, present indicative of first conjugation verbs, and the third person singular, present subjunctive of other conjugations:<sup>3</sup>

(58)  $t \rightarrow \emptyset / V \text{ \_\_\_\_\_\_ } \#$

By (58), final t [θ] was deleted in such forms as the following:

(59)  $dun\acute{e}t \rightarrow dun\acute{e}$  done(t) 'give (3rd sg. pres. indic.)'  
 $port\acute{e}t \rightarrow port\acute{e}$  porte(t) 'carry " ''  
 $\tilde{a}im\acute{e}t \rightarrow \tilde{a}im\acute{e}$  aime(t) 'like " ''  
 $p\ddot{u}n\acute{i}s\acute{e}t \rightarrow p\ddot{u}n\acute{i}s\acute{e}$  punisse(t) 'punish (3rd sg. pres. subj.)'  
 $dorm\acute{e}t \rightarrow dorm\acute{e}$  dorme(t) 'sleep " ''

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<sup>1</sup>Kiparsky 1968:200.

<sup>2</sup>"...phonological change normally takes place through the addition of a new rule to depth I" (Chafe 1968:129).

<sup>3</sup>See Pope 1934:79. The vocalic segment is required in the structural description, since final, supported t was not deleted in Early Old French (see Pope 1934:262).

kierət → kierə quiere(t) 'want (3rd sg. pres. subj.)'

It is obvious from examining the output of (59), that the application of the final-t deletion rule would create many representations to which the elision rule could possibly apply; in Chafe's terminology, there is a "potential interference"<sup>1</sup> between the two rules. If final-t deletion, the 'interfering rule', were to be ordered before elision, the 'interfered-with rule', an 'additive' or 'feeding' relationship would be established. In order for this potential additive interference or feeding order to be actualized, final-t deletion was immediately forced into depth II to apply before elision and consequently "appears to have entered the language at that depth."<sup>2</sup> Also, in this way elision remained at depth I, enabling it to maintain its persistent character. The following decasyllabic lines from the Chanson de Rolland serve to illustrate the feeding order that was established between final-t deletion and elision:

- (60) i. Li cuens Rollanz en apelet Oliviers; (1502)  
'The count Rolland calls Olivier'
- ii. Baisset sun chief, si cumencet a penser; (138)  
'He lowers his head; he begins to think'
- iii. N'i ad cheval qui puisset estre en estant; (2522)  
'There is not a single horse which can remain standing'

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<sup>1</sup>Chafe 1968:122.

<sup>2</sup>Ibid.:132. This analysis also conforms to King's (1973) view that new rules enter the grammar at the end of the phonological (morphophonemic) rules and before the application of any (low-level) phonetic rule (568). Final-t deletion would not, then, be considered as an 'inserted' rule, since it functions as a morphophonemic, not as a phonetic rule, and its application would, therefore, come at the break between the two types of rules.

- iv. Muntet el ceval, vient a sa gent puignant; (2841)  
'He gets on his horse; he spurs on toward his people'
- v. Entret en sa veie, si s'est achiminez; (365)<sup>1</sup>  
'He starts on his way; he proceeded'
- i. apɛlɛt##oliviers    ii. kuměnsɛt#a  
apɛlɛ ##oliviers    kuměnsɛ #a    Final-t deletion  
apɛl ##oliviers    kuměns #a    Elision
- iii. püisɛt#estrɛ    iv. muntɛt##ěl  
püisɛ #estrɛ    muntɛ ##ěl    Final-t deletion  
püis #estrɛ    munt ##ěl    Elision
- v. ěntɛt##ěn  
ěntɛ ##ěn    Final-t deletion  
ěntɛ ##ěn    Elision

The established feeding order--final-t deletion, elision--further supports another principle governing rule ordering based on Kiparsky's concept of 'rule opacity'. Basically, this principle states that a rule such as  $A \rightarrow B/C\_D$  is opaque to the extent that there are surface representations of the form (i) A in environment C  D or (ii) B in an environment other than C  D.<sup>2</sup> 'Transparency' is the converse of opacity. Following the notion of unmarked ordering, it is proposed that rules tend to be ordered so as to become maximally

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<sup>1</sup>These examples are taken from Rydberg 1897:148.

<sup>2</sup>See Kiparsky 1971:621-2, 1973:79.

transparent.<sup>1</sup> From the examples in (60), it can be seen that by having final-t deletion apply before elision, the latter remains transparent by virtue of case (ii), since no occurrences of e+V surface phonetically. The transparency of elision in this instance can be regarded as a natural consequence of the unmarked feeding order established between it and final-t deletion.

#### 1.2.4. Concluding remarks

The above three rules of syncope (27, 41), apocope (52) and elision (54') account for the extent of synchronic schwa deletion in Early Old French. Effacement by all three processes affected schwa only in final position and, with exception to the case of pronouns and articles, only when followed by a vowel-initial word. Retention of final schwa in words other than object pronouns in pretonic and posttonic position, and definite articles in pretonic position, is consequently observed in the following cases:

a) before a word beginning with a consonant:<sup>2</sup>

- i. Qu'elle perdesse sa virginitet; (Eulalia 17)  
'That she should lose her virginity'

/#kø#e|ə##perdesə##sa#vi r'ʝi ni teθ||/

- ii. In figure de colomb volat a ciel. (Eulalia 25)  
'In the semblance of a dove she flew to heaven'

/#i n#fi gürə#də#kulumb##vulat##a#tsiel||/

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<sup>1</sup>See Kiparsky 1971:623.

<sup>2</sup>"...der in e reduzierte Finalvokal war in dieser Epoche des Altfranzösischen unter keiner Bedingung vor Konsonanz verstummt" (Rydberg 1897:130). The first two examples are taken from Rydberg (Ibid.), the others from Rochette (1912).

- iii. Por cui tels cose vient de ciel. (Léger 124)  
'For whom such a thing comes from heaven'  
/#pur#küi##tels#čozə##vient##də#tsiel||/
- iv. Cele ire grand et cel corropt (Léger 21)  
'That anger and that wrath'  
/#tse|ə#iɾə#grãnt#eθ#tse|#kurut||/
- v. E de l'onor del siecle ne l'encombrent (Alexis 30)  
'And [that] they would encumber him with the honours  
of the world'  
/#e#də |ə#unour||də#siek|ə##nə |ə#ẽnkumbrənt||/
- vi. Si fut uns sire de Rome la citet (Alexis 13)  
'There was a noble man of Rome the city'  
/#si#füt##uns#sirə||də#rumə#la#tsiteθ||/
- vii. Come roë de char qui a terre descent; (Charlemagne 97)  
'Like a chariot wheel going down a slope'  
/#kumə#ruə#də#čar||ki##a#tɛrə##desěnt||/
- viii. Met sei en piéz et de corre se hastet (Roland 97d)  
'He gets to his feet and hastens his step'  
/#met#sei##ẽn#piets||eθ#də#kurə##sə#hastə||/

b) before a pause (||):<sup>1</sup>

- i. Sovent le vidrent e li pedre e la medre (Alexis 66)  
'His mother and father often saw him'  
/#suvěnt##|ə#vidrənt||e#li#peðrə#e#la#meðrə||/

<sup>1</sup>In O.F. versification, prepausal schwa, i.e., at the end of a line or at the 'epic' caesura, although pronounced, was not counted in scansion (see Elwert 1965:30, 65). This is evident in the following lines from Alexis, written in decasyllables, with caesura after the fourth syllable. "Les accents principaux sont donc à la quatrième et à la dixième syllabe. Une finale atone suivant l'un de ses deux accents ne compte pas dans les dix syllabes du vers..." (Batany 1972: 64). Elision could thus not occur either at the caesura or at the end of a line because of the following pause: "...das finale ə des ersten Versgledes ausgesprochen werden muss, obgleich das zweite Versglied vokalisch anlautet...die beiden betreffenden Silben allzu weit auseinander gerückt waren, als dass eine Elision statthaft gewesen wäre. Das diese Erscheinung ebensowenig bei vokalisch aus- und anlautenden Verszeilen eintreten konnte, braucht wohl kaum betont zu werden" (Rydberg 1897:128, 131).

- ii. Ad ambes mains deront sa blanche barbe; (Alexis 97)  
'With both hands he pulls his white beard'  
/#ad#ãmbəs#mäi ns || derunt##sa#blãñčə#bar bə || /
- iii. Trait ses chevels e debat sa peitrine, (Alexis 141)  
'She pulls her hair and beats her breast'  
/#trait##ses#čəvəls || e#debat##sa#peitrine || /
- iv. Quier mei bels fredre, et enque e parchamin (Alexis 91)  
'Kind brother, fetch me some ink and parchment'  
/#ki er#mei #bɛls#frɛðrə || eθ#ěnkə#e#parčəmin || /
- v. Grant fut la noise, si l'entendit la medre; (Alexis 132)  
'The din was loud; the mother heard it'  
/#grãnt##füt##la#noi zə || si l#ěntěndit##la#meðrə || /
- vi. Avuec ma sponse que jo lor ai guerpide. (Alexis 38)  
'With my wife who I abandoned to them'  
/#avuek#ma#spuzə || ke ju lɔr#ai#gwerpiðə || /
- vii. Ma longe atente a grant duel est venude. (Alexis 153)  
'My long wait ended in great sorrow'  
/#ma#lungə#atěntə || a#grãnt#duel##est#vėnũðə || /

Although the synchronic deletion of schwa in Early Old French is viewed as a natural phenomenon, resulting either as a consequence of the operation of stress dynamics or as a means of achieving an optimal syllable structure in the case of elision, its occurrence led to repercussions in the morphophonemics. The allomorphic realization of all lexical items ending in schwa would now vary, depending on the phonological environment. Underlying encore /ěnkərə/ 'still, again, yet', for example, would have the allomorphs [ěnkər] or [ěnkərə] distributed as follows:

- (61) i. prepausally [ěnkərə]:  
chantent encore [čãntəntěnkərə]  
'they are still singing'

ii. preconsonantly [ěnkərə]:

sunt encore la [suntěnkərəla]  
 'they are still there'

iii. prevocally [ěnkər]:

encore uns anz [ěnkərünsānts]  
 'yet another year'

Le /lə/ 'he, it' would be realized phonetically in the following manner:

(62) i. in intertonic position [↓]/[w]:

Jo le vei [jɔ↓vei]/[jɔwvei]  
 'I see him'

ii. in posttonic position in a paroxytonic construction [l]:

Ja le punira [jalpünira]  
 'Soon he will punish him'

iii. prevocally a) [lə]/[l] after an imperative,

b) [l] otherwise

a) mangiez-le ici [mānjietsləitsi]/[mānjietslitsi]  
 'eat it here'

b) La feme l'enseignet [lafēmələŋseignə]  
 'The woman teaches him'

iv. elsewhere [lə]

suens pedre le cherche [suenspeðrələčerčə]  
 'his father looks for him'

The maintenance of preconsonantal and prepausal schwa can be considered as due mainly to the prosodic character of the language at this early stage. Since the phonological unit was the word (with the exception of constructions involving clitics), syntactic phonetics did not exert any considerable influence at this time, and the surface

realization of morphemes thus remained very close to their lexical representations.

Forms with underlying final schwa formed a somewhat aberrant subset of the French vocabulary. First of all, they constituted a small percentage of the lexicon; schwa in this case was the synchronic reflex of Latin final vowels which, due to their quality (in the case of a) or to phonotactic constraints (e.g., vendre, doble, where schwa was required as a supporting vowel after clusters consisting of obstruent+liquid), had escaped the historical apocope affecting all other final vowels. Furthermore, the rule for word-stress assignment was complicated by the presence of the schwa forms; except for these latter, stress was always on the final syllable. Moreover, because the word tended to maintain not only its segmental, but also its suprasegmental identity on the surface level, phonetic stress was present on individual words, even though it did not serve any distinctive function.

Elision of final schwa had the effect of upsetting the unique relationship between underlying and surface forms; by its application, underlying paroxytonic forms were rendered oxytonic on the surface, e.g., /deri<sup>é</sup>rə/ in /deri<sup>é</sup>rə#ün#mür/ derriere un mur 'behind a wall' becomes [deri<sup>é</sup>r]: [derierünmür]; /f<sup>é</sup>mə/ in /la#f<sup>é</sup>mə##eskri<sup>t</sup>/ la feme escrit 'the woman writes' becomes [f<sup>é</sup>m]: [laf<sup>é</sup>meskri(θ)]. Although the oxytonic allomorph resulting from the natural rule of elision was more in conformity with the stress pattern holding for the majority of lexical items,<sup>1</sup> final schwa was retained in underlying representa-

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<sup>1</sup>See Klausenburger 1970:12, 17.

tions, since phonological environments other than prevocalic position required an allomorph with final schwa, e.g., derriere la maison 'behind the house': /derierə#la#maizun/ → [derierəlamaizun], maint derriere 'he stays behind': /mäint deriere||/ → [mäintderierə]; la feme siut 'the woman follows': /la#fěmə##siüt/ → [lafěməsiu(θ)], veis la feme 'you saw the woman': /veys##la#fěmə||/ → [veyslafěmə].

As we shall see in Part II, this situation changed in Later Old French and following periods. Modification of the prosodic nature of the language, accompanied by an increasing influence on the part of syntactic phonetics, resulted in such a high degree of synchronic allomorphic variation due to schwa deletion in final as well as in internal position, that ultimately lexical restructuring ensued in many cases. Moreover, other historical changes, involving such mechanisms as rule addition, rule generalization, rule inversion, etc., will have significant implications bearing on the morphophonemic status and behaviour of schwa.

PART II. LATER OLD FRENCH TO MODERN FRENCH

CHAPTER II

DEVELOPMENT OF SCHWA IN HIATUS

2.0. Introduction

In this chapter we shall trace the development of the deletion of schwa in hiatus from the Old French period through Middle French, and examine its consequences with respect to the contemporary language. In the first section, we shall deal with schwa in hiatus with a preceding vowel, and in the second, with its development in hiatus with a following vowel.

With respect to the concept of 'natural phonological processes', it can be seen that the rules deleting schwa in hiatus can be regarded as natural according to several of the functional criteria established as characterizing such processes. In the first place, the deletion of schwa in hiatus falls within the category of natural rules which function to create a "preferred syllable structure."<sup>1</sup> "Im Französischen, das durch Verstummen intervokalischer Verschlüsse besonders viele neue Hiatusgruppen entstehen ließ, wirkt sich die Vereinfachung als antihiatisches Mittel auch besonders intensiv aus: SE(C)URUS>afr. sëur>sûr, HABUTU>ëu>[ü], PAVOREM>paour>peur, \*AGURIU>ëur>heur, CADERE>cheoir>choir, IMPERATOREM>emperëeur>empereur, VITELLUM>vëeau>veau,...

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<sup>1</sup>See Schane 1972:207-9.

VIDISTI>vëis>vis, \*AETATICUM>ëage>âge, ABBATISSA>abëesse>abesse, ROTUNDUM>rëont>rond, \*ABSOLUTAMENTE>absolument>absolument."<sup>1</sup> The effacement of schwa in a sequence such as CV\$ə\$CV or Cə\$V\$CV has the result of creating a syllable structure more in line with the natural or unmarked type, CV\$CV, that is, an initial consonant followed by a single vowel.

Secondly, the processes which led to the deletion of schwa in hiatus are natural according to another principle used to typify rule naturalness, "maximum differentiation."<sup>2</sup> This is essentially a perceptually-based concept, as would appear from the interpretation given it by Martinet: "...les unités distinctives, les **phonèmes**, qui coexistent dans une langue tendront naturellement à utiliser au mieux les latitudes que leur offrent les organes dites de la parole; ils tendront à être aussi distants de leurs voisins qu'il est loisible pour eux de l'être tout en restant faciles à articuler et faciles à percevoir."<sup>3</sup> The criterion of maximum differentiation with respect to schwa deletion in hiatus is closely linked to that of preferred syllable structure, since the resulting CVCV pattern "leads to an alternation of maximally different major classes."<sup>4</sup>

Finally, the process of schwa deletion in hiatus can be considered natural from the point of view of stress dynamics in at least

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<sup>1</sup>Greive 1970:44.

<sup>2</sup>See Schane 1972:210-11.

<sup>3</sup>Martinet 1955:62.

<sup>4</sup>Schane 1972:213.

two aspects. Firstly, due to a lessening of tonic stress in Later Old and Middle French, combined with an increased rate of speech emission, one would expect a tendency to slur atonic, lax schwa adjacent to another tense vowel:

In the earlier period, when the tonic stress was intense, words remained, broadly speaking, the unit of the phrase but, in Later Old and Middle French, words closely connected in thought...were more and more run together and thus the phrase or locution became the sentence-unit instead of the word...This close linking together of words in the group appears also to have increased the speed of emission of words within the phrase, and there began in the thirteenth century a gradual reduction or contraction of the weaker vowels juxtaposed to others, whether counter-tonic or atonic. By the end of the period  $\epsilon$  [i.e., schwa] in hiatus was everywhere effaced and the juxtaposition of other vowels was almost entirely eliminated in the interior of words (Pope 1934:82-3).

Secondly, it will be seen that in certain instances where deletion of final schwa in hiatus with a preceding vowel took place, that there resulted a preferred stress placement in the restructured forms, which previously showed alternating stress patterns depending on the phonetic environment.<sup>1</sup> Since it is assumed that "invariable stress is preferred to variable stress,"<sup>2</sup> rules which lead to a constant or preferred stress placement would be categorized as natural.

#### 2.1. Schwa in hiatus with a preceding vowel

The synchronic deletion of schwa in hiatus with a preceding vowel has been a persistent rule in French since the thirteenth century. However, as we shall see, the phonological status of the rule has changed somewhat during that period.

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<sup>1</sup>See above, pp. 99-100.

<sup>2</sup>Schane 1972:221.

In Early Old French, schwa in hiatus with a preceding vowel occurred both morpheme internally and across morpheme boundaries. In all instances it was realized phonetically except when it occurred in word-final position, where it was elided if followed by a word beginning with a vowel. As regards the phonotactic patterning of Old French, therefore, it can be said that there was no morpheme structure constraint (MSC) or surface phonetic constraint (SPC) prohibiting sequences of Və. Following are illustrative examples of intra- and inter-morphemic sequences of Və in Old French:

- (63) a) i. chaelit [čæli(θ)] 'bed for lying the dead in state'  
 Chaelons [čæliũns] 'Châlons'  
 diemanche [diemānčə] 'Sunday'  
 liecol [liəkow] 'halter'  
 mienuit [miənüi(θ)] 'midnight'  
 miedi [miədzi] 'noon'  
 poestet [pʷæste(θ)] 'force'
- ii. contree [kũntreeə] 'region'  
 espee [espeə] 'sword'  
 fee [feə] 'fairy'  
 grue [gruə] 'crane'  
 ortie [urtiə] 'nettle'  
 vie [viə] 'life'
- b) crie /kri+ə+t/ [kriə] 'cry (3rd sg. pres. indic.)'  
 crierai /kri+ə+r+ə/ [kriərej] 'cry (3rd sg. fut.)'

remercie /rɛmɛrtsi+ə+t/ [rɛmɛrtsiə] 'thank (3rd sg.  
pres. indic.)'

remerciement /rɛmɛrtsi+ə+ment/ [rɛmɛrtsiəmãnt]  
'thanks'

jolie /ʝɔli+ə/ [ʝɔliə] 'pretty (fem.)'

joliement /ʝɔli+ə+ment/ [ʝɔliəmãnt] 'prettily'

forsee /fɔrse+ə/ [fɔrseə] 'forced'

forseement /fɔrse+ə+ment/ [fɔrseəmãnt] 'forcedly'

Evidence to support the syllabic value of schwa in such cases as the above is to be found in the versification of medieval poetry. In the following decasyllabic lines from the Chanson de Roland which dates from the second quarter of the twelfth century, schwa in hiatus with a preceding vowel always counts in scansion:

(64) a) Par poëstet serez pris e lîez, (477)  
'You will be taken and bound by force'

Aprof li ad sa bronie desclose, (1620)  
'After that, he tore open his coat of mail'

L'oïe pert et la veüe tute; (2012)  
'He loses all of his sight and hearing'

Charles repairet, li reis poësteïfs. (2133)  
'Charles, the powerful king, is coming back'

Avrum nos la victoirie del champ? (3512)  
'Will we have the victory of the (battle-)field?'

Si cume fel ki felonie fist. (3833)  
'Just like a criminal who commits a crime'

Dedesuz Aix est la pree mult large. (3873)  
'Just down from Aix the plain is very broad'

Ferez, seignurs, des espees furbies, (1925)  
'Strike, lords, with your polished swords'

Cel nen i ad Munjoie ne demant. (1525)  
'There is no one who does not ask for Monjoie'

Li num's Joiuse l'espee fut dunet, (2508)  
'The name Joyeuse was given to the sword'

b) Ki guierat mes oz a tel poeste, (2926)  
'Who will lead my armies with such power'

Ireement parlat a sun parastre: (762)  
'He spoke angrily to his father-in-law'

Pluies e gresilz desmesurement; (1425)  
'Rain and hail beyond measure'

Puis si chevalchet mult aficheement. (3117)  
'Then he rides out, seated firmly in the saddle'

Mais nel ferez par le men loement. (1709)  
'But you will not do it with my approval'

El cors vos est entree mortel rage. (747)  
'A mortal rage has entered your body'

La reregarde est jugee sur lui; (778)  
'The rear-guard is put in his command'

L'escut li freint desuz l'oree buele, (1283)  
'He breaks his shield beneath its golden boss'

En France dulce iert menee caitive: (3673)  
'She is to be led captive to sweet France'

Men escient dous cenz anz ad passet. (524)  
'In my opinion, he has passed his two hundredth year'

Encuntre tere en cheent les esclaces. (1981)  
'Clots (of blood) fall to the ground'

D'altre cunreid ne lur poeënt plus faire. (2493)  
'They cannot give them other help'

Dient paien: "Issi poet il ben estre!" (61)  
'The pagans say: "That could very well be"'

With respect to word-final schwa, it can be seen from the the above examples that its retention in preconsonantal position (as well as in

prepausal position) created a certain amount of allomorphic variation. Recall that elision was already a categorical rule in Early Old French, so that all instances of word-final schwa, both post-consonantal and post-vocalic, were deleted in pre-vocalic position. In the following lines, one can see the effects of the elision rule in creating allomorphic alternation (for examples of elision in post-consonantal position, see above, pp. 88-91):

(65) Ce dist Chernubles: "Ma bone espe~~e~~ ai ceinte. (984)  
'Chernuble says: "I have strapped on my good sword'

Cf. Sur les reliques||de s'espee Murgleis, (607)  
'Upon the remains of his sword "Murgleis"'

A ceste espee,||que jo ai ceinte ici, (3835)  
'With this sword, which I have strapped on here'

El cheval est l'espe~~e~~ aresteüe; (1332)  
'The sword came to rest in the horse'

La bataille est adure~~e~~ endementres. (1396)  
'Meanwhile the battle became more severe'

Puis en perdit e sa vi~~e~~ e ses membres; (1408)  
'He lost both life and limb because of that'

Ço sent Rollant la veü~~e~~ ad perdue, (2297)  
'Now Rolland feels his vision leaving him'

Bataille avrum e adure~~e~~ e pesme. (3304)  
'We will have a brutal and unrelenting fight'

Reparez sunt a joi~~e~~ e a baldur. (3682)  
'They head for home, rejoicing and triumphant'

Beginning in the thirteenth century, schwa in hiatus with a preceding vowel began to be effaced in all positions, both intra- and inter-morphemic.<sup>1</sup> It is quite possible that the process began even

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<sup>1</sup>See Fouché 1969:516-7, Pope 1934:117.

earlier, for we find isolated cases of deletion in certain late twelfth century literary works. In the following lines, for example, schwa is not pronounced in the future tense of fier, nor in the future and conditional of loër (i.e., louer):<sup>1</sup>

(66) En cui je m'an fi et fiérai (Chev. au Lyon 5976)

S'ensi le fes, g'en lorai damedé (Cour. Loīs 68)

Bien le loroye endroit de mi. (R. Coy 2212)

At the outset, the process of schwa deletion after a vowel was not a categorical rule. During a period of about four centuries, its transition from a quantitative to a qualitative change was variably constrained. From the evidence we have at our disposal, it appears that the deletion was sociolinguistically determined: in the more educated classes, the embedding of the change took longer. Stylistic factors also constituted a factor in the evolution of the process from its originally variable nature to its ultimate categorical status as a phonological rule. In more formal speech, schwa was less likely to be deleted than in casual conversation. With respect to internal sequences of  $V\emptyset$ , Fouché remarks that:

Cependant si l'[e] était tombé depuis longtemps dans la langue populaire, il se maintient encore ça et là, et sans doute avec le timbre de [œ], dans la langue savante. Cauchie (1570) par exemple dit que le second e de priveement, aiseement compte pour une syllabe dans les vers, et Deimier (1610) blâme mani'ront chez Ronsard. Quelques années auparavant, Malherbe avait lui aussi reproché à Desportes d'avoir écrit varira au lieu de variera. Pourtant à l'époque de Vaugelas [(mid 17th c.)], la voyelle avait complètement cessé de se prononcer même dans le discours ou les vers (Fouché 1969:517; emphasis mine).

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<sup>1</sup>Tobler 1885:53.

The same treatment is found as regards final schwa in hiatus. Although it began to be effaced in the thirteenth century, Fouché notes that:

Dans les textes, les exemples de chute ne deviennent un peu nombreux que vers la fin du XVe siècle. Il est vrai que la langue populaire a dû être en avance sur ce point, comme sur tant d'autres, sur la langue savante. De fait au XVIe siècle, Ronsard pourra écrire dans son Art Poétique: "Tu dois aussi noter que rien n'est si plaisant qu'un carme bien façonné, bien tourné, non entr'ouvert ni béant: Et pour-ce, sauf le jugement de nos Aristarques, tu dois oster la dernière e féminine, tant des vocables singuliers que pluriels qui se finissent en ée et ées, quand de fortune, ils se rencontrent au milieu de ton vers... Si tu veux que ton poème soit ensemble doux et savoureux, pour ce tu mettras rou', jou', nu', contre l'opinion de tous nos maîtres, qui n'ont de si près avisé à la perfection de ce mestier"... Du Bellay supprime e même dans les mots qui terminent le vers et fait rimer par exemple né avec hyménée. En dehors des poètes, on note fourni, glu chez O. Estienne, eau et eaue chez Palsgrave... Dans cette dernière classe pourtant, tout le monde n'était pas du même avis, et il y a eu des protestataires. Sibilet (1548) écrit: "Prononçant aimée, desestimée, tu sens bien le plein son du premier é masculin... et le mol et flac son du second e féminin en la syllabe dernière." De même, Malherbe note dans son Commentaire sur Desportes: "Jamais ne dit Proté, Prométhé, mais Protée, Prométhée." Maupas (1625) de son côté recommandera de prononcer l'e final dans les mots comme portée. Mais il semble bien qu'à partir de 1610 ou 1620, l'[œ] final après voyelle ait fini par disparaître complètement. Si on parle de le prononcer, il ne s'agit plus que du langage noble et soutenu. Lorsqu'en 1639 Duez remarque que l'e de -ie ou -ue fait une syllabe, il n'est question chez lui que de poésie (Fouché 1969:518-9; emphasis mine).

This variable nature of the process effacing schwa in hiatus with a preceding vowel can be formally captured in an over-simplified manner by the following rule:

$$(67) \text{ ə} \rightarrow \langle \text{k-s } \emptyset \rangle / [ +\text{syllabic} ]$$

(67) is interpreted in the following way: schwa is variably deleted following a vowel. The symbols k and s in the structural change rep-

resent the non-grammatical functions of social-class and style. If we assign increasing values to k and s to characterize social class from lowest to highest and style from casual to formal, respectively, then the probability of the rule's application is inversely proportional to the values of k and s.

Although we lack any definite statistics that would enable us to calculate the weight of the variable features on the probabilistic application of the rule, it is at least of some significance that we are able to recognize the necessity for these variable constraints as an integral part of the formal representation of the rule. Otherwise, it would be difficult to account for the considerable length of time taken between the onset stage of the change through its gradual transition to an invariant rule.

In addition to the variable constraints on (67), the rule appears to have experienced lexical diffusion. The learned stratum of the lexicon was more resistant to the change and consequently served to delay the development of (67) as an unconditioned rule.<sup>1</sup> Within verbal paradigms, deletion took place particularly early when schwa constituted part of a person ending or tense marker that was not uniform throughout the paradigm. For example, the effacement of schwa in the first and second persons singular, present subjunctive, of the verbs avoir 'to have' and être 'to be' (sei~~ə~~, sei~~ə~~s; ai~~ə~~, ai~~ə~~s) which is detected from the end of the twelfth century, gave these persons a representation more in line with the corresponding third person

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<sup>1</sup>See Kastner 1973:19.

singular (seit, ait).<sup>1</sup> We shall see below the effect of schwa deletion on the phonological form of the imperfect and conditional tense marker.

Evidence for schwa deletion after a vowel is scarce for the thirteenth century. Most instances are limited to schwa in the imperfect and conditional tense marker. In the Dialogue Gregoire, a manuscript dating from the beginning of the century, one finds the imperfect marker -oie replaced by -oi: seoi (5,8), ge volroi (7, 11), moi hortoi (15, 1), tu avois (105, 12), je crenmoi, ge redotoi (325, 20).<sup>2</sup> The same treatment is also attested in the following lines of thirteenth century poetry:<sup>3</sup>

(68) Mais s'il estre pooit, ge voldroi plus privé.  
(Poème mor., Rec. de Meyer, 20, 163)

Dameldieus, sire, pere, com hui main estoi riches.  
(Elie, 957)

Sire, che dist li lere, por coi le veroi gié?  
(Ibid., 1908)

Certes or voit il bien que gaires ne l'amoi.  
(Par Duch., 50)

Dont ne poroi dire la disme.  
(B. Cond., 7, 196)

Et se pour tant vous amoi,  
(J. Condé, I, 316)

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<sup>1</sup>See Fouché 1969:517.

<sup>2</sup>Tobler 1885:45.

<sup>3</sup>Ibid., 45-6.

Que se je demouroi~~é~~ huit jours,  
 Ne perderoi~~é~~ mien ensçient.  
 (Du Vallet, Jahrb.,  
 13, 299, 162)

Mieus me voroi~~é~~ combatre à lui qu'a ces meschans.  
 (H. Cap., 70)

S'aroi ge bien mestier en ung aultre regné.  
 (Ibid., 182)

en quel manere  
 Te vorroi de çou encoper?  
 (Cour. Ren., 911)

Il me semble que tu n'oi~~é~~s goute. (Subjunctive)  
 (Jeh. Bruy., 32b)

Avant qu'il doi~~é~~ response rendre. (Subjunctive)  
 (32b)

Fourteenth century literary works, especially the more popular poetry, present more varied examples of deletion of schwa in hiatus with a preceding vowel:<sup>1</sup>

(69) Assés esti~~é~~nt de bel alour... (Imperfect)  
 D'eles fesi~~é~~nt lor volenté. "  
 (Barb et Meon,  
 III, 61, 15, 17)

Qui grant talent avi~~é~~nt d'abatre. "  
 (Ibid., 62, 49)

...al chanz si grant estoit  
 Que cele nuit nuit feso~~é~~nt el ciel. (Imperfect)  
 (Reinsch. Kindh., 23, 76)

Qu'a un autre de li seront bailli~~é~~s les cles.  
 (Gaufr., 63)

Abati l'iau~~é~~ mesons et caves.  
 (Barb et Meon, II, 235, 276)

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<sup>1</sup>Tobler 1885:45, 47, 53.

Et dit que ne s'oublira mie.  
(Ibid., IV, 280, 138)

Que Dieu n'oubliroie je mie.  
(Méon, II, 242, 193)

Et puis devenray nonne et priray dieu merci.  
(H. Cap., 199)

Mauvais ostel trouvai, ja n'en paierai denier.  
(Baud. Seb., XXI, 532)

Diront a conseil priveément,<sup>1</sup>  
(Dupin, Mélan., 1502)

Foulz est qui de tele vié dure.  
(Deschamps, Lai CCCIX, 128)

By the fifteenth century, rule (67) had all but gained a categorical status, as we can see from the following lines of verse taken from several late fifteenth century popular theatrical works:<sup>2</sup>

(70) i. Maistre Pierre Pathelin (Anonymous; composed between 1467 and 1470):

Vrayément, c'est homme m'assotist! (39)

Combien vrayément je m'en advise, (22)

Très-bien: et si ne voudroyé pas (40)

M'envoyé la sainte Magdaleine, (39)

Je vous prié que vous me baillez (40)

Or, regnié-je bieu, se j'accrois (71)

Et je me devoyé tant louer (116)

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<sup>1</sup>The last two examples are taken from Batany (1972).

<sup>2</sup>Examples are taken from Jacob (1863). The numbers in parentheses refer to pages.

- Je ne vous payéray point en soulz (89)
- Par mon serment! tu me payéras (115)
- M'aist Dieu, je loé que je m'en voise (110)
- Parle hardiment [i.e., hardiément]: ne te chaille? (114)
- Je vous pry' qu'il ne vous desplaise; (64)
- Je regnié bieu, que j'à ne face: (67)
- Il ne vivra pas demyé heure. (69)
- Les playés Dieu! Qu'est-ce qui s'ataque (74)
- Car vrayément je le mangera. (78)
- M'envoyé Dieu, se vous ne l'avez (98)
- C'estes vous! je regnié saint Pierre! (113)
- ii. Le Nouveau Pathelin (François Villon?--composed in 1474):
- Et Dieu vous doint joyé, nostre maistre! (131)
- Maintenant, qui soyént de la sorte (134)
- Mais tousjours s'appelloient comperes. (138)
- Mais vrayément, en la bonne heure. (143)
- Vous les payérez tout rondement? (146)
- Pour recevoir vostre payément. (147)
- Qui n'est deué pour la marchandise. (163)
- Vrayément, c'est bien dit, douze escus? (144)
- S'il vous ennuié, en attendant (156)
- Ah! je prié Dieu qu'il me sequeure! (172)
- iii. Le Testament de Pathelin (Anonymous; composed between 1480 and 1490):

Et crains que je ne soyé malade: (186)

Or çà, vrayément, je le vueil bien. (197)

Une escuellée de bons coulis (196)

Vrayément, ma mye, et bonne estreine! (191)

Je vous pry [i.e., pryé], qu'on en voyse traire. (203)

Tout beau, ma chere amyé! hélas! (189)

Dieu benyé, Dieu gard, bonne gent! (195)

Ilz me pourroient jusqu'au sang mordre (198)

Je les nommeroyé bien par ordre. (200)

iv. Moralité de L'aveugle et du Boiteux (André de la Vigne; composed ca. 1496):

Dont Dieu remercyé humblement! (230)

Partir ne me pourroyé d'icy (218)

Content seroyé de te porter (219)

Je ne vouldroyé point aller droict (225)

v. La Farce du Munyer (André de la Vigne; composed ca. 1496):

Mais, quoy! vous en payérez l'amende, (250)

vi. La Condemnacion de Bancquet (Nicole de la Chesnaye; composed ca. 1500):

Les Maladiés qui font le guet (454)

Il maine vié dyabolique. (362)

Combien que je soié marmiteux (378)

Vous envoyé saint Denis de France! (384)

Et ne m'en scauroyé-je mesler: (411)

(67) must still, however, be regarded as a semi-categorical rule, since we find a few instances where it has failed to apply. It could be the case, however, that in these examples, all limited to word final schwa, that the preceding stressed vowel produced a consonantal off-glide (especially in the case of stresses i), which consequently blocked the application of the low-level deletion rule:<sup>1</sup>

(71) i. Moralité de L'aveugle:

Pour mectre en galée cela (225) (learned?)

Pour Dieu! qu'il ne nous voye point! (229)

ii. Maistre Pierre Pathelin:

Parmy le col soye pendu, (43)

Par sainte Marie la belle!... (64)

Il semble qu'il doye desver. (68)

De menues conclusions! (80)

Se tu me payes largement... (93)

By the end of the sixteenth century, we can feel quite confident in assuming that the weight of the variable constraints determining the probable application of (67) was practically negligible. The remarks of early grammarians are of significance in determining the end point of the transition of (67) from a variable to a categorical rule and the definitive embedding of the change within the linguistic structure.

With respect to word-final schwa preceded by a vowel, Péletier

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<sup>1</sup>See Kastner 1973:19, Rosset 1904:436-7.

(1555) writes: "'J'é usé de gru's é oè's pour grues é oèes [oies] an mon hyuer: demandant ce congé la, é an donnant de même.' Il dit lui-même apui'..., mais ailleurs il compte pour une syllabe l'e final de rosée..."<sup>1</sup> Baïf (1574) presents the graphemic representations: anné', fumé', doré', maladî', maladî's, vî', anvî', suplî', vrè', keu'.<sup>2</sup> Saint-Liens (1580) indicates that the e's written in italics should not be pronounced in: "...que j'aye froid?...les a elle eues longue-ment?...cela ne sçauoe (i.e. scauoee) ie point...la vraye piété."<sup>2</sup>

For internal schwa in hiatus with a preceding vowel, we find similar attestations. Péletier (1549) writes hardiment, maniment, Baïf (1579), kontinûre for hardiement, maniement, continuerai.<sup>3</sup> Cauchie (1570) says that in priveement, aiseement, the e féminin is not pronounced ("e vocis foemininae non exauditur").<sup>3</sup> Elsewhere he remarks that lierai and lirai are homonymous, and that it is often omitted in writing such forms as je les prirai and suplirai.<sup>3</sup> H. Estienne (1582) says that, although the schwa is written in ambigument, estourdiement, remuement, reniement, etc., it is not pronounced.<sup>3</sup> According to Bèze (1584), the e is deleted in the future forms: envofrai, ennufrai, essufrai, loûrai.<sup>3</sup> Lanoue (1596), like Estienne, notes that remuëment, cruëment, incongruëment, etc., "'sont maintenant prononcez sans l'e avec vn u apostrophé..." Elsewhere he says: "'desfiera...priera...La concurrence de ces deux voyelles au milieu

<sup>1</sup>Cited in Thurot I: 176-7.

<sup>2</sup>Ibid.:177.

<sup>3</sup>Ibid.:145.

du mot en rendant la prononciation rude, on se dispense maintenant d'en retrancher une et apostropher l'i et dire desfi'ra, pri'ra."<sup>1</sup>

From the above comments, it appears that the deletion of schwa in hiatus was occurring quite generally by the end of the sixteenth century. However, even in the early years of the seventeenth century we still find indications that schwa continued to be pronounced in the "langue noble et soutenu."<sup>2</sup> Nevertheless, by the middle of the century, all indications point to the categorical deletion of schwa in this environment. Vaugelas (1647) writes that "'remerciement se doit escrire et prononcer remerciment, et non pas remerciement, avec vn e apres l'i. Agrément, de mesme, et non pas agreement. Ainsi dans les vers on dit payray, louray, et non pas payeray ny louëray."<sup>3</sup>

The invariant nature of schwa deletion after a vowel can now be expressed by the categorical rule:

(67')  $\text{ə} \rightarrow \emptyset / [+syllabic] \text{ ---}$

As a consequence of the application of (67'), all morphemes having internal sequences of Və in Old French are now unconditionally realized as [V]. In accordance with the uniqueness condition, therefore, we can consider that restructuring took place in all such instances, with the underlying representations now corresponding to the surface forms:

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<sup>1</sup>Thurot 1966:I, 145.

<sup>2</sup>See above, p. 109.

<sup>3</sup>Thurot 1966:I, 146.

- (63') a) i. chaelit>châlit /ʃali(t)/  
 Chaelons>Châlons /ʃalɔ̃(z)/  
 diemanche>dimanche /dimã̃ʃə/  
 liecol>licou /liku/  
 mienuit>minuit /minɥi/  
 miedi>midi /midi/  
 ii. contree>contrée /kɔ̃ntre/  
 espee>épée /epe/  
 fee>fée /fe/  
 grue>grue /grü/  
 ortie>ortie /ɔ̃rti/  
 vie>vie /vi/

With respect to stress factors, an interesting outcome is to be noted in the cases in (63'ii), where the deletion of post-vocalic schwa took place morpheme-finally. Before the thirteenth century, this class of morphemes had two allomorphs with variable stress: one with phonetic stress on the ultimate syllable when in the elision environment (    <sub>1</sub>V), and one corresponding to the underlying form with stress on the penultimate syllable in all other positions. By the end of the sixteenth century, however, the categorical deletion of schwa by rule (67') and consequent restructuring of morphemes of the form +XV̄ə+ to +XV̄+ resulted in a preferred stress placement<sup>1</sup>, in the sense that they now had a constant stress pattern which, further-

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<sup>1</sup>See Schane 1972:221.

more, was in conformity with that exhibited by the majority of lexical items since the beginning of Early Old French, that is, with oxytonic stress.<sup>1</sup>

Not only lexical morphemes, but also grammatical morphemes were likewise restructured as a result of the operation of (67'). A case in point in this respect is the imperfect tense marker. In this instance, analogical strategies can be considered to have constituted an additional factor, since the restructuring that took place here because of schwa deletion led to a greater degree of paradigm uniformity. We shall now examine the development of the imperfect marker from the Old French period to the end of Middle French. Since the same morphological marker was used to form the conditional tense, the comments made here with respect to the imperfect apply equally to the conditional.

The effacement of schwa in hiatus with a preceding vowel was one in a series of changes which ultimately resulted in a simplification of the morphological readjustment rule for the allomorphs of the imperfect tense marker. In Early Old French this rule had the following form:

$$(72)^2 \quad \left\{ \begin{array}{l} +i+ \quad / \quad \boxed{\begin{array}{l} -3 \text{ person} \\ +\text{plural} \end{array}} \quad (i) \\ +e\langle e \rangle+ \quad / \quad \langle \begin{array}{l} -3 \text{ person} \\ +\text{singular} \end{array} \rangle \quad (ii) \end{array} \right. \quad [+IMP] \rightarrow$$

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<sup>1</sup>See above, p. 99.

<sup>2</sup>This rule already shows a simplification from the form it had in preliterate French and which still survived in western dialects in

Rule (72) accounts for the following paradigms of the imperfect indicative and conditional at the end of Early Old French (beginning of the twelfth century):

(73) <sup>1</sup>	Class I	Class II	Class III
	garder	punir	vendre
	'to keep'	'to punish'	'to sell'
i. Imperfect			
Underlying:	gard+eə+∅	pün+i+s+eə+∅	vend+eə+∅
	gard+eə+s	pün+i+s+eə+s	vend+eə+s
	gard+e+t	pün+i+s+e+t	vend+e+t
	gard+i+jens	pün+i+s+i+jens	vend+i+jens
	gard+i+jets	pün+i+s+i+jets	vend+i+jets
	gard+e+ənt	pün+i+s+e+ənt	vend+e+ənt
Surface:	gardejə	püni sejə	vēndejə
	gardejəs	püni sejəs	vēndejəs
	gardej t	püni sejt	vēndej t
	gardijēns	püni sijēns	vēndijēns
	gardijets	püni sijets	vēndijets
	gardejēnt	püni sejēnt	vēndejēnt

the Early Old French period. At the earlier stage the rule had the form:

$$[+IMP] \rightarrow \left\{ \begin{array}{l} +i+ / \left[ \begin{array}{l} -3 \text{ person} \\ +\text{plural} \end{array} \right] \\ + \left[ \begin{array}{l} \text{ɔ} \\ e \end{array} \right]_{\alpha} \langle \text{e} \rangle + / \left[ \begin{array}{l} +\text{Class 1} \\ -\text{Class 1} \end{array} \right]_{\alpha} \\ \left\langle \begin{array}{l} -3 \text{ person} \\ +\text{singular} \end{array} \right\rangle \end{array} \right.$$

whereby Class 1 verbs were distinguished from other classes by the presence of the imperfect allomorph  $\text{ɔ}$  in all persons except the first and second plural (see Walker 1971:98). By the literary period the [-Class 1] tense marker had been analogically extended to all verb classes (see Pope 1934:345), a change interpreted formally as the loss of the sub-rule: [+IMP]  $\rightarrow$   $\text{ɔ}$  / [+Class 1].

<sup>1</sup>Underlying  $\underline{e}$  in the imperfect marker which surfaces as the diphthong [ej] is accounted for by the rule:

	Class I	Class II	Class III
ii. Conditional <sup>1</sup>			
Underlying:	gard+ə+r+eə+∅ gard+ə+r+eə+s gard+ə+r+eə+t	pūn+i+r+eə+∅ pūn+i+r+eə+s pūn+i+r+eə+t	vend+r+eə+∅ vend+r+eə+s vend+r+eə+t
	gard+ə+r+i+jens gard+ə+r+i+jets gard+ə+r+e+ənt	pūn+i+r+i+jens pūn+i+r+i+jets pūn+i+r+e+ənt	vend+r+i+jens vend+r+i+jets vend+r+e+ənt
Surface:	gardərejə gardərejəs gardərejt	pūni rejə pūni rejəs pūni rejt	vēndrejə vēndrejəs vēndrejt
	gardəri jēns gardəri jets gardərejēnt	pūni ri jēns pūni ri jets pūni rejēnt	vēndri jēns vēndri jets vēndrejēnt

Notice that the imperfect marker in underlying representations is re-written as Və in the first and second persons singular, but not in the third person singular. This synchronic irregularity is explainable historically by the fact that the preliterate third person singular, eə was remodelled on the present subjunctive tense of estre 'to be': seit, whose other persons corresponded to the imperfect terminations: seje, sejes, etc.<sup>2</sup> Although the low-level rule (67) de-

$$\left[ \begin{array}{c} \text{V} \\ +\text{high} \\ +\text{mid} \\ \text{around} \\ +\text{stress} \\ \text{1} \end{array} \right] \rightarrow \text{1} + \left[ \begin{array}{c} \text{G(lide)} \\ \text{around} \end{array} \right] / \text{---} (\text{C}_0^1 \text{V})$$

which is independently required in order to handle such alternations as: espéjr/esperóns 'hope (1 sg./1 pl.)', plówr/ploróns 'cry (1 sg./1 pl.)' (see Walker 1972:9).

Class II forms such as pūn+i+s+eə+∅, are analysed morphologically as stem+thematic vowel+infix marker+tense marker+person ending.

<sup>1</sup>The conditional is represented by the sequence of fut. aspect marker r+imperf. marker (see Walker 1971:100).

<sup>2</sup>See Pope 1934:346.

leting schwa in hiatus with a preceding vowel was probably in existence at the end of the twelfth century, it would not apply to the paradigms in (73). Since underlying stressed e diphthongized to [ej], schwa was preceded phonetically by a non-syllabic segment, which blocked the application of (67). By the end of the thirteenth century, however, the falling diphthong [ej] had changed to the rising diphthong [wɛ].<sup>1</sup> Furthermore, at this stage in Later Old French, the allomorphic rules for the endings of the plural persons had undergone modification. The first person plural ending of the imperfect and conditional, jens, was analogically replaced by the -ons allomorph, and the second person plural marker, jets, was restructured as es.<sup>2</sup> With respect to these thirteenth century changes, then, the surface forms for the paradigms in (73) can now be represented in the following way:

(73')	Class I	Class II	Class III
i. Imperfect:	gardwɛə	püni swɛə	vãndwɛə
	gardwɛə(s)	püni swɛə(s)	vãndwɛə(s)
	gardwɛ(t)	püni swɛ(t)	vãndwɛ(t)
	gardiũn(s)	püni siũn(s)	vãndiũn(s)
	gardie(s)	püni sie(s)	vãndie(s)
	gardwɛə(t)	püni swɛə(t)	vãndwɛə(t)

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<sup>1</sup>See Pope 1934:194.

<sup>2</sup>See Ibid.:347.

	Class I	Class II	Class III
ii. Conditional:	gardərweə	püni rweə	vāndrweə
	gardərweə(s)	püni rweə(s)	vāndrweə(s)
	gardərwe(t)	püni rwe(t)	vāndrwe(t)
	gardəri ũn(s)	püni ri ũn(s)	vāndri ũn(s)
	gardəri e(s)	püni rie(s)	vāndrie(s)
	gardərweə(t)	püni rweə(t)	vāndrweə(t)

Since schwa in the above paradigms now stood in hiatus phonetically with a preceding vowel, it satisfied the structural description of rule (67) and was accordingly deleted. As a result of this process, it can be seen that the surface realization of the imperfect marker in the first and second persons singular would now acquire a representation identical to that of the third person singular and plural:

(73'')	Class I	Class II	Class III
i. Imperfect:	gardwe	püni swe	vāndwe
	gardwe(s)	püni swe(s)	vāndwe(s)
	gardwe(t)	püni swe(t)	vāndwe(t)
ii. Conditional:	gardərwe	püni rwe	vāndrwe
	gardərwe(s)	püni rwe(s)	vāndrwe(s)
	gardərwe(t)	püni rwe(t)	vāndrwe(t)

As a result, therefore, of the variable and ultimately categorical application of rule (67-67') to the surface forms of the first and second persons singular, the imperfect and conditional paradigms acquired a more uniform representation. By the seventeenth century, underlying eə can no longer be motivated for the imperfect morpheme in these persons, since it was everywhere realized phonetically with-

out schwa.<sup>1</sup> Formally, this involves rule loss, specifically, the elimination of the discontinuous dependency, expressed notationally by the use of angled brackets. In other words, the disjunctively-ordered sub-rule in (72ii):

$$[+IMP] \rightarrow e\text{e} / \left[ \begin{array}{l} -3 \text{ person} \\ +\text{singular} \end{array} \right]$$

is lost from (72). By the mid seventeenth century, therefore, the morphological rule for the imperfect tense marker can be reformulated as:

$$(72') \quad [+IMP] \rightarrow \left\{ \begin{array}{l} +i + / \left[ \begin{array}{l} -3 \text{ person} \\ +\text{plural} \end{array} \right] \\ +e+ \end{array} \right.$$

As in the case of non-grammatical morphemes (63), it can be seen, then, that the persistent deletion of schwa in the imperfect allomorph eə by the low-level rule (67'), led likewise to the restructuring of its underlying representation as e in accordance with its consistent phonetic realization.

#### 2.1.1. Implications for the synchronic analysis of Modern French

The consequences of the restructuring that took place due to the historical deletion of schwa in hiatus with a preceding vowel are reflected in the statements governing the phonotactic patterning of Modern French. From the mid seventeenth century onward, we can con-

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<sup>1</sup>See Fouché 1967:240.

sider that there has been added a negative morpheme-structure constraint (MSC) of the form:

$$(74) \quad \sim [+syllabic] \left[ \begin{array}{l} +syllabic \\ -tense \end{array} \right]$$

No sequences of Və are permitted morpheme-internally

Furthermore, since the same constraint holds at the surface phonetic level, that is, (74) also acts as an SPC in Modern French, the overlap that would occur by having separate statements to express the constraints at the two levels can be avoided if one adopts the convention proposed by Shibatani and marks the constraint (74) as an M/SPC.<sup>1</sup>

The presence of (74) as an M/SPC in the grammar of French raises an interesting methodological problem. Although no sequences of Və occur either within morphemes in underlying representations, nor in well-formed surface phonetic representations after sequences of morphemes have been concatenated during derivation, it is possible, nevertheless, if one adopts a relatively abstract approach in accounting for certain morphological processes in French, that sequences of V+ə will arise in underlying phonological representations. Such an analysis which would permit a greater degree of generalization and simplicity within the morphological readjustment component than would be achieved by a concrete treatment based solely on surface-(phonetic) level observations, would require the presence of a phonological rule

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<sup>1</sup>See Shibatani 1973:90.

identical to the historical rule (67') in order to assure that all instances of inter-morphemic sequences of  $\underline{V+\emptyset}$  would be reduced to  $\underline{V}$  before the level of phonetic representation was reached. Since, however, we have already established (74) as an M/SPC, we could further reduce overlap between phonological rules and phonotactic statements if a rule-like role could be assigned to (74), that is, further specify it as an A/M/SPC (alternation/morpheme/surface phonetic constraint).

The problem is, though, that (74), being a negative constraint, cannot express the directionality of the deletion process that the phonological rule would require. If it is to function as an A/M/SPC, it must be reformulated as an IF-THEN constraint:

(75) A/M/SPC:

$$\begin{array}{ccc} \text{IF: } [+syllabic] & \left[ \begin{array}{l} +syllabic \\ -tense \end{array} \right] & \\ & \downarrow & \\ \text{THEN:} & \emptyset & \end{array}$$

The fact that (75) actively deletes a segment rather than just stating a phonological redundancy, distinguishes it from the type of A/M/SPC discussed by Shibatani. However, if one is to be able to relate to M/SPC's, phonological rules other than just late phonetic rules such as assimilation, which involve only feature modification, it is necessary that the A/M/SPC's be able to be formulated in such a way so as to express the active morphophonemic function they fulfill in addition to the static phonotactic constraints, which lie at

the basis of and motivate the phonological rules.<sup>1</sup>

By allowing (75) to operate as an A/M/SPC in French, a much higher degree of systematicity in accounting for morphophonemic patterning can be attained. We shall here examine three such areas where this is applicable: i) the assignment of the thematic marker in Class I verbs; ii) the derivation of nouns in -(e)ment from Class I verbs; iii) the formation of adverbs in -(e)ment.

i) The assignment of the thematic marker in Class I verbs. Class I verbs in French are characterized by the presence of a thematic marker ə in their underlying representations of the future and conditional tenses, which can be assigned without exception by the morphological rule:

$$(76) \left[ \begin{array}{l} +\text{Verb} \\ +\text{Class I} \end{array} \right] \rightarrow +\text{ə} + / \begin{array}{c} \dots \\ \text{stem} \end{array} / \left\{ \begin{array}{l} [+future] \\ [+conditional] \end{array} \right\}$$

The future and conditional tenses of French verbs are further characterized by the presence of the tense marker +r+ which is assigned by the general rule:

$$(77)^2 [+future] \rightarrow +r+ / + (\text{thematic vowel}) \underline{\quad}$$

Taking the Class I stems port- 'carry' and cri- 'cry', therefore, we can form the first person singular of the future and con-

<sup>1</sup>See Walker (1975b) for another instance of an A/M/SPC which requires the epenthesis of a segment in order to adequately function as a morphophonemic rule.

<sup>2</sup>The presence of a thematic vowel in the S.D. is optional since no thematic vowel occurs, for example, in the future tense of mordre /mɔrd+r/ 'to bite'.

ditional tenses, respectively, using the morphological rules (76-77) in the following way:

(78)	i. pɔrt	ii. kri
Future:	pɔrt+ə+r+e	kri+ə+r+e
Conditional:	pɔrt+ə+r+ɛ+S	kri+ə+r+ɛ+S

By applying A/M/SPC (75) to the representations in (78ii) and effecting the deletion specified in the THEN part of the constraint, we obtain the well-formed surface representations:

(78')	i. [pɔrt(ə)re] <sup>1</sup>	[krire]
	[pɔrt(ə)rɛ(z)]	[kriɛ(z)]

Had we based our morphological analysis uniquely on surface facts, the observation that schwa never appears phonetically in the future and conditional of vowel-final stems, would force us to complicate the readjustment rule for the thematic marker of Class I verbs by specifying that it is rewritten as +ə+ only when the verb-stem ends in a consonantal segment:

$$(79) \left[ \begin{array}{l} +\text{Verb} \\ +\text{Class I} \end{array} \right] \rightarrow +\text{ə}+ / \begin{array}{c} \dots\text{C} \\ \text{stem} \end{array} / \left\{ \begin{array}{l} [+future] \\ [+conditional] \end{array} \right\}$$

By distinguishing two classes of roots, those that terminate in a vowel, e.g., tuer 'to kill', prier 'to beg', agr  er 'to approve', louer 'to rent', remercier 'to thank', and those that do not, e.g.,

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<sup>1</sup>Parasitized segments are deleted in the appropriate contexts by other rules.

aimer 'to love', donner 'to give', frapper 'to knock', juger 'to judge', such an analysis a paradigmatic generalization that could be expressed at a more abstract level and without extra cost to the grammar due to the presence of A/M/SPC (75), which would automatically assure the deletion of all post-vocalic schwas that might arise during derivation. The fact that such forms as \*[kriəre] (crierai), \*[kriəreɛ] (crierais) never appear in surface representations is thus seen to be, not an exceptional or idiosyncratic property of a particular class of morphemes, but rather is explainable by a systematic constraint of the language. In this respect, the more abstract approach, which would assign schwas in the underlying representations of vowel-final as well as consonant-final Class I verb-stems in the future and conditional tenses, is to be preferred from a theoretical viewpoint.<sup>1</sup>

ii) The derivation of nouns in -(e)ment from Class I verbs. A second area in which a more systematic analysis can be made by allowing (75) to operate as an A/M/SPC is that of derivational morphology, specifically, in the rule deriving nouns in -(e)ment from Class I verbs. In its most general form, this very productive rule can be stated as follows:

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<sup>1</sup>Cf. Kiefer (1973): "Da das Stammbildungs -e in unbetonter Position stets getilgt wird, ist dessen Vorhandensein in den verschiedenen Tempora entweder aus strukturellen Gründen nötig, oder beruht einfach auf einer orthographischen Konvention. Es sei bemerkt, dass diese Annahme u.a. durch Formen wie je prierais (/priɛ/), nous jouerions (/ʒuriɔ/) unterstützt wird, wo das Stammbildungs -e nie, auch nicht in L<sub>2</sub>, gesprochen wird und auch durch strukturelle Gründe nicht motiviert werden kann" (63).

$$(80)^1 \left[ \begin{array}{l} [+Affix] \\ [+Nominalizing] \\ [+Verb \\ +Class x] \\ \left\{ \begin{array}{l} [+Abstract Act \\ of Verb x] \\ [+State Resulting \\ from Verb x] \\ [+Object Resulting \\ from Verb x] \\ \vdots \\ \vdots \end{array} \right\} \end{array} \right] \rightarrow +\emptyset+m\tilde{a} / \left[ \begin{array}{l} [+Verb \\ +Class x] \end{array} \right] \text{---}$$

where  $\left[ \begin{array}{l} +Verb \\ +Class x \end{array} \right]$  is the class of verbs lexically marked as capable of undergoing this type of nominalization.

With rule (80), we can derive a noun in -(e)ment from any Class I verb whose semantic features permit it to co-occur with this derivational affix. The following examples serve to illustrate this process:

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<sup>1</sup>This rule is somewhat oversimplified in the sense that we do not consider schwa to be spelled out directly by the morphological rule, but rather to be introduced by a later readjustment rule which inserts schwa under certain conditions before a derivational affix. This rule was briefly discussed by Dell in a paper given at the Sixth Linguistic Symposium on Romance Languages. The basic point of our analysis is not affected by this formal simplification, however.

Notice that the separation of schwa from  $m\tilde{a}$  by a boundary is formally necessary for the proper application of the morphophonemic rule adjusting  $\emptyset \rightarrow \varepsilon$  (see p.301). The structural description of this rule requires that when two schwas occur in consecutive syllables, the first one changes to  $\varepsilon$  only if the second one is directly followed by a boundary (cf. achèvement /aʃɛv+ɛ+m̃a/ [aʃɛvɛm̃a], but resse-meler /rɛ+sɛmɛl+ɛ/ [rɛsɛmɛle]). See Dell 1973b:201.

(81) i.	avancement	/avãs+ə+mã/	[avãs mã]	'advancing'
	bêlement	/bɛl+ə+mã/	[bɛl mã]	'bleat(ing)'
	bercement	/bers+ə+mã/	[bersə mã]	'rocking'
	chargement	/šarž+ə+mã/	[šaržə mã]	'loading'
	commencement	/kõmãs+ə+mã/	[kõmãs mã]	'beginning'
	écorchement	/ekõrš+ə+mã/	[ekõršə mã]	'skinning'
	emportement	/ãpõrt+ə+mã/	[ãpõrtə mã]	'transport'
	engagement	/ãgaž+ə+mã/	[ãgaž mã]	'engagement'
	forcement	/fõrs+ə+mã/	[fõrsə mã]	'forcing'
	frappement	/frap+ə+mã/	[frap mã]	'striking'
	froissement	/frwas+ə+mã/	[frwas mã]	'crumpling'
	groupement	/grup+ə+mã/	[grup mã]	'grouping'
	jugement	/žüž+ə+mã/	[žüž mã]	'judgment'
	sifflement	/si fl+ə+mã/	[si flə mã]	'whistling'
ii.	aboïement	/abwa+ə+mã/	[abwã mã]	'bark(ing)'
	agrément	/agre+ə+mã/	[agremã]	'assent'
	balbutiement	/balbüsi+ə+mã/	[balbüsi mã]	'stuttering'
	chatîment	/šati+ə+mã/	[šati mã]	'chastisement'
	crucifiement	/krüsi fi+ə+mã/	[krüsi fi mã]	'crucifixion'
	dénouement	/denu+ə+mã/	[denumã]	'untying'
	dénuement	/denü+ə+mã/	[denümã]	'bareness'
	dévouement	/devu+ə+mã/	[devumã]	'devotion'
	échouement	/ešu+ə+mã/	[ešumã]	'failure'
	engouement	/ãqu+ə+mã/	[ãqu mã]	'obstruction'
	enrouement	/ãru+ə+mã/	[ãrumã]	'hoarseness'

étternement	/eternü+ə+mã/	[eternümã]	'sneezing'
fourvoiemēt	/furwa+ə+mã/	[furwamã]	'leading astray'
licenciemēt	/lisãsi+ə+mã/	[lisãsimã]	'disbanding'
maniemēt	/mani+ə+mã/	[manimã]	'handling'
nettoiemēt	/nɛtwa+ə+mã/	[nɛtwamã]	'cleaning'
ralliēmēt	/rali+ə+mã/	[ralimã]	'rally(ing)'
remerciēmēt	/rəmersi+ə+mã/	[rəmersimã]	'thanks'
remuemēt	/rəmü+ə+mã/	[rəmümã]	'moving'
reniemēt	/rəni+ə+mã/	[rənimã]	'denial'
renouēmēt	/rənu+ə+mã/	[rənumã]	'renewal'
tutoiemēt	/tütwa+ə+mã/	[tütwamã]	'use of <u>tu</u> and <u>toi</u> '
tournoiemēt	/turnwa+ə+mã/	[turnwamã]	'whirling'

Unlike the forms in (81i), the schwa in the derivational affix of the forms in (81ii) is never realized phonetically in Modern French.<sup>1</sup> It can, however, still be motivated in underlying representations. If we adopt the A/M/SPC (75), the synchronic reflex of the historical rule (67'), then the morphological rule (80) for deriving nouns in -(e)ment can be retained in its general form. The constraint (75) will then systematically apply to the intermorphemic sequences of V+ə and efface the schwa according to the conditions in the THEN part of the constraint. On the other hand, if we deny granting an active status to the constraint (75), and base our morphological analysis only

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<sup>1</sup>See Warnant 1968: *passim*.

The process deleting schwa in the context VC \_\_\_ in (81i) is discussed below, sect. 4.4.

on surface phonetic data, then the derivational rule (80) will have to be modified so as to recognize two different classes of root-morphemes, those that end in a vowel and those that do not. Specifically, we would then require the disjunctive set of rules:

$$(82) \left[ \begin{array}{l} [+Affix] \\ [+Nominalizing] \\ \left[ \begin{array}{l} +Verb \\ +Class x \end{array} \right] \text{---} \\ \left\{ \begin{array}{l} [+Abstract Act \\ \text{of Verb } x] \\ [+State Resulting \\ \text{from Verb } x] \\ [+Object Resulting \\ \text{from Verb } x] \\ \vdots \end{array} \right\} \end{array} \right] \rightarrow \left\{ \begin{array}{l} +m\tilde{a} / V\text{---} \\ +\emptyset+m\tilde{a} \end{array} \right\} / \left[ \begin{array}{l} +Verb \\ +Class x \end{array} \right] \text{---}$$

The complication that would result in the morphological readjustment component by establishing two classes of stems on the basis of their phonetic behaviour, obscurs the fact that the synchronic surface representations are the direct outcome of a naturally motivated historical change. That the process effected by this change is, furthermore, reflected in a structural constraint of the contemporary language, accounts for the surface phenomena and allows a significant generalization to be expressed on a deeper morphological level.

iii) The formation of adverbs in -(e)ment. The presence of the phonotactically motivated A/M/SPC (75) further permits the formulation of a general rule for the derivation of adverbs in -(e)ment from ad-

jectives. In a somewhat simplified form, this morphological rule can be represented as follows:

$$(83)^1 \left[ \begin{array}{l} [+Affix] \\ [+Adverbial] \\ [+Adj \text{ —}] \\ [+Manner] \end{array} \right] \rightarrow \left\{ \begin{array}{l} +m\tilde{a}/\tilde{a}t \text{ —} \\ +em\tilde{a}/[+Class \textit{y}] \text{ —} \\ +\emptyset+m\tilde{a} \end{array} \right. \left. \begin{array}{l} i) \\ ii) \\ iii) \end{array} \right\} / \left[ \begin{array}{l} [+Adjective] \\ [+Adverbial- \\ \textit{ization}] \end{array} \right] \text{ —}$$

Rule (83) is interpreted in the following manner: to form an adverb of manner from an adjective lexically marked as capable of undergoing adverbialization,<sup>2</sup> add +mã to adjectives ending in -ãt, +emã to adjectives lexically marked as belonging to Class y with respect to this particular morphological rule (see below), otherwise add +ø+mã to the base form of the adjective. Case i) handles such adjectives as:

(84) ardent	/ardãt+mã/	[ardamã]	'ardently'
brillant	/bri jãt+mã/	[bri jamã]	'brilliantly'
constant	/kõstãt+mã/	[kõstamã]	'constantly'
diligent	/di li žãt+mã/	[di li žamã]	'diligently'
excellent	/eksɛlãt+mã/	[eksɛlamã]	'excellently'
évident	/evidãt+mã/	[evidamã]	'evidently'
innocent	/i nɔsãt+mã/	[i nɔsamã]	'innocently'
méchant	/mešãt+mã/	[mešamã]	'naughtily'
prudent	/prüdãt+mã/	[prüdamã]	'wisely'

<sup>1</sup>With respect to sub-rule iii), see fn., p. 131.

<sup>2</sup>Adjectives such as content 'happy', concis 'concise', mobile 'mobile' would be lexically marked with the feature [-Adverbialization].

vallant	/vajãt+mã/	[vajamã]	'valiantly'
violent	/vjɔlãt+mã/	[vjɔlamã]	'violently' <sup>1</sup>

Phonological rules of consonant truncation and vowel denasalization would apply to the underlying representations in (84) to give the correct surface form of the derived adverbs.<sup>2</sup>

Case ii) handles the class of adjectives lexically marked to undergo adverbialization by this sub-rule, for example:

(85) commode	/kɔmɔd+emã/	[kɔmɔdemã]	'comfortably'
commun	/kɔmün+emã/	[kɔmünemã]	'commonly'
confus	/kɔfüz+emã/	[kɔfüzemã]	'confusedly'
diffus	/di füz+emã/	[difüzemã]	'diffusely'
énorme	/enɔrm+emã/	[enɔrmemã]	'enormously'
immense	/immãs+emã/	[immãsemã]	'immensely'
obscur	/ɔpskür+emã/	[ɔpsküremã]	'obscurely'
opportun	/ɔpɔrtün+emã/	[ɔpɔrtünemã]	'opportunistically'
précis	/presiz+emã/	[presizemã]	'precisely'
profond	/prɔfɔd+emã/	[prɔfɔdemã]	'profoundly'
uniforme	/ünifɔrm+emã/	[ünifɔrmemã]	'uniformly'

<sup>1</sup>A few exceptions to case i) such as lent 'slow', présent 'present', and véhément 'vehement', would have to be lexically marked to undergo (83iii): [lãtmã], [prezãtmã], [veemãtmã].

<sup>2</sup>See Tranel 1974b:62. Vowel denasalization, like the deletion of schwa in hiatus, is a phonotactically-motivated rule. Generally speaking, there are no phonetic sequences of VN in Modern French. Exceptions to this constraint are ennui [ãnyi] 'boredom', néanmoins [neãm we] 'nevertheless', the verb forms tinmes [tẽm] 'hold (1 pl. perf.)', vĩnmes [vẽm] 'come (1 pl. perf.)', and words containing the prefixes -en, -em: ennoblir [ãnoblir] 'ennoble (inf.)', emmener [ãmne] 'take away (inf.)'. See Gougenheim 1935:24, Tranel 1974b:133.

Case iii) handles all other adjectives:

(86) fort	/fɔrt+ə+mã/	[fɔrtəmã]	'strongly'
général	/ʒeneral+ə+mã/	[ʒeneralmã]	'generally', <sup>1</sup>
grand	/grãd+ə+mã/	[grãdmã]	'greatly'
haut	/ot+ə+mã/	[otmã]	'highly'
loyal	/lwajal+ə+mã/	[lwajalmã]	'loyally'
ouvert	/uvert+ə+mã/	[uvertəmã]	'openly'
pure	/pür+ə+mã/	[pürmã]	'purely'
sourd	/surd+ə+mã/	[surdəmã]	'dully'

Adjectives whose stems end in a vowel need not form a separate case in the manner of those in (84) or (85) even though, unlike the consonant-final stems in (86), they never manifest phonetically the schwa that is present underlyingly before the affix -mã. In the case of adjectives ending in -ãt (84), there is no independently motivated evidence that one could have recourse to in order to postulate underlying forms such as /kɔ̃stãt+ə+mã/ (constamment<constant+ment). The fact that schwa never shows up on the surface in adverbs derived from this set of adjectives is a direct result of their historical development.<sup>2</sup> Likewise, in the case of adjectives which form adverbs in -ément, there is no phonological justification for positing a schwa in underlying representations such as /kɔmɔd+ə+mã/ (commodément) for

<sup>1</sup>The rule which deletes schwa in the context VC\_\_ is discussed below, p. 268.

<sup>2</sup>See Nyrop 1908:296.

deriving the set of adverbs in (85). No natural rule can be motivated either synchronically or historically<sup>1</sup> that would account for the change of a to e in these cases. The allomorphic form -emã of the adverbial affix can only be considered as suppletive with respect to the regular rule of adverb formation (83iii) in the synchronic grammar. The impossibility to predict on the basis of phonological criteria the adjectival forms to which this allomorph is assigned thus necessitates the individual lexical marking of those adjectives which are characterized in this respect.

There is no reason, however, apart from abstractness considerations, why one should not derive such adverbs as:

(87) absolutement	[apsɔlümã]	'absolutely'
assidûment	[asi dümã]	'assiduously'
crûment	[krümã]	'crudely'
gaiement/gaîment	[gemã]	'gaily'
goulûment	[gulümã]	'greedily'
hardiment	[ardimã]	'boldly'
joliment	[žɔlimã]	'prettily'
nuement/nûment	[nümã]	'nakedly'
vraiment	[vremã]	'truly'

in the same manner as those in (86), and set up their underlying representations according to (83iii) as:

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<sup>1</sup>The particular form of the adverbial affix in these instances, which first made its appearance in the sixteenth century, is attributed either to the influence of scholarly pronunciation (e.g., impuné-

- (87') /apsɔl<sup>ü</sup>+ə+mã./  
 /asi d<sup>ü</sup>+ə+mã./  
 /kr<sup>ü</sup>+ə+mã./  
 /ge+ə+mã./  
 /gul<sup>ü</sup>+ə+mã./  
 /ardi+ə+mã./  
 /ʒɔli+ə+mã./  
 /n<sup>ü</sup>+ə+mã./  
 /vrɛ+ə+mã./

The fact that schwa is never realized at the surface phonetic level<sup>1</sup> is explainable both historically by the natural change (67') that deleted schwa in hiatus with a preceding vowel, and synchronically by the presence of the phonotactically motivated derivational constraint (75) which blocks sequences of Və from reaching the output of the phonological component. If we prevent the active phonological role of (75) as an A/M/SPC, we are forced to consider adverbs such as those in (87) as structurally aberrant in the same manner as those in (84) and (85), a conclusion that would lead to an unnecessary complication in the morphological rule for adverb formation, with (83) having to be modified as:

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ment<Lat. adv. impune) or to analogical generalization from adverbs formed from past participles (e.g., assurément). See Nyrop 1908: 295 and Thurot I:126 for more particulars.

<sup>1</sup>See Warnant 1968:passim.

$$(88) \left[ \begin{array}{l} [+Affix] \\ [+Adverbial] \\ [+Adj \text{ ---}] \\ [+Manner] \end{array} \right] \rightarrow \left\{ \begin{array}{l} +m\tilde{a}+/\left\{ \begin{array}{l} \tilde{a}t \\ V \end{array} \right\} \text{ --- } \quad \text{i)} \\ +em\tilde{a}/[+Class \text{ } y] \text{ --- } \quad \text{ii)} \\ +\text{e}+m\tilde{a} \quad \quad \quad \quad \quad \quad \quad \quad \text{iii)} \end{array} \right\} / \left[ \begin{array}{l} [+Adjective] \\ [+Adverbial- \\ \text{ization}] \end{array} \right] \text{ ---}$$

Such a rule as (88), which fails to take into consideration the fact that the surface realization of adverbs formed from vowel-final stems is an automatic consequence of a phonotactic constraint of the language, lacks the extent of generality expressed by (83). The latter rule, like (79), which assigns the thematic marker to Class I verbs, and (80), which derives nouns in -(e)ment from Class I verbs, allows the expression of a greater degree of underlying patterning than is evident from observing only the surface data by recognizing the phonetic surface facts to be accountable for by the tactic constraints of the language rather than due to an otherwise unexplainable idiosyncratic lexical subclassification of morphemes.

This concludes our discussion of the development of schwa in hiatus with a preceding vowel. We have seen that the deletion of schwa in this position started out as a variable process in the thirteenth century. Its transition to a categorical process around the end of the sixteenth century led to a restructuring of all intra-morphemic sequences of Ve to V. The effects of the historical change are, however, reflected in the present-day language by the presence of an A/M/SPC which functions to delete inter-morphemic occurrences of V+e. Support for the inclusion of the A/M/SPC in an analysis of the Modern French data is derived from considerations relating to paradigm uniformity and sequence-structure constraints.

## 2.2. Schwa in hiatus with a following vowel

The process of deletion of schwa in hiatus with a following vowel has been a persistent rule in French since the preliterate period. Up until the thirteenth century, however, the elision rule, inherited from Gallo-Roman (17) was restricted to applying only across word boundaries (54'). In other words, we can assume that in Old French there was no morpheme-structure constraint against internal sequences of  $\underline{\text{əV}}$ , but that there was a surface phonetic constraint against sequences of  $\text{ə}^{\#}\text{V}$ . Thus, the Old French low-level rule of elision could, in fact, be considered as being conditioned by the permitted phonetic patterning of the language. Following are examples of internal sequences of  $\underline{\text{əV}}$  (both intra- and inter-morphemic) in Old French around the end of the twelfth century:

(89) i. beart	[bɛart]	'stretcher, litter'
cheance	[çɛãntɕə]	'fortune, luck'
creance	[krɛãntɕə]	'belief'
eage	[ɛaʝə]	'age'
Jehan	[ʝɛãh]	'John'
marcheant	[marçɛãnt]	'merchant'
meaille	[mɛaʎə]	'copper coin'
mescheant	[mesçɛãnt]	'wretched'
seas	[sɛas]	'sieve'
despeechier	[despɛɛçier]	'to hurry'
empeechier	[ãmpɛɛçier]	'to hinder'
meesme	[mɛəzmɛ]	'self'

preechier	[præɕier]	'to preach'
peeur	[pœur]	'fear'
empereeur	[ãmpərəeur]	'emperor'
pecheeur	[peɕœur]	'sinner'
aneille	[ãnəilə]	'piece of iron fixed in the center of a mill-stone'
greille	[grəilə]	'grill'
abateis	[atətəits]	'felling, killing'
laceis	[latsəits]	'network'
reont	[rəũnt]	'round'
seon	[səũn]	'bran'
meur	[məür]	'ripe'
seur	[səür]	'certain'
armeure	[arməürə]	'armour'
rameure	[rãməürə]	'branches'
leveure	[ləvəürə]	'yeast'
ii. seons	/sə+ũns/	'sit down (1 pl. pres. indic.)'
seez	/sə+ets/	'sit down (2 pl. pres. indic.)'
seant	/sə+ãnt/	'sit down (pres. part.)'
cheons	/çə+ũns/	'fall (1 pl. pres. indic.)'
cheez	/çə+ets/	'fall (2 pl. pres. indic.)'
cheant	/çə+ãnt/	'fall (pres. part.)'
veu	/və+ü/	'see (past part.)'
veisse	/və+i+s+ə/	'see (1 sg. imp. subj.)'
veis	/və+i+s/	'see (2 sg. perf.)'

seu	/sə+ü/	'know (past. part.)'
seusse	/sə+ü+s+ə/	'know (1 sg. imp. subj.)'
seus	/sə+ü+s/	'know (2 sg. perf.)'
beneissons	/benə+i+s+ũns/	'bless (1 pl. pres. indic.)'
beneissez	/benə+i+s+ets/	'bless (2 pl. pres. indic.)'

All such instances of intra- and inter-morphemic (but intra-word) sequences of əV were permitted at the surface phonetic level. When one or more word boundaries intervened between schwa and the following vowel, however, schwa was obligatorily deleted. (see above, pp. 88-91 for examples of elision of schwa in the environment  $\_\_ \# \_1 V$ ). As evidence for the pronunciation of schwa in cases such as those in (89), the following lines from the Chanson de Roland may be cited:

- (90) E lui meĩsme en est mult esguaret. (1036)  
 'And privately he feels quite disconcerted'
- Trenchet le cors e la cheveleüre, (1327)  
 'He slices down through the body and hair'
- Et tut le cors tresqu'en la furcheüre. (1330)  
 'Entirely through the torso to the groin'
- L'encanteür ki ja fut en enfer: (1391)  
 'The enchanter who was once in Hell'
- Que vassals est li nostre empereür. (1444)  
 'That our emperor is courageous'
- Saint pareĩs vos est abandunant; (1522)  
 'Holy paradise stands there for you'
- Ne lesserat que nos ne beneĩsse (1931)  
 'That he will not withhold from us his blessing'
- Mun seignur dites qu'il me vienge veeir. (2746)  
 'Tell my master to come and see me'

La forcheüre ad asez grant li ber. (3157)  
 'The baron is lengthy in the stride'

Mil chevalers i laissat puigneürs; (3677)  
 'He stationed there a thousand fighting knights'

Veit cels de France e tuz les jugeürs. (3765)  
 'He sees the Frenchmen and all the judges'

Ki nus jugat devant l'empereëur. (1025)  
 'Who judged us before the emperor'

Beginning in the late thirteenth century, internal schwa in hiatus with a following vowel began to be effaced.<sup>1</sup> The change, whose transition period covered approximately two centuries, can be considered as an extension of the Early Old French rule of elision, which we shall repeat here for convenience:

$$(54') \quad \epsilon \rightarrow \emptyset / \_ \left[ \begin{array}{l} \text{-segment} \\ \text{+word boundary} \end{array} \right]_1 \text{ [+syllabic]}$$

Since deletion now occurred intra- as well as inter-morphemically, we can consider that the feature [+word boundary] is lost from the rule and the subscript 1 is replaced by 0. Elision now takes place regardless of the kind or number of boundaries intervening between schwa and the following vowel. From the thirteenth century on, then, we can assume that the rule presents the following form:

$$(91) \quad \epsilon \rightarrow \emptyset / \_ \text{[-segment]}_0 \text{ [+syllabic]}$$

Schwa is deleted in prevocalic position

The necessity to retain the feature [-segment] in the environment is

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<sup>1</sup>See Pope 1934:117, Fouché 1969:516.

an artifact of the notational system, which prevents a rule from applying across word boundaries (but not morpheme boundaries) unless they are specifically mentioned.<sup>1</sup>

From the evidence that we have at hand, the considerable length of time involved between the onset of the change and its completion seems to be attributable to an instance of 'lexical diffusion.' According to this view, the sound change itself is considered to be implemented abruptly. Consequently, the rule representing the change applies categorically from the outset. The actual embedding of the change, however, is assumed to be gradual, spreading from morpheme to morpheme or from classes of morphemes (phonologically or morphologically defined) to other classes until it has diffused throughout the entire lexicon.<sup>2</sup>

With respect to the hypothesis of lexical diffusion, the first instances of the internal deletion of schwa in hiatus with a following vowel are seen to occur in verbal paradigms. In this area, analogical pressures provided an additional, if not the major contributing factor leading to the early effacement of schwa, since a greater degree of paradigm uniformity was realized in all instances.<sup>3</sup> We shall now examine the process of diffusion within the affected para-

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<sup>1</sup>See Chomsky and Halle 1968:67.

<sup>2</sup>See Wang 1969:15, 18.

<sup>3</sup>"Cet amuïssement ayant eu lieu de meilleure heure que dans les substantifs ou adjectifs, ne peut évidemment s'expliquer que par une influence analogique" (Fouché 1967:361).

digms which are for the most part limited to the 'strong' perfects (i.e., perfects in which the stem is stressed in the first person singular and the third persons singular and plural), the imperfect subjunctive formed from the 'weak' persons of the perfect (stressed on the ending) and, in some cases, the corresponding past participles.

In the class of verbs having strong u-perfects, deletion of schwa in hiatus affected both the finite and the non-finite forms. First to undergo change was the class of u-perfects whose third person singular contained the same stressed vowel as that found in the past participle. Illustrative of such verbs are the following twelfth century paradigms:

	(92)	boivre 'to drink'	devoir 'to have to'	lire 'to read'		
Perfect:	bui	būj	dui	dūj	lui	lūj
	beus	bēūs	deus	dēūs	leus	lēūs
	but	būt	dut	dūt	lut	lūt
	beumes	bēūmēs	deumes	dēūmēs	leumes	lēūmēs
	beustes	bēūstēs	deustes	dēūstēs	leustes	lēūstēs
	burent	būrēnt	durent	dūrēnt	lurent	lūrēnt
Imperfect						
Subjunctive:	beusse	bēūsē	deusse	dēūsē	leusse	lēūsē
	beusses	bēūsēs	deusses	dēūsēs	leusses	lēūsēs
	beust	bēūst	deust	dēūst	leust	lēūst
	beussiens	bēūsjēns	deussiens	dēūsjēns	leussiens	lēūsjēns
	beussiez	bēūsjets	deussiez	dēūsjets	leussiez	lēūsjets
	beussent	bēūsēnt	deussent	dēūsēnt	leussent	lēūsēnt
Past						
Participle:	beu	bēū	deu	dēū	leu	lēū

Conjugated in an analogous manner were the verbs croire 'to believe': crui, creus, etc.; croistre 'to grow': crui, creus, etc.; gesir 'to go to bed': jui, geus, etc.; mouvoir 'to move': mui, meus, etc.; recevoir 'to receive': recui, receus, etc.; concevoir 'to conceive': con-cui, conceus, etc.; decevoir 'to deceive': decui, deceus, etc.; connoistre 'to know': conui, coneus, etc.

With respect to the third person singular perfect and the past participle forms in the above paradigms, it is seen that they did not conform to the patterning exhibited by the corresponding weak u-perfects, where the third person singular and the past participle were phonetically similar. Compare the weak perfects valoir 'to be worth': valut/valu, corre 'to run': corut/coru, and such strong perfects as devoir: dut/deu, mouvoir: mut/meu. It is believed that by analogy with the patterning found between the third person singular and the past participle in the weak perfects, that the past participles of the strong forms deleted their schwa, thus establishing the same relation between them and the third person singular of their corresponding perfects. This change having taken place in the past participle then led to the subsequent deletion of schwa in the weak persons of the perfect and the entire imperfect subjunctive paradigm.<sup>1</sup> The change is, furthermore, thought to have occurred earlier

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<sup>1</sup>"La réduction de e a été probablement déterminée dans ces parfaits par celle qui avait déjà eu lieu, sous l'action d'ailleurs de l'analogie, dans les participes passés correspondants.

A cause de la ressemblance qui existait entre les parfaits comme val-ut, cor-ut, etc. et les part. passés val-u, cor-u, etc., les 3es pers. sing. dut, mut, etc. ont en effet entraîné, au participe, des formes du, mu, etc., au lieu de mëu, dëu, etc. qui exis-

in the subjunctive tense than in the perfect paradigm.<sup>1</sup>

In the other class of strong u-perfects, where the vowel of the third person singular differed from that in the past participle, effacement of schwa took place later than in the preceding cases, where the relationship was relatively closer. In this latter class, whose members are less numerous than the former, we find the following verbs:

(93)	avoir 'to have'	pooir 'to be able'	savoir 'to know'
Perfect:	oi	poi	soi
	eus	peus	seus
	ot	pot	sot
	eumes	peumes	seumes
	eustes	peustes	seustes
	orent	porent	sorent
Imperfect			
Subjunctive:	eusse	peusse	seusse
	eusses	peusses	seusses
	eust	peust	seust
	eussiens	peussiens	seussiens
	eussiez	peussiez	seussiez
	eussent	peussent	seussent
Past			
Participle:	eu	peu	seu

Conjugated analogously to the above are, in addition, paistre 'to nourish': poi, peus; plaire 'to please': ploi, pleus; taire 'to silence':

taient au début de la langue. A son tour, le changement de dëu, mëu, etc. en mu, du, etc. a entraîné, au parfait, celui de dëus, dëumes, dëustes--, mëus, mëumes, mëustes, etc. en d(e)us, d(e)umes, d(e)ustes--, m(e)us, m(e)umes, m(e)ustes, etc. (Fouché 1967:323).

<sup>1</sup>"...il semble que la réduction se soit produite plus tôt à

toi, teus.

It is stipulated that deletion of schwa in the past participles of these verbs did not occur until after deletion took place in the past participles of the verbs in (92). Subsequent to the change of [əü, pəü, səü] to [ü, pü, sü], presumably influenced by bu, du, lu, etc., schwa deletion was extended to the imperfect subjunctive and the weak persons of the perfect of the verbs in (93).<sup>1</sup>

It would appear from the direction of the change in the above cases (92-93), that the past participle served as the "primary context"<sup>2</sup> for the implementation of the deletion process.<sup>3</sup> At the beginning of the time span,  $t_1$ , schwa occurred in three different contexts: past participle, imperfect subjunctive, and weak persons of the perfect tense. At  $t_2$ , schwa had been deleted in the past participle, at  $t_3$ , in the imperfect subjunctive, and at  $t_4$ , in the perfect. This

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l'imparfait du subjonctif" (Fouché 1967:348).

<sup>1</sup>"La chute de e a été plus tardive, d'une façon générale dans les parfaits du type oi. Les 3es pers. sing. en -ot n'ont pas pu, en effet, déterminer directement des part. passés en -(e)u, comme l'avaient fait les 3es pers. sing. en -ut. Eu<\*habutu, sëu<\*saputu, etc. sont devenus (e)u, s(e)u, etc. sous l'influence de d(e)u, m(e)u, etc.; et ce n'est qu'après la modification relativement tardive des part. passés que l'on a pu sans doute avoir (e)us, s(e)us, etc., au parfait" (Fouché 1967:323).

<sup>2</sup>The terminology is borrowed from Wang 1969:18.

<sup>3</sup>"L'effacement de e s'est produit tout d'abord dans les participes en -eü auxquels correspondait depuis le début de la langue une 3e pers. sing. du parfait en -ut. Sur le modèle de but, connut, crut, dut, estut, jut, mut, nut, plut, reçut, et d'après valut:valu, courut:couru, etc., bëu, connëu, crëu, dëu, estëu, jëu, mëu, nëu, plëu (de plover), recëu, ont été refaits en bu, connu, cru, du, estu, ju, mu, nu, plu, reçu" (Fouché 1967:361-2).

process of diffusion can be represented in the following table:

TABLE 1

## Diffusion of Schwa Deletion by Rule (91) in Verbal Paradigms

	$t_1$	$t_2$	$t_3$	$t_4$
Past Participle	e	∅	∅	∅
Imperfect Subjunctive	e	e	∅	∅
Perfect	e	e	e	∅

Deletion of schwa in the u-perfects is assumed to have begun in the second half of the thirteenth century and is considered to have been completed by the end of the fourteenth century.<sup>1</sup> The time span from  $t_2$  to  $t_4$  thus covers a period of about one hundred and fifty years. With the change of -ui, -oi to -u in the first person singular perfect and -o to -u in the third persons perfect by analogy to other forms of the paradigm,<sup>2</sup> the verbs in (92) and (93) would then show the following surface forms at the end of the fourteenth century:<sup>3</sup>

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<sup>1</sup>See Fouché 1967:323.

<sup>2</sup>See Ibid.:324.

<sup>3</sup>Other changes to note are the generalization of the -ions termination in the first person plural perfect (see Pope 1934:384), the deletion of preconsonantal s in the second person plural perfect and third person singular imperfect subjunctive terminations (see Pope 1934:151), and the loss of [n] in the third person plural termination (see Pope 1934:170).

(92')	boivre	devoir	lire
Perfect:	hū hūs hūt hūməs hūtəs hūrət	dū dūs dūt dūməs dūtəs dūrət	lū lūs lūt lūməs lūtəs lūrət
Imperfect Subjunctive:	būsə būsəs būt būs jūns būs jes hūsət	dūsə dūsəs dūt dūs jūns dūs jes dūsət	lūsə lūsəs lūt lūs jūns lūs jes lūsət
Past Participle:	hū	dū	lū
(93')	avoir	pooir	savoir
Perfect:	ū ūs ūt ūməs ūtəs ūrət	pū pūs pūt pūməs pūtəs pūrət	sū sūs sūt sūməs sūtəs sūrət
Imperfect Subjunctive:	ūsə ūsəs ūt ūs jūns ūs jes ūsət	pūsə pūsəs pūt pūs jūns pūs jes pūsət	sūsə sūsəs sūt sūs jūns sūs jes sūsət
Past Participle:	ū	pū	sū

As can be seen from the fourteenth century paradigms, the internal elision of schwa led to the obliteration of stress alternation in the perfect tense and to a uniform radical throughout the perfect, imperfect subjunctive, and past participle.

As regards the strong i- and si-perfects, deletion of schwa in hiatus affected primarily only the perfect and imperfect subjunctive forms. One strong i-perfect, veoir 'to see', however, followed closely the development in the u-perfects with respect to its past participle, vëu, the only past participle in this class of verbs containing a schwa. The late twelfth century paradigms of the perfect and imperfect subjunctive of veoir are as follows:

(94)

Perfect:	vi	vi'
	veis	vøis
	vit	vi't
	veimes	vøiməs
	veistes	vøistəs
	virent	vi'rənt

Imperfect		
Subjunctive:	veisse	vøisə
	veisses	vøisəs
	veist	vøist
	veissiens	vøisjěns
	veissiez	vøisjets
	veissent	vøisěnt

It is thought that around the same time that schwa in the past participles of the strong u-perfects was deleted under the influence

of the corresponding weak perfects (v p. 147), that the past participle of veoir was also influenced by weak perfects whose third person singular and past participle forms showed the proportion found in such verbs as perdre 'to lose': perdit:perdu, vendre 'to sell': vendit:vendu. The change of veu to vu thus gave veoir the same pattern as that found in the weak perfects, viz., vit:vu.<sup>1</sup> Deletion having taken place in the past participle, we can expect that the schwa in the imperfect subjunctive and in the weak forms of the perfect was subsequently effaced analogously to the process of diffusion in the verbs with u-perfects (v Table 1, p. 150). By the end of the fourteenth century, then, we can postulate the following paradigms for veoir>voir:

(94')

Perfect:	vi vis vit vīmes vites viret
Imperfect Subjunctive:	visə visəs vit visjũns visjes viset
Past Participle:	vü

<sup>1</sup>"A cette première liste [c-à-d, participes en -eu auxquels

Apart from voir, the only other verb with a strong i-perfect to show deletion of schwa in prevocalic position was faire 'to do'. Before the twelfth century, however, the vowels were not contiguous on the surface phonetic level, but were separated by z(s). In Early Old French, then, the perfect and imperfect subjunctive paradigms of faire had the following phonetic representations:

(95)

Perfect: fī́s	Imperfect Subjunctive: fəzīsə
fəzīs	fəzīsəs
fī́st	fəzīst
fəzīməs	fəzīsjəns
fəzīstəs	fəzīsjets
fī́rənt	fəzīsənt

Before the thirteenth century it is believed that due to the strong resemblance between the third person plural perfect of faire (fīrent) and that of voir (vīrent), the intervocalic z(s) in the other perfect forms of faire was deleted by analogy to those of voir (cf.94).<sup>1</sup> Furthermore, during the course of the thirteenth century, this deletion of z(s) was extended to the corresponding imperfect subjunctive forms.<sup>2</sup> Consequently, by the time schwa deletion started

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correspondait une 3e pers. sing. du perf. en -ut], il faut joindre le part. passé de voir, qui apparaît d'assez bonne heure sous la forme vu, sans doute d'après la proportion perdit, perdirent:perdu=vit, virent:vu" (Fouché 1967:362).

<sup>1</sup>"Déjà au XIIe siècle feīs, feīmes, feīstes, pour fesis, fesimes, fesistes sont assez fréquents. La chute de s intervocalique dans ces formes s'expliquent sans doute par l'action analogique de veīs, veīmes, veīstes, dont la 3e pers. plur. virent présentait une ressemblance frappant avec fīrent" (Fouché 1967:277).

<sup>2</sup>See Fouché 1967:347.

to take place in the imperfect subjunctive and perfect of voir, the corresponding forms of faire would then be:

(95')

Perfect: fɪs	Imperfect Subjunctive: fəisə
fəis	fəisəs
fɪst	fəist
fəimes	fəisjẽns
fəistəs	fəisjets
fɪrẽnt	fəisẽnt

By the end of the fourteenth century, the phonetic forms of the imperfect subjunctive and perfect of faire, like voir, showed deletion of prevocalic schwa. Within the perfect, this internal elision resulted, moreover, in a regularization of stress pattern:

(95'')

Perfect: fɪs	Imperfect Subjunctive: fisə
fɪs	fisəs
fɪt	fɪt
fimes	fɪsjũns
fɪtəs	fɪsjes
fɪrɛt	fɪsɛt

The development of faire is of significance with respect to that which took place in certain verbs with si-perfects. Before the deletion of intervocalic z(s) in the perfect and imperfect subjunctive of faire, the surface forms of the latter were identical to those of si-perfects with the vocalic alternation ə:i, except for the third person plural perfect. Compare, for example, (95) with the perfect

and imperfect subjunctive of mettre 'to put':

(96)

Perfect: mī́s	Imperfect Subjunctive: mḗzīsə
mḗzīs	mḗzīsəs
mī́st	mḗzīst
mḗzīməs	mḗzīsǰěns
mḗzīstəs	mḗzīsǰets
mī́zdrǣnt	mḗzīsǣnt

Conjugated analogously to mettre were dire 'to say': dis, desis, etc., ocire 'to kill': ocis, ocesis, etc., prendre 'to take': pris, presis, etc., querre 'to look for': quis, quesis, etc., rire 'to laugh': ris, resis, etc., (as)seoir 'to sit down': sis, sisis, etc.

It is postulated that because of this phonetic resemblance between faire and the si-perfects such as mettre, the intervocalic z(s) in this class of si-perfects began to be deleted following the process in faire.<sup>1</sup> An alternate or ancillary explanation links this deletion with a "tendency to dissimilate the two s-sounds..., especially in the imperfect subjunctive, in which it is earliest attested..."<sup>2</sup> In any case, we can assume that by the thirteenth century, the imperfect subjunctive and perfect paradigms for mettre showed the following surface forms:

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<sup>1</sup>See Fouché 1967:277.

<sup>2</sup>Pope 1934:377.

(96')

Perfect: mī́s	Imperfect Subjunctive: mḗisə
mḗis	mḗisəs
mī́st	mḗist
mḗiməs	mḗisjḗns
mḗistəs	mḗisjets
mī́(zd)rḗnt	mḗisḗnt

With respect to the third person plural perfect, it often showed the form mirent by analogy with firent at this time, but the etymological form misdrent (or mistrent) with z(s) and epenthetic consonant continued to be found until the fifteenth century.<sup>1</sup> After the deletion of intervocalic z(s), the schwa now in hiatus with i in the imperfect subjunctive and perfect forms was effaced in the fashion of the strong i- and u-perfects. By the beginning of the fifteenth century,<sup>2</sup> the elision rule (91) appears to have been applying categorically in the derivation of the si-perfects, so that at this time we can assume the following phonetic representations for metre:

(96'')

Perfect: mī́s	Imperfect Subjunctive: mī́sə
mī́s	mī́səs
mī́t	mī́t
mī́məs	mī́sjū́ns
mī́təs	mī́sjes
mī́rət	mī́sət

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<sup>1</sup>See Fouché 1967:290.

<sup>2</sup>See Ibid.:348.

With the deletion of schwa in this class of *si*-perfects, two results can be observed. First, the vocalic alternation e-i in the perfect was levelled, with i now appearing throughout the paradigm. Secondly, and consequent to this loss of alternation, the non-uniform stress pattern within the perfect was obliterated: "la langue semble avoir obéi à une tendance qui la poussait à régulariser l'accentuation à l'intérieur des paradigmes et à simplifier ainsi la conjugaison."<sup>1</sup>

By the end of the fourteenth century, then, we can assume that the process of schwa deletion before a vowel (91) had diffused throughout the strong perfects and their corresponding imperfect subjunctives and past participles (in the case of the *u*-perfects and voir). It has been noted that a characteristic of sound change by lexical diffusion is that

Some of the affected morphemes may change to the *Y*-pronunciation directly. Other morphemes, however, will at first have both the *X*-pronunciation and the *Y*-pronunciation, fluctuating either randomly or according to some such factor as tempo or style. (For the most part, morphemes do not have more than two pronunciations. In the phonetic literature, these dual forms have sometimes been referred to as 'doublets.')

But the *X*-pronunciation will gradually be suppressed in favour of the *Y*-pronunciation. These doublets, then, serve as a kind of psychological bridge between the two end-points of a sound change, carrying along with them even those morphemes which do not go through a doublet stage" (Wang 1969:15).

During the early fourteenth century, when the process of internal elision of schwa was taking place in the verbal paradigms, we might, therefore, expect such 'doublets' as evidence for the sound change in progress. We do, in fact, find oscillation in the pronun-

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<sup>1</sup>Fouché 1967:292.

ciation of internal schwa in hiatus with a following vowel, as can be seen from the following lines taken from the Miracles de Notre

Dame:

- (97) Il n'est riens qui tant m'eust valu,  
Comme s'il m'eust absolu. (III, 25, vv. 731-2)
- Et que rien de ce ne sceussions, (I, 73, v. 446)  
Avoir pris, se nul bien sceusses; (VII, 220, v. 770)
- Comme onques fis [i.e., feis] (III, 327, v. 497)  
Mains que feis qui le leverent, (II, 255, v. 713)
- Ne pouoit que nous n'en eussions (III, 200, v. 346)  
Afin qu'eussions Dieu propice: (III, 209, v. 604)
- Se ne li eusse contredit. (III, 155, v. 481)  
Ouquel gloire sanz fin eusses. (III, 168, v. 857)
- Briément, se vous me feissiez (III, 261, v. 492)  
De bonne heure le fol feistes, (III, 64, v. 2011)
- Cy la primes [i.e., préimes], cy la lairons; (IV, 281, v. 1165)  
Fais ou lieu ou preis naiscence (III, 9, v. 192)

By the end of the century, internal elision of schwa by rule (91) can be considered to be occurring categorically in the affected past participles, imperfect subjunctives and perfects. The following lines from the works of Eustache Deschamps (d. 1406?) and Christine de Pisan (ca. 1363-ca. 1431) bear witness to this deletion:

- (98) i. Eustache Deschamps:

J'ai leu aussi en la divinité: (VII, 9, v. 21)

Veu et couru ce que j'ai recité, (VII, 9, v. 32)

Veu que po vault de terres ly rappors: (VII, 19, v. 27)

J'ai eu en ry trop legiere creance (VII, 21, v. 2)

J'êusse aussi tost prins un ostoïr sanz caïge (VII, 22, v. 27)  
 Maint vêu fist et mainte promesse, (VII, 46, v. 4)  
 Car se j'êusse le tiers esté souffrans (VII, 63, v. 23)  
 Dêussent estre chascun pourvêu entr'iaulx (VII, 76, v. 14)  
 Du poisson dont je n'êusse cure, (VII, 89, v. 24)  
 N'êusse esté, je fusse noyé. (VII, 120, v. 17)  
 Et bêu tant qu'om estoit blecié, (VII, 121, v. 32)  
 Ne qui êust si douce parole: (VII, 141, v. 9)  
 Se ce n'êust esté une lance, (VII, 156, v. 28)  
 Qui bien dêussent estre pandus. (VII, 161, v. 192)  
 J'êusse plus chier que vostre amende, (VII, 173, v. 570)  
 Par Dieu vous vous dêussiez bien taire. (VII, 176, v. 49)  
 Or est tout chêu en femme sousagie, (VII, 207, v. 29)  
 Et cilz qui dêust voir dire ment, (VII, 218, v. 27)  
 Dont je dêusse avoir mon viaïge. (VII, 246, v. 22)  
 Et si ne sçumes [i.e., sçêumes] dont ce vint  
 Pour l'eure, mais puis scêusmes bien (VII, 321, vv. 30-1)  
 J'ay vêu, de ce me puis venter, (VII, 323, v. 14)  
 Comme s'il êust bu [i.e., bêu] avec eulx. (VII, 324, v. 38)  
 Dont j'ai vêu user de mon temps, (VII, 331, v. 249)  
 La vêissiez par trop grant desroy (VII, 333, v. 36)  
 Qui leur êust esté chalengie (VII, 339, v. 112)  
 Mais tu ne fêis riens sur le tas, (VIII, 14, v. 108)  
 Lui failloit gens qui dêissent verité, (II, 135, v. 7)  
 Car ce ne fêist on a nul feur. (VIII, 261, v. 472)

## ii. Christine de Pisan:

Ne il n'est rien qui le f~~é~~ist alentir (I, 33, v. 11)  
 Pas nobles n'est; ains d~~é~~ust on rudement (I, 113, v. 11)  
 Femme; ainçois qui f~~é~~ist oultrage (I, 209, v. 16)  
 Qu'en si hault lieu me m~~é~~isse sanz mentir, (I, 293, v. 129)  
 Me p~~é~~ust venir, certes je ne pourroye (I, 291, v. 85)  
 Encore vengiez p~~é~~ust estre de l'injure (I, 286, v. 153)  
 Que regehir, tant me sc~~é~~ust on contraindre (I, 283, v. 51)  
 Le mal qu'en as ~~é~~u a plus monte (I, 276, v. 22)  
 Si d~~é~~usses retourner plus tost, (I, 275, v. 5)  
 De riens qu'il p~~é~~ust ne me faloit songer. (I, 274, v. 18)  
 Affaire ~~é~~ussions du bon duc de Bourgogne. (I, 257, v. 37)  
 Or ont ac~~é~~u le loz li sept notable (I, 240, v. 10)  
 Qu'oncques v~~é~~isse plus avenant. (I, 201, v. 6)  
 Que me f~~é~~issiez de vostre doulz viaire (I, 80, v. 19)  
 Pour quoy vous pl~~é~~ust, quant me voiez venu, (I, 80, v. 17)  
 Morir que part y ~~é~~ussent mains; (I, 75, v. 12)  
 Si les ~~é~~ust surpris de fait; (I, 62, v. 8)  
 Se trés adonc tu m'~~é~~usses emportée,  
 Trop m'~~é~~usses fait certes grant avantage, (I, 10, vv. 17-8)  
 De grans anuis, et tant re~~ç~~u [i.e., re~~ç~~eu] d'oultrage,  
 (I, 10, v. 20)

Although by the end of the fourteenth century, the deletion of schwa before a vowel had diffused throughout the verbal paradigms, the process had not completely spread across the entire lexicon. In morphemes belonging to other categories, vacillation in the pronun-

ation of schwa still occurred. The following doublets, for instance, were found in the works of Deschamps and Chr. de Pisan:

(99) i. Deschamps:

Oublier Dieu leur fait et sa creance (VII, 65, v. 22)  
 Fors purée, poys, cresson, mais la crance [i.e., créance]  
 (II, 64, v. 21)

Jusqu'a mi lieu de leur eage. (XI, 71, v. 2089)  
 Tost passe la beauté de l'age. (IX, 209, v. 6389)

En lieu seur, ja ne traveilleront, (VII, 141, v. 17)  
 Las! ou pourra l'en seur lieu querre? (VII, 215, v. 8)

ii. Chr. de Pisan:

Juno me het et meseür me nuit. (I, 223, v. 8)  
 Ce fist messür qui ne desavança (I, 19, v. 15)

Je ne suis pas bien aseür (I, 197, v. 2)  
 N'est pas assür, mais en voie douteuse; (I, 14, v. 20)

Une autre amoit, j'en suis seüre, (I, 114, v. 7)  
 Ta contenance seüre et non sauvaige. (I, 265, v. 37)

By the end of the fifteenth century, however, we can assume that the change deleting internal schwa in hiatus with a following vowel had diffused throughout the vocabulary, affecting all relevant morphemes. Evidence to support this assumption comes from the work of François Villon (b. 1431):<sup>1</sup>

- (100) A celui qui füst l'avant garde (171, v. 261)  
 J'ay lü, se bien m'en souvient, (172, v. 295)  
 De feu je n'üsse pü finer. (173, v. 310)  
 Que toutes mes hontes j'üs bues, (175, v. 2)

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<sup>1</sup>Op. cit., Vol. I.

- Non obstant maintes peines ~~ues~~,  
 Lesquelles j'ai toutes rec~~ues~~ (175, vv. 4-5)
- Combien que le pecheur [i.e., pech~~eur~~] soit vile,  
 (179, v. 103)
- L'empereur [i.e., emper~~eur~~] si l'araisonna: (181, v. 137)
- Se comme toy me p~~usse~~ armer, (181, v. 143)
- Et lors qui m'~~eust~~ v~~eu~~ condescendre (182, v. 164)
- Car c'est office de prescheur [i.e., presch~~eur~~].  
 (118, v. 296)
- Et qu'en son prunier n'a pas cr~~eu~~. (194, v. 444)
- A qui que je f~~uisse~~ finesse, (196, v. 473)
- Sy ne me sc~~eust~~ tant detrayner, (196, v. 477)
- J~~ehanneton~~ la Chapperonniere, (199, v. 549)
- Non! et le d~~eust~~ on vif brusler (205, v. 667)
- Se du Ladre ~~eust~~ v~~eu~~ le doit ardre,  
 Ja n'en ~~eust~~ requis refrigere, (211, vv. 817-8)
- Ou comme il f~~eist~~ au clerc Theophilus, ( 214, v. 886)
- Pour v~~eu~~, s'il rencontre en sonerre (217, v. 938)
- Item, a maistre J~~ehan~~ Cornu (219, v. 990)
- L'ostel est s~~eur~~, mais qu'on le cloue. (220, v. 1002)
- Que ces mastins ne sc~~eussent~~ courre, (226, v. 1139)
- Tesmoing l'abesse [i.e., ab~~esse~~] de Pourras. (226, v. 1157)
- Vous aussi, Loth, qui b~~eustes~~ ou rochier, (230, v. 1239)
- L'ame du bon f~~eu~~ maistre J~~ehan~~ Cotart. (230, v. 1245)
- L'ay v~~eu~~ souvent, quant il s'aloit couchier;  
 Et une fois il se f~~eist~~ une bigne, (231, vv. 1255-6)
- Car ou soies porteur [i.e., port~~eur~~] de bules, (251, v. 1692)
- Voulientiers b~~eusse~~ a son escot, (263, v. 1956)

Tant le maille [i.e., m~~ai~~lle] on qu'il se debrise,  
(268, v. 4)

Je congnois tout, fors que moy mesmes [i.e., m~~es~~mes]  
(270, v. 8)

N'encontre que de mal~~l~~éureux, (272, v. 14)

Rien ne m'est s~~u~~ur que la chose incertaine; (275, v. 11)

Es nobles flans Cesar conc~~u~~ue, (279, v. 26)

Port ass~~u~~uré, maintien rassiz, (282, v. 109)

Ou mieulx te plaist qu'onneur ceste meschance [i.e.,  
mesch~~an~~ce]! (286' v. 26)

#### 2.2.1. Development of the Old French triphthong -eau

As a concluding footnote to our discussion of the historical development of internal schwa in hiatus with a following vowel, it is interesting to examine the accounts that have been proposed in regard to the Old French triphthong -eau. According to Pierre Fouché at least, this triphthong developed into the disyllabic sequence eo in Later Old French and was reduced to o according to the same process of internal elision as occurred in the cases studied above.<sup>1</sup> Since we do not agree with this assumption, we shall examine Fouché's arguments and counter them with an alternate proposal advanced by P. Bourciez which, although not totally conclusive, seems to present a more plausible accounting for the facts at hand.

The original source of the triphthong -eau is generally agreed upon. It developed in Early Old French when e was followed by l in

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<sup>1</sup>See Fouché 1969:522.

preconsonantal position. The l vocalized to w, with a developing as a transitional vowel.<sup>1</sup> The formation of the triphthong -eau led to the occurrence in Early Old French of such alternations as:

(101) Nom. beaus 'fine'	marteaus 'hammer'
Acc. bel	martel
Nom. porceaus 'piglet'	chasteaus 'fortified castle'
Acc. porcel	chastel
Nom. museaus 'muzzle'	chapeaus 'hood'
Acc. musel	chapel
Nom. peaus 'skin'	rasteaus 'rake'
Acc. pel	rastel

With the disintegration of the case system in Later Old and Middle French, the nominative forms of the examples in (101) were generalized, with loss of flexional s. Bel, however, was retained in pre-vocalic position.

The subsequent development of the triphthong is interesting because it differed so markedly in Francien from that which occurred in the surrounding dialects and indeed, from that presumed for the lower classes in Paris itself. Concerning this dual evolution, Fouché and Bourciez differ in their respective analyses.

According to Fouché,<sup>2</sup> there occurred around the twelfth century,

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<sup>1</sup>See Fouché 1969:319, Pope 1934:154.

<sup>2</sup>Fouché 1969:335-7.

a shift of stress from the first to the second, more sonorous, element of the triphthong:  $\acute{e}aw \rightarrow \acute{e}áw$ . This he concludes from instances where beals [bɛaws] is seen in poetry to rhyme with chevals [čəvaws]. In dialects other than Francien, the most frequent development was the progressive closing of (unaccented)  $\underline{e}$  through  $\underline{e}$  and  $\underline{i}$  to its ultimate consonantalization in  $\underline{j}$ : [jaw]. Fouché considers further, that the monophthongization of [aw] to [o] occurred during the thirteenth century.<sup>1</sup> This he deduces from a late thirteenth century graphic representation aulogier for ho(r)logier. At the beginning of the fourteenth century, then, the diphthong [jo] is postulated as the most common development of the triphthong [ɛaw] in the dialects surrounding Paris and perhaps even in the capital, for "Les Rôles de Taille parisiens de la fin du XIIIe siècle ou du début du XIVe présentent en effet de nombreuses formes avec -iau: cf. par exemple chapiaus, bediau, quariaus, Aliaume, Ansiau, Antiaume, etc... Sur le plan de Paris datant du XIVe siècle, on note également des noms de rues en -iau." The retention of -eau is considered by Fouché to be due to learned influence: "Au moment où la langue vulgaire hésitait encore entre beáus et biáus, la langue savant, jugeant la prononciation biáus compagne et dialectale s'est opposée au nouveau phonétisme et s'efforcée de maintenir l'e de beáus." After the monophthongization of [aw], the (unaccented) [e] in contact with  $\underline{o}$  is considered to have labialized to an  $\underline{œ}$  (schwa) sound, giving the sequence [œó]. Fouché obviously considers this sequence to have been disylla-

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<sup>1</sup>Fouché 1969:300.

bic, for he says, with reference to beau: "Boeó rentrait ainsi dans la catégorie de mëur (<matūru), sëur (<secūru), etc. Lorsque ces mots se sont réduits à mūr, sūr, etc., boeó est devenu lui-même bo." Further on, in fact, in his discussion of schwa deletion, he puts a dieresis mark over the e in bëau, vëau, sëau, martëau, etc.<sup>1</sup> Evidence to support the assumed disyllabic pronunciation of [əo] is not given by Fouché. In our own investigation, incidently, the scansion of poetry did not reveal any instances of -eau counting as two syllables.

The analysis given by Bourciez for the development of the triphthong -eau differs from Fouché's in three major aspects: the accentuation of the triphthong, the date of monophthongization of au and, of especial importance for our study, the syllabicity of -eau. With respect to the development that occurred in dialects other than Francien, Bourciez, unlike Fouché, does not postulate a shift of accent from ε to a before the closing of e to i and its consonantalization in j: "Suivi d'un s implusif, la triphthongue éau constitue une série lourde. De plus, la séquence ea est contraire à la diminution progressive des apertures. Pour ces deux motifs la triphthongue devra s'alléger: é initial se ferme en é, devient i puis y, ce qui rejette forcément l'accent sur á. On a dès lors le complexe yáus formé de la consonne y, de la diphtongue très régulière áu et d'un s implusif. La terminaison d'un mot comme byáus se confond désormais avec celle de chevaus, c'est-à-dire que -au y deviendra plus

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<sup>1</sup>Fouché 1969:522.

tard ao puis o, en vertu du procès normal de la monophthongaison."<sup>1</sup>

Following the evidence of Thurot (I:434 ff.), Bourciez considers this monophthongization to have occurred not until the middle of the sixteenth century.

As regards the development of éau in Paris, Bourciez considers that it evolved into œau in the twelfth century. He gives the following phonetically-based explanation: "L'évolution normalement attendue [i.e., [jaw]] a été entravée par l'arrondissement de u et celui de a devenu vélaire, arrondissement qui s'est répercuré sur l'élément initial avant sa fermeture de é en i puis y'. Il s'agit d'un phénomène d'assimilation régressive. Comme les lèvres n'étaient plus étirées, e > œ ne pouvait plus se consonnifier. C'est donc œau qu'il faut poser en principe pour la zone parisienne..."<sup>2</sup> The argument that Fouché gives to support his claim that the accent shifted onto a in the twelfth century is not shared by Bourciez. The rhyme chevals:beals does not, according to him, necessarily indicate that the e in beals had become unaccented: "œaus est une série lourde; sa pleine articulation exige que l'intensité ne décroisse pas toute de suite après œ et que le deuxième élément soit lui-même renforcé au léger détriment du premier. On conçoit donc qu'un rimeur à l'oeille peu scrupuleuse mette à profit cette illusion. Mais il ne pourrait s'agir que d'une illusion. Rien ne permet de supposer que dans la triphthongue œaus, le premier élément ne fût pas accentué

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<sup>1</sup>Bourciez 1940:23.

<sup>2</sup>Ibid.:24.

plus fortement que le second."<sup>1</sup>

In Middle French, with the obliteration of the case system and the generalization of the nominative form in such cases as those in (101), the alternation éaus/él ceased to be productive. -Eau now occurring without a final s in the singular, "il n'y a plus de série lourde et la prépondérance de l'élément initial devient plus nette. C'est peut-être à cette circonstance que la triphthongue doit son existence prolongée."<sup>2</sup> With the monophthongization of [aw] to [o] in the sixteenth century, Bourciez postulates that the resultant diphthong əó experienced the regressive assimilation "ə>ó>ó/ó, avec un o qui oscillait entre ɔ et o avant de se fermer définitivement."<sup>3</sup>

As for the existence of schwa in hiatus with o, this is explicitly ruled out by Bourciez. He always speaks of 'diphthong' and says with reference to the postulation of a diphthong əó: "Accentué sur l'élément final, əó constitue une diphtongue "inverse,"" a situation which would be unnatural in that "Une voyelle étant pourvue d'une tension décroissante, la partie forte de la diphtongue est en principe située au sommet de cette descente...Cet əó est seulement admissible comme une phase de durée à peu près nulle pendant laquelle l'élément final de la diphtongue əó achève d'attirer l'accent

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<sup>1</sup>Ibid.:24.

<sup>2</sup>Ibid.:25.

<sup>3</sup>Ibid.:26.

et par là même étouffe l'élément initial."<sup>1</sup>

With respect to our survey of the historical deletion of internal schwa in hiatus with a following vowel, we are in agreement with the basic view of Bourciez. That is, we believe that if the sequence ə did actually occur as a stage in the development of the triphthong -eau, it did not constitute a disyllabic string. Consequently, we do not consider Fouché's assumption that the forms in -eau such as those in (101) underwent the process of schwa deletion according to rule (91).

#### 2.2.2. Implications for the synchronic analysis of Modern French

As a result of the internal elision of schwa by rule (91), we can consider that by the beginning of the sixteenth century, there no longer existed any morphemes containing the sequence əV. Except in a few instances such as créance 'belief', séance 'sitting', péage 'toll' where initial schwa was changed to /e/ due to learned influence, all the Old French morphemes with internal sequences of əV which survived at the end of Middle French were restructured without schwa. With respect to the forms in (89'), all of which show a corresponding change in their orthographic representations, the restructured underlying forms can be represented as follows:

(89') i. cheance > chance /ʃɑ̃s/  
           eage > âge /ɑʒ/  
           Jehan > Jean /ʒɑ̃/

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<sup>1</sup>Ibid.:22.

marcheant > marchand /marʃã/  
 meaille > maille /mɔj/  
 mescheant > méchant /meʃã/  
 seas > sas /sɔ/  
 despeechier > dépêcher /depeʃe/  
 empeechier > empêcher /ãpeʃe/  
 meesme > même /mem/  
 preechier > prêcher /preʃe/  
 peeur > peur /pœr/  
 greille > grille /grij/  
 abateis > abattis /abati/  
 laceis > lacis /lasi/  
 reont > rond /rɔ̃/  
 seon > son /sɔ̃/  
 meur > mûr /mür/  
 seur > sûr /sür/  
 armeure > armure /armür/  
 rameure > ramure /ramür/  
 leveure > levure /levür/

In light of the obliteration of all intra-morphemic sequences of  $\text{əV}$ , we can consider that from the end of the Middle French period, the Old French surface phonetic constraint prohibiting sequences of  $\text{ə}^{\#}_1\text{V}$  has been extended to express a condition on the well-formedness of individual morphemes. Since, however, inter-morphemic sequences of  $\text{ə}[-\text{segment}]\text{V}$  do arise when morphemes are concatenated during

derivation, the rule of elision is still required in the phonology of Modern French. Due to the fact that the necessity for the rule arises as a result of the surface phonetic constraint, we could, as in our previous discussion of schwa deletion after a vowel (2.1.1.), avoid overlap between phonotactic statements and phonological rules by reformulating (91) as an alternation/morpheme/surface phonetic constraint:

(102) A/M/SPC

IF:  $\left[ \begin{array}{l} +\text{syllabic} \\ -\text{tense} \end{array} \right] [-\text{segment}]_0 [+ \text{syllabic}]$

↓

THEN:  $\emptyset$

Interpreted as an MSC, (102) states that no intra-morphemic sequences of  $\underline{\text{əV}}$  are permitted. In this instance, the subscript  $_0$  will always necessarily accompany the feature  $[-\text{segment}]$ . As an SPC, the constraint says that for a phonetic representation to be well-formed, no sequences of schwa followed by a vowel may occur after all phonological rules have applied and before all boundaries are erased. In its function as a phonological rule, (102) is actively involved in the derivation process to insure that the output of the phonological component contains no strings of  $\underline{\text{əV}}$ . Underlying representations are checked against the IF part of the constraint and if they meet its description, then they are consequently changed to comply with the conditions in the THEN part. As examples of cases where (102) would operate, deleting schwa when separated from the following vowel by a

boundary or boundaries, the following may be mentioned here:

- (103) i. rouvrir 'to reopen'  
 /rə+uvrir/  
 [ruvrir]
- ii. Il s'appelle Jean. 'His name is John'  
 /il#sə#apɛl#ʒɑ̃/  
 [ilsapɛlʒɑ̃]
- iii. l'âne 'the donkey'  
 /lə#an/  
 [lan]
- iv. Ma thèse sera finie ou presque en août.  
 'My thesis will be finished or nearly so in August'  
 /...prɛskə#ʒɑ̃.../  
 [prɛskɑ̃]

Certain morphemes which exhibit an idiosyncratic behaviour as regards elision will have to be lexically marked with an appropriate diacritic feature. The clitics le and ce, for example, do not undergo elision in certain environments.<sup>1</sup> Le as the final element in an imperative construction does not elide its schwa when followed by a vowel, for example: Donnez-le à Jean 'give it to John', Menez-le ici 'lead him here'. Ce also retains its schwa when followed by a preposition with a vocalic onset: Ce à quoi je pense 'that which I am thinking about', Ce en quoi il faut croire 'that in which one must

<sup>1</sup>See above, pp. 84-8, for the treatment of le in O.F.

believe.' To indicate this irregular behaviour of le and ce, their lexical entries could be supplied with the rule feature [-elision/...], with the particular syntactic environment specified in each case.

On the other hand, there are certain vowel-initial morphemes which prevent elision of a preceding schwa, sometimes categorically, sometimes optionally. Elision does not occur before un when it has the status of a noun signifying a number or numeral:<sup>1</sup> Le un de ce nombre est mal fait, Le un de telle rue... Elision is also blocked before the word onzième 'eleventh': Le onzième jour, Il est le onzième. With respect to the morpheme onze 'eleven', elision does not occur before it when it functions as a noun: le onze. When onze has the function of an adjective, however, elision of a preceding schwa is optional:<sup>2</sup> La messe de onze heures or d'onze heures. Before words which are employed metalinguistically, or before titles of works, elision is likewise optional:<sup>3</sup> cf. L'e muet d'"empereur", L'auteur d'"Amants", but Le v de "avoir", Un numéro spécial de "Arts et Modes".

Finally, elision does not normally take place before the so-called 'h-aspiré' words, that is, words which have a vocalic onset phonetically, but which behave in certain respects as if they began with a consonant. Their exceptional behaviour with respect to elision as well as to liaison, serves to establish this relation between

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<sup>1</sup>See Grevisse 1964:63.

<sup>2</sup>See Ibid.:64.

<sup>3</sup>See Ibid.:65.

'h-aspiré' and consonantal-onset words. Within recent literature, we shall examine two approaches that have been taken in an attempt to account for the phenomena associated with 'h-aspiré' words.

Schane, on the one hand, proposes to account for the non-elision/liaison in 'h-aspiré' words by setting up an initial h in their underlying forms which "is subsequently deleted by an obligatory rule ordered after vowel deletion."<sup>1</sup> Thus, le hibou [lɛibu]/\*[libu] 'the owl', for example, would have the underlying representation, /lɛ#hibu/. The [-syllabic] feature associated with h serves to effectively block elision and liaison ([lɛibu]/\*[lɛzibu] les hiboux). Dell likewise posits in the underlying forms of 'h-aspiré' words an initial consonantal segment, "disons /ʔ/, et qu'il existe une règle phonologique ordonnée après TRONC[ATION] et ELIS[ION] qui efface toutes les occurrences de cette consonne."<sup>2</sup>

Opposing this relatively abstract approach towards the treatment of 'h-aspiré' words is that of Klausenburger. By using diachronic evidence, he concludes that a synchronic rule deleting initial h cannot be motivated. Instead, he considers that "h-aspiré must be integrated into the overall tension between hiatus and non-hiatus conspiracies in French..."<sup>3</sup> Other phenomena Klausenburger cites as participating in the hiatus conspiracy to create VV sequences, are 'liaison interdite' (e.g., et Anne [ean]), and 'liaison facultative' (e.g.,

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<sup>1</sup>Schane 1974:93.

<sup>2</sup>Dell 1973b:257.

<sup>3</sup>Klausenburger n.d.:6.

je suis allé [ʒəsqi(z)alɛ]). On the other hand, the non-hiatus conspiracy, functioning to break hiatus and thus to create a more natural syllable structure, is constituted by 'liaison obligatoire' (e.g., les enfants [lezɑ̃fɑ̃]), elision (e.g., j'arrive [ʒariv]), and 'fausse liaison' (e.g., j'ai été [ʒezete]).<sup>1</sup>

Having established an opposition between these two conflicting conspiracies of hiatus and non-hiatus, Klausenburger concludes that a solution to the question of h-aspiré in Modern French lies in the assumption that "French has two types of words with vocalic onset: a) [+hiatus], b) [-hiatus]."<sup>2</sup> To those words which begin with h-aspiré, then, the phonological diacritic feature [+hiatus] would be assigned to their lexical representations. This feature, therefore, rather than an abstract underlying h or other [-syllabic] segment, serves to block elision. By adopting this lexically-based solution, such forms as un, onze, and onzième, discussed above, could likewise be given the feature [+hiatus] in the contexts where elision does not take place.

An alternative solution suggested by both Dell and Klausenburger, is to assign to all h-aspiré words the rule features [-elision]

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<sup>1</sup>As Greive (1970) notes, one could also include within the non-hiatus conspiracy, cases from derivational morphology where an epenthetic consonant breaks up a potential VV sequence: "Auch bei der bekannten analogischen Erweiterung von französischen Suffixen, die an vokalische auslautende Wörter treten, sind antihiatistische Prozesse zu beobachten: clou-té, numéro-ter, filou-ter, bijou-tier, caillou-tage, -teux, peau-teux" (68).

See Langlard (1928) for an historical treatment of liaison from Latin to Modern French.

<sup>2</sup>Klausenburger n.d.:10.

and [-liaison] with reference to the preceding morpheme. Dell prefers the phonetic solution to the rule-feature solution, since if "on assignait simplement à hareng (et à tous les mots à h-aspiré) les traits diacritiques [-contexte LIAIS] et [-contexte ELIS], il faudrait ajouter à la grammaire une clause spéciale stipulant que toute forme [-contexte LIAIS] est aussi [-contexte ELIS] et inversement."<sup>1</sup> Klausenburger, on the other hand, prefers the hiatus solution for two reasons: "(a) it focuses on the most essential phonetic fact involved in h-aspiré, the existence of hiatus; (b) the alternative solution has to be applied in cases of liaison interdite and facultative: the morpheme et must be marked [-liaison], for instance. In addition, the feature [+hiatus] is associated directly with h-aspiré words, while [-liaison] or [-elision] would have direct reference to the preceding morpheme."<sup>2</sup>

The choice of one or the other treatment of h-aspiré words is largely determined by one's theoretical orientation. Depending on the attitude taken towards abstract analyses, either the solution of Schane/Dell, or that of Klausenburger permits an accurate accounting for the phonological behaviour of this class of lexical items. The exhaustiveness of the accounting could also constitute another criterion for evaluating alternative descriptions. As was mentioned above, Klausenburger's treatment of h-aspiré words could additionally be applied to other lexical items which behave in a similar manner as

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<sup>1</sup>Dell 1970:90.

<sup>2</sup>Klausenburger n.d.:12-3.

the former with respect to elision. Of course, one could equally apply the abstract approach and posit an allomorph of un, onze, onzième with an underlying initial h or some other such segment to which the feature [-syllabic] can be assigned in order to block elision in the relevant environments.

Dell demonstrates the generality of the abstract solution by showing how, in addition to its ability to account for the basic set of data, that is, the exceptional behaviour of h-aspiré words with respect to elision and liaison, it can also account for the instances where schwa is sometimes optionally or obligatorily present before h-aspiré words. The analysis, which Dell himself describes as "plus ou moins ad hoc," is based on three interacting factors:<sup>1</sup> a) the location of the accent in the h-aspiré word, b) the number of consonants preceding the schwa, and c) the number of word boundaries separating schwa from the h-aspiré word. Two classes of data are established on the basis of accentual pattern:

1) In h-aspiré words where the accent falls on the first syllable, the preceding schwa is never deleted unless it is preceded by a single consonant and followed by two word boundaries, in which case it is obligatorily effaced. The examples Dell gives to illustrate this case are:

- (104) a) -VC<sub>e</sub>#hV̄-: une housse, grandes haches  
 b) -VCC<sub>e</sub>#hV̄-: votre housse, l'autre huche  
 c) -VC<sub>e</sub>##hV̄-: la bête hurle, sa tête heurte la table  
 d) -VCC<sub>e</sub>##hV̄-: ils parlent haut

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<sup>1</sup>See Dell 1970:86-90.

(Notice that in this abstract analysis, the rule deleting schwa in (104c) would not be the elision rule (91), since the segment following schwa is [-syllabic], but another rule which apocopates word-final schwas.)

2) In h-aspiré words where the initial syllable does not carry the accent, the preceding schwa is optionally deleted, except when it is preceded by a single consonant and followed by two word boundaries, in which case it is obligatorily deleted. Illustrative examples given by Dell are:

- (105) a)  $-VC\text{e}\#h\cdots\overset{\cdot}{V}-$ : un(e) hongroise, grand(e) hardiesse  
 b)  $-VCC\text{e}\#h\cdots\overset{\cdot}{V}-$ : votr(e) hareng, l'autr(e) hors-d'oeuvre  
 c)  $-VC\text{e}\#\#h\cdots\overset{\cdot}{V}-$ : viandé hachée, crimé honteux  
 d)  $-VCC\text{e}\#\#h\cdots\overset{\cdot}{V}-$ : il parl(e) hardiment, livr(e) hongrois

To account for the behaviour of final schwas in (104) and (105), Dell proposes two readjustment rules which erase the word boundaries between e and h in cases (a, b, and d). These rules are ordered before the rule deleting word-final schwas. The readjustment rules, themselves extrinsically ordered, are as follows:

- (106) a) (OBLIG):  $\# \rightarrow \emptyset / \left\{ \begin{array}{c} CC\text{e}\# \\ \text{e} \end{array} \right\} \text{--- } h\overset{\cdot}{V}$   
 b) (OPT):  $\# \rightarrow \emptyset / \left\{ \begin{array}{c} CC\text{e}\# \\ \text{e} \end{array} \right\} \text{--- } h$

By deleting the word boundary, necessary for the application of apocope in (a, b, d), a bleeding relationship is established and apocope cannot apply. (106a) accounts for the examples in (104), while (106b)

accounts for those in (105). Notice that the contexts in each rule have to be conjunctively ordered so that both word boundaries are deleted in the environment  $CC\bar{e}\#\#h(\acute{V})$ . To illustrate how the rules in (106) would operate in accounting for (104) and (105), the derivations for the first examples in (104a) and (105c) would be as follows:

(107)	une housse	viande hachée	
	ũnə#húsə#	vjãdɛ##hašé#	Input
	ũnə húsə#		(106a)
		vjãdɛ# hašé#	(106b)
	ũnə hús #	vjãd # hašé#	Apocope
	ũnə ús #	vjãd # ašé#	H-deletion
	[ũnəus]	[vjãdaše]	Output

Klausenburger does not deal specifically with the conditions determining the appearance of schwa in cases such as those in (104) and (105). However, one might speculate on how he would account for the optional or obligatory presence of schwa in these instances. In the examples in (104c-105c), the absence of final schwa before the h-aspiré words on the phonetic level would presumably cause no problem for him since, unlike Dell, he does not consider final schwas to be present in the underlying representations of morphemes which terminate phonetically in a (non-liquid) consonant.<sup>1</sup> In the other

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<sup>1</sup>This is implicitly evident in his (1974) article, where he argues against the presence of rules of consonant truncation and final consonant deletion in the synchronic grammar of M.F. and where he motivates instead, a rule of consonant epenthesis to account for the phenomenon of liaison. He remarks, for example: "Schane has to posit an abstract schwa in the underlying form of the feminine in order to 'protect' the [t] [in petite] from deletion [before a consonant or a pause]" (170).

cases where schwa is pronounced either obligatorily or optionally, he would most probably consider it to be due to a rule of epenthesis, functioning as part of the hiatus conspiracy.<sup>1</sup>

This concludes our discussion of the development of elision since the Early Old French period. We have observed that the extension of its scope of application since the thirteenth century eventually led, by means of a process of lexical diffusion, to a considerable amount of restructuring around the end of the Middle French period. Although all intramorphemic sequences of əV have been relexicalized as V, the process of elision, like that deleting schwa in the environment following another vowel (75), remains a persistent rule in the present-day language. In addition to its role in accounting for inter-morphemic alternation of schwa with zero, it also has the function of expressing a general phonotactic constraint on underlying and surface phonetic representations. Rather than having separate statements for the phonological process and the sequence-structure constraint, formulating elision as an A/M/SPC serves instead to avoid overlap and, at the same time, to capture its dual function in the grammar. The synchronic presence of hiatus phenomena which are associated with a small subset of the vocabulary (h-aspiré words, un, onze, le, etc.), has the effect of destroying the transparency of elision.

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<sup>1</sup>Tranel, in a brief discussion of h-aspiré words, proposes such a rule of epenthesis: "The data at hand now does not show that final schwas exist underlyingly, and it can be considered that the schwas which may appear phonetically between words which end in a consonant and "h-aspiré" words are the result of an optional insertion rule informally stated as  $\emptyset \rightarrow \text{ə} / \text{C} \text{ — } \# \text{ h-aspiré words (opt)}$ " (1974b:110).

## CHAPTER III

### DEVELOPMENT OF FINAL POST-CONSONANTAL SCHWA

#### 3.0. Introduction

In this chapter we shall examine the historical development of final post-consonantal schwa in polysyllabic forms.<sup>1</sup> This is a particularly interesting area in which a number of factors, both linguistic and non-linguistic, interacted in determining the deletion of schwa. Even in Modern French, the theoretical status of final schwa still remains a perplexing issue. By taking a long-term perspective of the behaviour of final schwa, we hope that an interpretation of the data might provide some criteria for helping to judge the way in which the contemporary situation should be viewed.

The deletion of final schwa in Early Old French, as described in Chapter I, was determined solely by the process of elision, a natural rule of the preferred syllable category. In preconsonantal and prepausal position, however, final schwas were maintained. Such a situation disrupted the otherwise unique correspondance between underlying and surface representations. As a consequence of elision, underlying forms of the type /XC<sub>1</sub>ə/ were realized as [XC<sub>1</sub>] in the

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<sup>1</sup>The evolution of final post-vocalic schwa was dealt with in section (2.1.) above. The behaviour of final schwa in monosyllabic forms, all clitics (je, me, te, se, le, ne, de, ce, que) is determined principally by the same factors which affect internal schwas and will be treated in the following chapter.

environment #<sub>1</sub>V thus creating an optimal syllable structure, but reflected directly their underlying form before a consonant and a pause. The morpheme rose /rɔzə/, for example, would manifest the following allomorphs:

- (108) a) [rɔzə] in i) Il voit une rose. [i|lvejtünəɔzə||]  
 'He sees a rose.' (Prepausal)
- ii) une rose sauvage [ünəɔzəsəwvaʒə]  
 'a wild rose' (Preconsonantal)
- b) [rɔz] in La rose est bele. [lɑɔzestbɛlə]  
 'The rose is beautiful.' (Prevocalic)

In Later Old and Middle French, the allomorphic alternation exhibited by words with final schwa such as rose was progressively eliminated. Deletion of schwa is assumed to have been extended to prepausal position and then to preconsonantal position.<sup>1</sup> With respect to the concepts of natural phonology, this ordering is justified. When viewed in the light of natural processes involving stress dynamics, the deletion of prepausal schwa in French is expected on at least two accounts. In the first place, the position immediately adjacent to the tonic stress is, generally speaking, highly conducive to deletion:

Es liegt in der Natur der Sache und ist übrigens in verschiedenen Sprachen unzählmal konstatiert worden, dass, wenn in Wörtern oder Wortgruppen gewisse Silben mit besonderer Intensität artikuliert werden, andere, zunächst die ihnen benachbarten, der Gefahr ausgesetzt sind, ihre Individualität einzubüssen. So ist es ja für alle Sprachen mit überwiegend expiratorischem Accent charakteristischen Zug, dass unter gegebenen Umständen schwachtonige

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<sup>1</sup>See Schane 1972:222.

(sog. unbetonte) Vokale reduziert werden oder spurlos schwinden können (Rydberg 1896:7)

In fact, "In the north-eastern and eastern region, where the tonic stress was heavier, the effacement of  $\epsilon$  final was more rapid."<sup>1</sup> In Francien, however, the transition from a prosodic system with stress on individual words to one with stress only on the last word of the word-group, resulted in that only the prepausal schwas, that is, those directly following the stressed syllable, were synchronically apocopated according to the same conditions of stress that led to the apocope of final vowels in Gallo-Roman. Within the word-group, however, final preconsonantal schwas were not likewise deleted at this time, since words not in prepausal position became increasingly deprived of stress in the Later Old French and Middle French periods.

In addition to the quasi-universal naturalness of schwa deletion in post-tonic position, apocope can also be considered as a natural process of the preferred stress-placement type as regards the language-particular stress patterns of French. As a result of the synchronic deletion of prepausal schwa, stress occurred phonetically on the ultimate syllable of the word group in conformity with the stress pattern exhibited by the majority of individual words since the Old French period.

The deletion of word-final schwa in preconsonantal position did not occur categorically until a considerable length of time had passed

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<sup>1</sup>Pope 1934:118. Cohen (1920) remarks that "...Il faut en conclure probablement que l'"e" final, des le XIVE s. et à la différence du français, ne se prononce plus [dans le nord-est], ce qu'on ne saurait attribuer...ou qu'à un accent d'intensité assez fort de la voyelle tonique ou qu'à un allongement de cette même voyelle..." (1v).

during which the process applied in prepausal position. Deletion of the vowel in this environment is unnatural in that it destroys a preferred syllable structure, with sequences of  $C_1\emptyset C_1V$  becoming  $C_1C_1V$ . We shall see, however, that the implementation of the phonetically unnatural change in this position can perhaps be explained by recourse to other linguistic factors such as paradigm uniformity. Following the chronological order, we shall first examine the evolution of prepausal schwa, then final schwa in preconsonantal position.

### 3.1. Deletion of schwa in prepausal position

Data which might give some indication as to the time of effacement of prepausal schwa are scarce. Although it was pronounced at the end of a line of poetry in Old French, it was never counted in scansion, so that it is difficult to resort to textual evidence in this instance in order to determine the date of deletion in conversation. Furthermore, due to the fact that at the end of a line, schwa had the special function of creating a feminine rhyme or assonance, this position has to be regarded as rather unreliable as a valid context for drawing conclusions as to the development of prepausal schwa in ordinary speech. Since the suppression of schwa at the end of a line in poetry would pose a problem for the structure of rhyming patterns in French verse, the pronunciation of prepausal schwa persisted longer in the recitation of poetry than it did in conversation.

There is, however, one development in the structure of French poetry that might possibly give a better indication as to the time of

effacement of prepausal schwa. This development involves the disappearance of the feminine caesura, that is, the type of caesura that occurred after a word which ended in schwa.

In Old French poetry, there were two kinds of feminine caesura: the epic caesura and the lyric caesura. In the epic caesura, "the cesural pause is preceded by a final unelidable feminine syllable which does not count in the number of syllables making up the line, just in the same way as the feminine syllable that ends a line is not reckoned in the measure. In other words, Old and Middle French poets were at liberty to treat the hemistich in the same way as the end of the line:

Bons fut li sié-cles|al tens ancīenor. (Alexis I. 1)  
 Pois conversé-rent|ensemble longement. (Id., I. 16)  
 Li emperé-re|Carles de France dulce. (Roland. I. 16)  
 Dis blanches mú-les|fist amener Marsilies. (Id., I. 89)  
 Si est l'estoí-re|del preu conte Aymeri. (Aymeri, I. 15)"<sup>1</sup>

As can be seen by scanning the above decasyllabic lines, the underlined syllables preceding the caesura, though pronounced, did not count in the syllabic make-up of the line.<sup>2</sup> The presence of this unaccented syllable before the caesural pause, however, contributed towards the rhythmical effect of the verse. According to Gaston Paris, "Elle [i.e., la convention de ne pas compter devant la césure

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<sup>1</sup>Kastner 1973:84.

<sup>2</sup>Rydberg notes that it is even possible that, in Old French, the final schwa before the epic caesura was not pronounced: "Bisweilen ist sogar ausdrücklich behauptet worden, dass finales e in der Cäsur im Altfranzösischen keinen Lautwert habe" (1897:130).

la syllabe finale contenant un schwa] était...fondée sur une connaissance très juste de la nature de la langue française, et elle avait le mérite, tout en laissant subsister la cadence, d'introduire quelque variété dans la monotonie de nos vers..."<sup>1</sup> The epic caesura was also common in the alexandrine:<sup>2</sup>

(109)

Li rois de sainte gloire|qui en la crois fu mis. (Aiol, I. 2)  
 Conquis avons les térres|en viron et en lé. (Gui de Bourgogne,  
 I. 13)  
 Argent ly demandoient|bourgeois et escuier, (Hugues Capet,  
 I. 24)  
 Un jorn fut li reis Chárles|al saint Denis mostier.  
 (Pèlerinage, I. 1)

In verse with the lyrical caesura, on the other hand, the schwa in the first syllable of the word preceding the caesural pause counted in the number of syllables composing the line. This type of caesura, which fell after the fourth syllable, was used almost exclusively in the decasyllabic line: "ainsi la 4e syllabe, constituée par la terminaison "féminine", restait atone, mais était comptée comme syllabe, sans qu'on eût besoin de déplacer la pause, ce qui aurait aussi produit un désaccord avec la mélodie."<sup>3</sup> Examples of this pronunciation of prepausal schwa are best evidenced in lines where a vocalic-onset word follows the caesura, but where elision,

<sup>1</sup>Paris 1862:109.

<sup>2</sup>Examples are taken from Kastner 1973:84.

<sup>3</sup>Elwert 1965:65.

nevertheless, is impossible because of the intervening pause:<sup>1</sup>

(110) Chastelain de Coucy (†1203):

Preus et sage|je ne voz os conter;  
 Ke d'une autre|quan k'en peut demander;  
 Cheus ki painent|tojors de li servir;  
 Ains les faites|autrui por moi grever;  
 Mais ma dame|ne quiert si mon mal non.  
 De vos dame|a cui amors me rent.

Thibaut de Champagne (1201-1253):

Car ki aime|ainc diex me fit celui;  
 Qui bien aime|il ne san puet partir;  
 Certes, Sire|onques le cuer n'ama;  
 Ens sa bouce|onques le cuer n'ama;  
 Que je soie|aussi trestot changier;  
 Que m'en parte|et je mout l'en merci

Deschamps (fourteenth century):

Tresjoieuse,|aux humains proufitable;  
 Que Justice|et Equité, cil doy;  
 Que Justice|effect ne port eust;  
 Aristote|au grant roy Alixandre;  
 Tant par querre,|ou convoiteux se fonde;  
 A [la] gloire|et a la reverence;  
 Diligence|en tous cas maintenir;  
 Et pour robe|a cent sous annuellement

Charles d'Orléans (fifteenth century):

Ou a elle|il vault mieulx de toy rendre;

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<sup>1</sup>"Wenn aber festgestellt worden ist, dass in den Zehnsilbern jener Zeit die Pausen zwischen den Versgliedern so beträchtlich sein konnten, das die Kontinuität des Rhythmus durch die Verse mit ausgesprochenen überschüssigen Silben keineswegs gestört wurde, so muss andererseits angenommen werden, dass auch in dem Falle, wo das erste

J'en fais juge|Amour le puissant Roy;  
 Sans faintise|,ou excusacion;  
 A ma Dame|,ayez en souvenance;  
 Tout le monde|en a la congnoissance;

It has been noted that even as early as the fourteenth century, "French poets strove to avoid the epic cesura."<sup>1</sup> During the course of the sixteenth century, however, both types of feminine caesura became increasingly rarer. "La césure épique (avec une syllabe féminine non comptée après la syllabe accentuée), comme la césure "lyrique" (avec une syllabe atone, comptée, après la 3e syllabe portant l'accent) sortent de l'usage au XVIe siècle."<sup>2</sup> Although no explicit reason is given for the loss of the feminine caesura,<sup>3</sup> it is not unreasonable to postulate that perhaps one of the factors contributing to its abandonment was the categorical deletion in popular pronunciation of prepausal schwa. In all events, since the sixteenth century, "only masculine words, or words that are accented on the last syllable, can occur immediately before the cesural pause."<sup>4</sup> Words with a final orthographic e can appear before the

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Versglied auf e ausging und das zweite vokalisch anlautete, die beiden betreffenden Silben allzu weit auseinander gerückt waren, als dass eine Elision statthaft gewesen wäre" (Rydberg 1897:131).

The following examples are taken from Ibid.:133-4.

<sup>1</sup>Kastner 1973:85.

<sup>2</sup>Elwert 1965:65.

<sup>3</sup>"Whatever may have been the reasons which induced French poets to eschew the epic cesura, it cannot be denied that French poetry has lost in variety by its abandonment" (Kastner 1973:87).

<sup>4</sup>Kastner 1973:82.

caesura only if "la syllabe atone n'est pas comptée, donc si -e peut être élidé (d'où élimination de la césure épique), et lorsque la place normale de l'accent n'est pas changée (d'où élimination de la césure lyrique)."<sup>1</sup> Such instances of "élision enjambante" must be considered as a poetic licence, since one does not usually associate elision as taking place when the two vowels are separated by a pause. French poetry, in any case, because of its great dependence on syllable count, has been highly influenced by the orthography, especially since the prescriptions of Malherbe et al. in the sixteenth century. The orthographic rules of Modern French poetry dictate that all words with a final -e undergo elision, regardless of an intervening break in speech.<sup>2</sup> Furthermore, although schwa ceased to be pronounced at the end of a line probably around the end of the eighteenth century, "the rules of French prosody forbid the rhyming together of masculine and feminine words. Accordingly, two words such as mer and mère, though homophonous to all intents and purposes, cannot be coupled in rhyme."<sup>3</sup>

With respect to the deletion of prepausal schwa, Thurot remarks that in the seventeenth century, "Il est possible, même probable que

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<sup>1</sup>Elwert 1965:66.

<sup>2</sup>This subservience to orthography is further evidenced in words ending in -e preceded by another vowel. Ever since schwa in hiatus with a preceding vowel was deleted around the 16th century, such words cannot occur before another word beginning with a consonant in the body of the verse, but "must be placed in such a position that [schwa] can be elided, or at the end of a line:

Rome entière noyé(e) au sang de ses enfans. (Corneille)  
 Mais sans argent l'honneur n'est qu'une maladi(e). (Racine)"  
 (Kastner 1973:14).

<sup>3</sup>Ibid.:39.

l'e féminin se faisait encore un peu sentir à la rime; mais dans la conversation il était devenu imperceptible."<sup>1</sup> Around the middle of the century, Duëz remarks that final schwa is not pronounced at the end of words when they occur at the end of an utterance. It could be inferred, in fact, from Duëz's comments that the deletion of prepausal schwa occurred around the same time as the deletion of schwa in hiatus with a preceding vowel, which we have dated around the end of the sixteenth century: "...man das kurtze e gantz ausslässt...an dem Ende der Rede, wann nichts mehr folget, wie auch in dem Wörtern so da mit ie und uë aussgehen."<sup>2</sup>

If we assume, therefore, that the date marking the loss of the feminine caesura corresponded roughly to the loss in conversation of prepausal schwa, then we can consider that during the second half of the sixteenth century, there was added to the grammar of French the following rule:

(111) PAUS:             $\text{ə} \rightarrow \emptyset / \text{V C}_0 \text{ \_\_\_\_\_\_ } ||$   
(OBL)

Schwa is obligatorily deleted before a pause (||) in polysyllabic words.

### 3.1.1. Implications for the synchronic analysis of Modern French

Rule (111) has remained in the language up to the present-day,<sup>3</sup>

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<sup>1</sup> Thurot 1966. I:169.

<sup>2</sup> Ibid.

<sup>3</sup> See Dell 1973b:224.

although its scope of application has been considerably narrowed due to the general apocope of schwa around the end of the seventeenth century (y sect. 3.2). In accordance with the analysis of final schwa in the current stage of the language which will be proposed below (y sect. 3.2.3), the only polysyllabic lexical items which retain a final schwa in their underlying representations and thus satisfy the structural description of (111) are: quelque /kɛlkə/ 'some, any', presque /prɛskə/ 'almost', jusque /ʒyskə/ 'until', lorsque /lɔrskə/ 'when', puisque /pɥiskə/ 'since', parce que /parskə/ 'because'. Of these, however, only the first two regularly undergo prepausal schwa deletion, e.g., trente et quelques 'thirty odd': /trãt#e#kɛlkə||/ → [trãtekɛlk]; Jean a fini, ou presque 'John has finished, or nearly so': /ʒã#a#fini#u#prɛskə||/ → [ʒãafiniuprɛsk]. The last four items (jusque, lorsque, puisque, parceque), as witnessed by their pronunciation in isolation, retain their schwa before a pause.<sup>1</sup> Consequently, their lexical entries would have to contain the rule feature [-PAUS].

Rule (111) can also be considered to account for the deletion of prepausal schwa in certain clitic constructions in Modern French. It is observed, for example, that schwa is deleted in the post-posed monosyllabic subject clitics in such inverted questions as qui est-ce? 'who is it?', puis-je? 'may I?', suis-je? 'am I?'. If we adopt the analysis of Selkirk, who posits a readjustment rule which eliminates

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<sup>1</sup>See Dell 1973b:242.

the word boundaries between the verb and the following subject clitics,<sup>1</sup> then the sequences /ɛsə||/, /pɥiʒə||/ and /sɥiʒə||/ can be regarded as single polysyllabic words wherein schwa is deleted according to rule (111).

### 3.2. Categorical apocope of schwa

After the addition of the phonological rule deleting prepausal schwa, we now have a situation where the only final schwas that are realized phonetically are those in preconsonantal position. The allomorphs of rose in (108), by the end of the sixteenth century, would now have the following surface realizations:

- (108') a) [roz] in i) La rose est belle. [lɑroʒɛbɛl]  
(Prevocalic)
- ii) Il voit une rose. [ilwaʔünəroz]  
(Prepausal)
- b) [rozə] in une rose sauvage [ünərozəsovaʒ]  
(Preconsonantal)

Up to this point, the deletion of word-final schwa has been determined by natural processes: "prevocalic schwa deletion, which yields preferred syllable structure, and prepausal schwa deletion, which leads to preferred stress placement."<sup>2</sup> With respect to natural

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<sup>1</sup>Selkirk (1972) introduces the readjustment rule in order to account for the optional presence of vowel-harmony in such forms as avait-il ([avɛtɪl] or [avetɪl]): "My claim, then, is that no word boundary separates a Verb or Aux from the following clitic, and that this is why the final vowel of the Verb or Aux may harmonize with the clitic vowel" (363).

<sup>2</sup>Schane 1972:222.

rule typology, there is no natural phonological process that one would expect to apply deleting preconsonantal schwa in French. Natural rules of the preferred syllable type would not be relevant here, since the deletion of preconsonantal schwa would create an unnatural syllable type; neither would stress dynamics be a motivating factor in this case, since phrase-internal words are deprived of stress. Nevertheless, beginning in the late sixteenth or early seventeenth century, word-final schwa deletion was extended to preconsonantal position.<sup>1</sup> The first attestation by a grammarian to the fact that apocope of schwa was taking place is that of Van der Aa in 1622. He advises one to disregard the orthographic presence in pronunciation: "E breve est quod ita efferetur, ut si non scriberetur, ut lire, lege lir."<sup>2</sup>

Attempts to account for the actuation of this phonologically unnatural deletion of schwa are largely inconclusive. Schane, however, proposes a very insightful psychologically-based explanation:

Of the three environments in which schwa originally occurs, it is deleted in two--prevocalic and prepausal--but retained in the third--preconsonantal, so that forms of the same word no longer have the same surface representation. Assume that there is the following perceptual strategy: a tendency to give the same surface representation to the same forms. Such a strategy would then lead to word-final schwas being dropped in preconsonantal position as well, even though this is not a natural environment" (1972:223).

An alternate explanation proposed for the deletion of preconsonantal

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<sup>1</sup>See Pope 1934:118.

<sup>2</sup>Thurot 1966. I:168.

schwa could be classified as natural, according to Schane, if only the environments following schwa are taken into consideration. Since he notes that "prepausal and preconsonantal environments frequently are found as natural alternate environments in the statement of rules ...one might expect that a rule which applies only before one of them would be logically extended to the other one."<sup>1</sup> Such an internal structural explanation, however, takes on an unnatural aspect when the total environment of preconsonantal schwa deletion is taken into account. Obviously there is no simple solution to the problem, and a satisfactory explanation for the change would have to encompass various interacting factors.

The apocope of post-consonantal schwa, which began in the late sixteenth century, did not become a categorical rule until around the end of the seventeenth century:

A la fin du XVIIe et au commencement du XVIIIe siècle, tous les témoignages sont d'accord sur l'apocope de l'e féminin. Hindret [1687]: 'En ces mots, commode, borne, agate, bride..., les e ne sonnent point dans la prononciation; et cela est si vrai, que si vous donnez à orthographier ces mots à un étranger, qui écrira suivant ce qu'il vous entendra prononcer, et suivant les lettres de sa langue, il ne manquera pas d'écrire commod, born, agat, brid' (Thurot 1966. I:171).

The process can be formalized by the following obligatory rule:

(112) APOCOPE:         $\text{ə} \rightarrow \emptyset / \text{V C}_0 \text{ \_\_\_\_\_\_ } \#$   
                   (OBL)

Final schwa is deleted in polysyllabic words

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<sup>1</sup>Schane 1972:223.

At this time, then, the morpheme rose (cf. 108, 108') would be realized phonetically as [roz] in all three environments--preconsonantly, prevocalically, prepausally. The interesting question then arises as to whether restructuring occurred, with underlying representations of the form /+XC<sub>1</sub>ə+/ being changed to /+XC<sub>1</sub>+/ in conformity with their predominant surface realizations. Specifically, was, for example, Old and Middle French /rozə/ restructured to /roz/ at the end of the seventeenth century? Contemporary analyses, as we shall see, express differing opinions on the matter, some assuming restructuring, others not. The dilemma is all the more perplexing because of the general retention of final -e in orthographic representations; for those who regard the Modern French orthographic system as being highly morphophonemic in nature,<sup>1</sup> this maintenance of schwa reinforces to some extent their convictions as to its theoretical status in underlying representations.

As a preface to the examination of current analyses of final post-consonantal schwa and as a background to the consideration of the question as to whether final schwa in Modern French constitutes a "réalité linguistique" or is merely a "fiction graphique," it is enlightening to take a look at the state of affairs existing in the seventeenth century. To understand fully the apocope of schwa, it is necessary to view it in light of other developments that were taking

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<sup>1</sup>E.g., Schane (1968): "...our underlying representations are quite close to the standard orthography, particularly in regard to such features as latent consonants and occurrences of schwa. This means that French spelling, to a large extent, is highly morphophonemic" (16).

place during the same period.

During the seventeenth century, two processes which had been in existence since the Old French period were still synchronically active before rule (112) became categorical. These processes characteristic of popular speech, involved the devoicing and deletion of final consonants, e.g., nid>nit>ni 'nest,' mot>mo 'word,' bas>ba 'low,' tard>tart>tar 'late,' etc. The non-popular lexical strata, by contrast, had up until this time been largely unaffected by these processes:

Les consonnes sourdes finales ont...toutes été soumises aux mêmes lois; d'une part elles ont été muettes à la fin du XVIIe siècle et pendant le XVIIIe siècle, en vertu d'une tendance naturelle d'amuïssement dans la prononciation populaire. Mais en même temps le vocabulaire français possédait une certaine quantité de mots savants qui, parce qu'ils étaient savants, écrits et peu usités, étaient soustraits à cette loi d'amuïssement et conservaient leur consonne finale prononcée" (Rosset 1911:243).

However, with the introduction of many learned, technical and borrowed terms into the popular stratum of the vocabulary during the sixteenth and seventeenth centuries, those that ended in a final consonant became subject to the devoicing and truncation rules: "La loi naturelle qui assourdit les consonnes sourdes finales était encore en pleine vigueur au XVIIe siècle, même pour les mots savants ou les noms propres comme Job ou Jacob. A la fin du XVIe siècle, Tabourot prononçait soit Jaco, soit Jacop."<sup>1</sup>

Grammarians, insistant on preserving the original pronunciation, reacted against this popular tendency and sought means for conserving

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<sup>1</sup>Rosset 1911:244.

the final consonants. They discovered a potential solution from observing what had happened to a number of masculine gender words in which they had tried to delete the final etymological -e because of the stigma attached to it as the marker of the feminine gender.<sup>1</sup> Subsequent to this deletion of final schwa, however, the consonant now in final position tended to be deleted in popular speech:

On avait essayé au XVIIe siècle de le [i.e., e final] supprimer de l'écriture dans les mots savants, et immédiatement la loi phonétique a imposé l'amuïssement à cette consonne qui n'était plus protégée. Voyez: opiat et chocolat. Opiat [ɔpja] depuis le moyen âge s'écrivait opiate et avait vécu sous cette forme avec la prononciation [ɔpjat] jusqu'en 1740. Chocolat [ʃokɔla] avait été emprunté de l'espagnol au XVIIe siècle sous la forme de chocolate; l'e enlevé a fatalement produit l'amuïssement du t" (Langlard 1928:111).

In light of developments such as these, grammarians came to recognize in final schwa its capacity to prevent deletion of a preceding consonant: "L'e muet a trouvé un nouveau rôle; il est l'arbitre de la conservation ou de l'amuïssement de la consonne finale."<sup>2</sup> Consequently, they tried to reinstate or introduce it in the words which were threatened with loss of their final consonant. In some cases their efforts succeeded, in others, they were overridden by the popular tendencies. One can see in Thurot (I:192 ff.) the fluctuation for certain of these terms:

(113) a)	zodiaque	then	zodiac	finally	zodiaque
	risque	"	risc	"	risque

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<sup>1</sup>See Langlard 1928:111.

<sup>2</sup>Langlard 1928:112.

faste	then	fast	finally	faste
intervalle	"	interval	"	intervalle
style	"	styl	"	style
bitume	"	bitum	"	bitume
caic	"	caique	"	caïque
carrous	"	carousse	"	carrosse
aromat	"	aromate	"	aromate
rit	"	rite	"	rite
pilot	"	pilote	"	pilote
b) chocolate	"	chocolat	"	chocolat
opiate	"	opiat	"	opiat
tabac	"	tabaque	"	tabac
surcot	"	surcote	"	surcot
discord	"	discorde	"	discord

It is thought that the efforts of grammarians to secure the pronunciation of final consonants would probably have been for the most part unsuccessful had it not been for certain subsequent developments. The pronunciation of final consonants, being too much at variance with the general speech habits, could not have gained widespread acceptance without additional support to the theorists' prescriptions (v 113b). This support came principally a) from the general apocope of schwa around the end of the seventeenth century, and b) from the increasing rate of literacy among the general populace. With the effacement of final schwa, people became accustomed to hearing final pronounced consonants. The growth of literacy, combined

with a tendency for people to pronounce unfamiliar words as they appeared in print,<sup>1</sup> helped to insure the preservation of final consonants without necessitating the addition of a final -e. The end of the seventeenth century could thus be said to mark a major change in the phonological structure of French. From that time on, it can be considered that final consonant devoicing and truncation were lost from the language as major processes:

...pour que cette prononciation [i.e., articulated final consonants] contraire aux traditions phonétiques ait pu devenir générale, il a fallu un concours de circonstances phonétiques nouveau en français; il a fallu que dans la prononciation populaire l'articulation sonore des consonnes finales ne fût plus une prononciation inouïe; sinon les lettrés, les grammairiens n'auraient pas pu sans doute faire triompher leurs prétentions. Et, en effet, à la fin du XVIIe siècle, par l'amûissement de e féminin final, un grand nombre de mots étaient désormais terminés par une consonne sonore; en outre, cet amûissement étant récent, l'assourdissement des consonnes devenues finales ne s'était produit et l'on prononçait red (raide). C'est à ce moment que la nouvelle prononciation a pu triompher; sud n'est plus une prononciation savante...La date est importante; le e devient muet dans le cours du XVIIe siècle, c'est à dire peu avant l'époque où on prend l'habitude de prononcer David et non plus Davit" (Rosset 1911:248).

From the eighteenth century onward, the presence of final consonants in learned and borrowed words no longer ran counter to the phonological structure of French. Due in a large measure to the apocope of schwa,<sup>2</sup> the phonotactic patterns of the language were gradu-

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<sup>1</sup>"...à partir du XVIe siècle, grâce à l'imprimerie, à la multiplication des livres et à l'autorité que prit la parole écrite, facilement et rapidement répandue à travers tout le pays, les mots nouveaux furent lus des yeux avant d'être entendus. Mots savants, on ne les prononçait point comme des mots usuels, et on prit l'habitude de leur donner une prononciation copiée sur l'écriture" (Rosset 1911:230-1).

<sup>2</sup>Other factors influencing the restoration of final consonants include: 1) the desire to give more substance to monosyllabic words:

ally modified during the eighteenth century to allow the occurrence of final consonants. In fact, in a number of words, the final consonants which were in the process of disappearing in the sixteenth and seventeenth centuries were restored. Furthermore, the final consonants of learned and loan words subsequently introduced into the vocabulary were always conserved. The following lists illustrate this trend:<sup>1</sup>

(114) Restored Consonants	Retained Consonants
hanap	handicap
julep	group
Job	snob
Jacob	baobab
brut	watt
net	cricket
sud	bled
Alfred	celluloïd
avec	viaduc
arsenic	kayac
hélas	oasis
sens	nimbus
fez fess	rémiz
juif	adhésif

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e.g., sac, bec, mer, hier; 2) the avoidance of homonymy: e.g., sauf/saut, sens/sang, vif/vis, chef/chez, donc/dont; 3) the generalization of the allomorph used in an affective function (under the 'accent d'insistance'): e.g., mon fils, hélas, soit, donc, c'est un fait, cing, six, avoir du nerf; 4) analogical generalization: e.g., but/buter, fil/filer, recul/reculer, distinct/distinctement, cher/chère, amer/amère, nul/nulle, tel/telle, net/nette, finir/dire, etc. (see Buben 1935:167-8).

<sup>1</sup>Examples are taken from Rosset 1911:224 ff., Buben 1935:166 ff., and Juilland 1965:passim.

Restored Consonants	Retained Consonants
suif	suggestif
Abraham	tandem
item	barium
amen	hetman
Éden	pollen
-eur (flatteur)	hangar
cuiller	bar
linceul	javel
arsenal	pistil

In light of the developments discussed above, it is reasonable to consider that by the end of the eighteenth century, restructuring had occurred in polysyllabic words formerly ending in schwa. Up until that time, while the pronunciation of final consonants was relatively foreign to the French speaker, one can consider that final schwa did indeed have a "réalité linguistique." Its survival today in the orthography can at best be regarded as a "fiction graphique," a remnant in some cases of the function it served grammarians in the seventeenth and eighteenth centuries in preventing the truncation of final consonants. Liaison phenomena aside, in Modern French the general rule is that the final (orthographic) consonant of a word is either always pronounced or always silent: cf. un coup [œ̃ ku]/un coup dur [œ̃ kudür] 'a blow/a hard blow'; un sac [œ̃ sak]/un sac très joli [œ̃ saktrežoli] 'a purse/a pretty purse.' Truncation of final consonants, though not completely dead, can best be regarded as a minor rule in the contemporary language.<sup>1</sup>

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<sup>1</sup>Tranel (1974b:201-4) formalizes the rule as: C → ∅ / \_\_ [-seg]C.

### 3.3. Theoretical status of final schwa in Modern French

In light of the preceding historical survey of the development of final post-consonantal schwa, we shall now examine two current analyses which deal with the theoretical status of this segment in the phonological structure of French. The relatively abstract approach advanced, for example, in Dell (1973a), argues for the presence of final schwas in underlying representations. The more concrete approach taken by Tranel (1974b) on the other hand, presents evidence to contradict the former claim. After discussing these two opposing analyses, we shall present our own accounting of the data relevant to the behaviour of final schwa in Modern French.

#### 3.3.1. Dell's analysis

Basing his analysis on Schane's theory, Dell presents a detailed discussion of the fundamental criteria which he considers to justify the postulation of underlying final schwas. His basic set of data is constituted by the set of adjectives which show an alternation conditioned by gender. Generally speaking, the variation between masculine and feminine forms in this class of adjectives is manifested phoneti-

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Forms marked to undergo this rule, which deletes final C's only before C-initial morphemes are, for example, the numbers six /sɪs/, huit /qɪt/, and dix /dis/: cf. six garçons [sɪgarsɔ̃]/six enfants [sɪzɑ̃fɑ̃]/ils sont six [ɪlsɔ̃sɪs]. The minor rule is based on substantive evidence from the observation of language change in progress. For example, whereas in older speakers, the final C of cing is deleted before C's (cing garçons [sɛ̃garsɔ̃]), in younger speakers, the form [sɛ̃k] appears in all positions ([sɛ̃kgarsɔ̃]). Thus, cing would be marked to undergo truncation for older speakers, but not for younger speakers. Thus, the direction of the change is accounted for by the elimination of lexical features for the application of a minor rule.

cally by an alternation between:<sup>1</sup>

(115)

- a) v/vO plat [pla]/plate [plat]; froid, laid, gros, jaloux
- b) Vr/VrO court [kur]/courte [kurt]; fort, pervers, lourd
- c)  $\tilde{v}/\tilde{v}O$  grand [grã]/grande [grãd]; long, saint, blanc, profond
- d)  $\tilde{v}/vN$  plan [plã]/plane [plan]; plein, fin, brun, bon

This set of adjectives is opposed to another, more substantial set of adjectives which do not show any alternation between masculine and feminine forms:

(116)

- a) v/v flou [flu]/floue [flu]; carré, abruti, poilu
- b) O/O vide [vid]/vide [vid]; atroce, unique, triste
- c) N/N jaune [žon]/jaune [žon]; terne, sublime, calme
- d) Others seul, pareil, rare, souple, pauvre

Examining the data in (115), Dell makes the following observations:<sup>2</sup>

- (117) a) The only consonants that function as the marker for the feminine gender are the obstruents and the nasal

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<sup>1</sup>See Dell 1973a:29. In his analysis, v=non-nasal vowels,  $\tilde{v}$ =nasal vowels, V=vowels not distinguished for nasality, C=consonant, N=nasal consonant, O=obstruent, i.e., all consonants except liquids, nasals and glides.

This same type of masculine/feminine alternation is found in nouns, for example: baron [barõ]/baronne [barõn], avocat [avõka]/avocate [avõkat], bavard [bavar]/bavarde [bavard].

<sup>2</sup>See Dell 1973a:30-1.

consonants.<sup>1</sup>

- b) In words derived from adjectives, it is almost always the feminine form that appears before the derivational suffix: étroit [etrwa]/étroite [etrwat]/étroitesse [etrwates]; jaloux [ʒalu]/jalouse [ʒaluz]/jalousie [ʒaluzi]; gros [gro]/grosse [gros]/grossir [grosi r].
- c) The masculine singular form takes on the feminine form in liaison contexts: petit ami and petite amie are homophonous: [pətitami]

In light of (117b-c), Dell considers that it is better not to speak of the final consonant as the mark of the feminine, since it does not appear exclusively with this status. Rather, instead of speaking of masculine and feminine forms, he prefers the terms 'long form' ("forme longue") and 'short form' ("forme courte"). Characteristic of the long form of alternating adjectives, is the presence on the phonetic level of a 'latent consonant.' Invariant adjectives, on the other hand, which are not distinguished by a long and short form, do not have a latent consonant:

Appelons "consonne latente" la consonne dont l'addition à une forme courte permet d'obtenir la forme longue correspondante, et "adjectifs sans consonne latente" ceux dont la forme courte et la forme longue sont identiques. La forme longue d'un adjectif n'apparaît pas qu'au féminin. Elle apparaît aussi dans la dérivation et dans les formes du masculin singulier sujettes à la liaison (Dell 1973a:31).

The fact the long form appears also in derivation and liaison

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<sup>1</sup>Exceptions include adjectives in -ier/-ière: premier, dernier, entier, soûl [su]/soûle [sul].

contexts is significant for Dell. In these latter cases, the latent consonant is followed by a vowel: "la consonne latente d'une unité apparaît chaque fois que cette unité est étroitement liée à un mot (liaison) ou à un morphème (dérivation) suivant commençant par une voyelle."<sup>1</sup> The observation of this pattern in derivation and liaison leads him to claim that this regularity can be extended to the feminine form of the alternating adjectives in (115) by positing an underlying vocalic segment as the marker of the feminine morpheme:

"Imaginons en effet que pour former le féminin de n'importe quel adjectif, on ajoute au thème une désinence consistant en une certaine VOYELLE /x/ qui a la particularité de se réaliser phonétiquement comme zéro la plupart du temps."<sup>2</sup> This vowel functioning as the feminine marker is postulated as schwa. Motivation for this assumption comes from the observation that schwa appears when a feminine adjective precedes an 'h-aspiré' word, e.g., grosse housse [grosəus]/\*[grosus] 'large (furniture) cover.'

The desirability to adhere to the uniqueness criterion then leads Dell to postulate underlying representations for the adjectives in (115) which are identical to their phonetic long forms. Thus, for instance, the underlying representations for the alternations gros/grosse, plan/plane would be /gros/ and /plan/, respectively. To form the feminine, a schwa is added to the stem: /gros+ə/, /plan+ə/ which is subsequently deleted during derivation by a rule of apocope

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<sup>1</sup>Dell 1973a:32.

<sup>2</sup>Ibid.:33-4.

essentially identical to the historical rule (112) to give finally the phonetic forms [gros] and [plan].

In order to derive the corresponding masculine forms from the same underlying representations, it is necessary for two other rules to apply, depending on whether the stem ends in an obstruent or a nasal consonant. The former situation requires a rule of consonant truncation which can be formalized as follows:

$$(118) \quad [-\text{son}] \rightarrow \emptyset / \text{ \_\_\_\_\_\_ } [-\text{seg}] \left\{ \begin{array}{l} \text{C} \\ \# \end{array} \right\}$$

An obstruent is deleted before a boundary (# or +), itself followed by a consonant or a pause.<sup>1</sup>

The truncation rule is motivated from the observation that only obstruents, unlike liquids and glides, are generally involved in morphophonemic alternation with zero when followed by a consonant or a pause.<sup>2</sup> Rule (118) would apply, for example, to /gros/ in such underlying forms as:

$$(119)$$

#dü#gros#sɛl## 'coarse salt'	#i #ɛ#gros## 'it is big'
[dügroseɛl]	[i ɛgro]

deleting the final consonant to give the correct surface form. Notice that truncation must be ordered before apocope of schwa. If apocope applied first in such a case as grosse pomme /gros+ə#pɔmə/

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<sup>1</sup>See Dell 1973a:40

<sup>2</sup>See Schane 1968.

'big apple,' truncation could then apply deleting preconsonantal s, giving the ill-formed phonetic representation \*[gropɔm].

The long form manifested by the masculine form of the alternating adjectives in liaison contexts is accounted for by the fact that the truncation rule (118) is blocked in its application here, since the segment following the final obstruent of the adjective is [-cons]. Thus, le petit écrou 'the small screw,' with the underlying representation /#lə#pətit#ekru#/ would be realized as [ləpətitɛkru].

In order to derive the masculine form [plɑ̃] from underlying /plan/ 'level,' it is necessary to apply another phonological rule which nasalizes a vowel preceding a nasal consonant, with subsequent deletion of the nasal consonant.<sup>1</sup> In its most general form, this rule can be formalized as:

$$(120)^2 \quad \begin{array}{ccccccc} [+syllabic] & [+nasal] & \left\{ \begin{array}{c} C \\ \# \end{array} \right\} & \rightarrow & [+nasal] & \emptyset & \left\{ \begin{array}{c} C \\ \# \end{array} \right\} \\ 1 & 2 & 3 & & 1 & 2 & 3 \end{array}$$

Applying (120) to the underlying representation /#plan#/ results in the correct phonetic output [plɑ̃].

The need for the rules of consonant truncation and nasalization in order to account for the set of alternating adjectival forms has important consequences as regards the underlying representations of

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<sup>1</sup>See Dell 1973a:47-8, 1973b:192.

<sup>2</sup>This rule also accounts for nasalization when the nasal consonant is followed by a consonant, e.g., lent 'slow.' (120) applies to the underlying representation /#lant#/ giving the intermediate representation /#lɑ̃t#/. Truncation (118) then applies, yielding [lɑ̃].

the forms in (116) which show no alternation between masculine and feminine gender. In order to prevent these processes from applying to the invariant forms that end in a non-liquid obstruent or a nasal consonant, one is forced to posit a final, non-morphological schwa in the underlying representations of these adjectives. Furthermore, in order that the greatest degree of systematicity can be achieved within the phonology, any lexical item, which invariably terminates phonetically in a final non-liquid obstruent, must be assigned a lexical representation with a final schwa even though it is never realized phonetically:

Considérons...un adjectif "invariable" comme lisse, qui se prononce toujours [lis]. Si sa représentation lexicale était /lis/, le /s/ tomberait au masculin et on aurait l'alternance [li]/[lis] parallèle à las [la]/lasse [las]. Il faut plutôt lui attribuer la représentation lexicale /lisə/ avec un schwa final qui fait partie intégrante du thème. Au niveau PHONOLOGIQUE, lisse a donc la structure /CVCV/, et son /s/ n'a plus de raison de tomber que celui de lassé /lasə/ (de /las+ə/). Ainsi toutes les unités dont la représentation phonétique se termine par une bruisante "ferme" (i.e. qui ne tombe jamais) sont-elles terminées par un schwa au niveau phonologique; comparez /bardə/ (barde) et /tavard/ (bavard/bavarde), /muatə/ (moite) et /druat/ (droit/droite), /bādə/ (bande) et /grād/ (grand/grande). Comme les autres, ces adjectifs prennent la désinence /ə/ au féminin. Lisse a donc la forme masculine /#lisə#/ et la forme féminine /#lisə+ə#/ (Dell 1973a:41).

The overriding factor justifying this abstract analysis of final schwa is basically one of formal simplicity. Once having established a system of rules to account for the pattern observed in a certain set of alternations, the analysis is extended so as to account for all forms that may be subject to the rules initially formulated to handle a restricted set of data. Because it is the final schwa functioning as the feminine marker in the underlying feminine forms

of the alternating adjectives which prevents truncation of the final consonant, one has to then posit a final schwa having no morphological function in non-alternating forms as well in order that the rule can attain its maximum scope of application.

The ontological status of such an analysis is rarely taken into consideration, although it is sometimes claimed that the speaker of the language will, in a manner analogous to the linguist's procedure for relating underlying and surface representations by the most economical system of rules, employ the same mental processes when learning the language:

Si la relation était arbitraire, les sujets qui apprennent la langue devraient retenir séparément la forme longue et le forme courte de chaque unité, de la même façon qu'ils doivent retenir séparément les variantes /a/ et /ir/ de aller. L'existence de cette régularité facilite grandement l'apprentissage en réduisant le fardeau mémoriel. Une moitié seulement des formes doit être mémorisée. L'autre peut ensuite s'en déduire par règle (Dell 1973a:36-7).

Finally, the neatness of the analysis that postulates final schwas in accounting for the phonetic presence or absence of final consonants leads Dell to ascribe a 'linguistic reality' to final orthographic -e. He suggests that there exists in Modern French a close relationship, if not isomorphy, between phonological rules and orthographic rules as regards the relationship between final schwa and the pronunciation of final consonants:<sup>1</sup>

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<sup>1</sup>Current research in psycholinguistics would refute this claim. Smith (1971) questions the concept of orthographic rules as the basis for reading strategies. He rejects the notion that readers identify a word by "distinguishing all or some of its component letters and putting together the sound of the word by some knowledge of spelling or phonic rules" (4). Smith cites tachistoscopic experimental evi-

"...les graphies traditionnelles sont très proches de nos représentations phonologiques en ce qui concerne le traitement des consonnes latentes et des schwas finaux...Les défauts de l'orthographe actuelle ne se comptent pas, mais on est forcé de reconnaître que sur ce point au moins elle offre un reflet fidèle de la réalité linguistique...Notre analyse prédit que les écoliers ne devraient éprouver aucune difficulté particulière à maîtriser les règles orthographiques qui veulent que plate se lise [plat] et plat [p|a], puisque ces règles ont pour contre-partie exacte les règles EFIN [lisez "schwa final"] et TRONC[ATION] (Dell 1973a: 49-50).

### 3.3.2. Tranel's analysis

In contrast to the above abstract analysis which postulates underlying final schwas (both morphological and lexical) and rules of truncation and nasalization still active as major synchronic processes in French, is the more concrete analysis presented by Tranel. This analysis seeks to avoid the extensive occurrence of absolute neutralization characteristic of the abstract approach and relies heavily on substantive evidence to justify the claims it makes.

Tranel considers that alternating forms such as the adjectives in (115) should be treated separately from the non-alternating forms. As regards the alternation existing between  $\tilde{v}/vN$ , he believes that the historical process of vowel nasalization has been morphologized. Rather than deriving all phonetic occurrences of nasalized vowels from underlying sequences of oral vowel+nasal consonant, he restricts the rule to applying only in clear cases of alternation. Masculine/

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dence which shows that individuals can perceive and store in short-term memory four or five elements, whether they be features, letters, or whole words. This type of immediate identification is only possible, then, if the reader perceives the most relevant, non-redundant features. Smith claims that a slow, mediated type of word identification occurs only when the reader is confronted with an unfamiliar element, where his natural abilities of using redundancy no longer function (y chaps. 10, 12).

feminine alternations such as bon [bɔ̃]/bonne [bɔn] 'good (masc.)/(fem.)' are accounted for by the following minor rule of vowel nasalization which is sensitive to morphological information:<sup>1</sup>

$$(121) \quad \underset{1}{V} \left[ \begin{array}{c} C \\ +nasal \end{array} \right]_{\underset{2}{\text{masc.}}} \quad \underset{3}{[-segment]} \quad \rightarrow \quad \left[ \begin{array}{c} 1 \\ +nasal \end{array} \right] \quad \emptyset \quad 3$$

Constraint: 1 and 2 must be tautosyllabic

Alternating forms such as bon/bonne and those in (115d) would contain a sequence of oral vowel+nasal consonant in their lexical representations (/bɔn/) and would further be marked to undergo (121) when they received the syntactic feature [+masculine]. Non-alternating forms such as jaune [ʒɔn] 'yellow (masc.)/(fem.)' would also have lexical sequences of oral vowel+nasal consonant, but would not be marked to undergo (121). (Recall that the abstract solution necessitated a final underlying schwa to prevent nasalization in forms such as jaune.)

The constraint on the nasalization rule is intended to account for the behaviour of alternating forms in liaison contexts. Tranel assumes that "as has been shown for other languages...there exist in French rules of syllabification which apply any time their structural descriptions are met."<sup>2</sup> Among these syllabification rules are the following:

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<sup>1</sup>See Tranel 1974b:179.

<sup>2</sup>Ibid.:180



underlying representations identical to their surface forms. For example, pollen [pɔlɛn] 'pollen,' abdomen [abdɔmɛn] 'abdomen,' famine [famɪn] 'famine,' tome [tɔm] 'volume,' would have the underlying forms /pɔlɛn/, /abdɔmɛn/, /famɪn/ and /tɔm/, respectively.<sup>1</sup> This does away with the problem of exceptions encountered in the abstract approach with "across the board" vowel nasalization; that is, whether one should consider that words that do not have a final orthographic schwa are exceptions to the nasalization rule, as implicitly assumed by Schane, or whether one should posit an abstract final schwa in all forms that are opaque with respect to nasalization, which is the solution adopted by Dell.<sup>2</sup>

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<sup>1</sup>See below, p.273 for examples with non-final sequences of [vN].

<sup>2</sup>See Tranel 1974b:107. It is, in fact, the very arbitrary manner in which exceptions to nasalization at the end of words are handled by the abstract, purely phonological approach, that constitutes the major factor leading Tranel to reject it on the grounds that it is impossible to falsify from a logical standpoint. In Dell's analysis, where an underlying final schwa is posited everywhere there is a surface sequence of oral vowel+nasal consonant, "no room is left in the grammar for possible genuine exceptions to the rule of vowel nasalization; a potential exception to the rule cannot be distinguished from cases where a final lexical schwa exists, because the sole motivation for the postulation of such a segment is that vowel nasalization does not take place" (115). Schane's method of using exception features in cases where no orthographic final -e exists likewise raises problems with respect to a general marking principle in such instances. "The whole word album for example cannot be marked as [-vowel nasalization]; words like tandem [tädɛm] 'tandem,' intérim [ɛtɛrɪm] 'interim,' or Kremlin [krɛmʲɛ] 'Kremlin,' which contain both nasal vowels and sequences of oral vowel plus nasal consonant which "should" nasalize, demonstrate that individual segments, and not whole morphemes, have to be marked as exceptional...But then, what segment is to be marked as exceptional? For the word album, should it be the vowel /ɔ/, or should it be the consonant /m/? For the word intérim, should it be the vowel /i/ or the consonant /m/? (116).

Tranel's treatment of masculine/feminine alternations involving final non-nasal consonants is very similar to his concrete analysis of nasal vowels alternating with a sequence of oral vowel+nasal consonant in word-final position. He considers that the historical process of consonant truncation has, like vowel nasalization, been morphologized. Alternations such as plat [p|a]/plate [p|at] 'flat (masc.)/(fem.)' (y 115a-b) are accounted for by the following minor morphological rule:<sup>1</sup>

$$(124) \quad \left. \begin{array}{c} C \\ \text{] masc.} \end{array} \right\} \quad [-\text{segment}]$$

$$1 \qquad \qquad \qquad 2 \quad \rightarrow \quad \emptyset \quad 2$$

Constraint: 1 must be in syllable coda

The final consonant of a masculine word is deleted if it closes the syllable.

Thus, masculine/feminine alternations of the type [ $\emptyset$ ]/[C] are assumed to have a final consonant in their lexical representations, e.g., /p|at/, and are marked to undergo (124) when they receive the syntactic specification [+masculine]. Forms which do not exhibit an alternation between their masculine and feminine forms, but which manifest a final consonant phonetically in both genders would likewise have underlying representations with final consonants, but would not be marked to undergo (124). Lisse [l|is] 'sleek (masc.)/(fem.)' would therefore be lexically /l|is/. Because the truncation rule is morphologically restricted, there is no need, as in the abstract

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<sup>1</sup>Tranel 1974b:193.

analysis, to posit a final lexical schwa in the underlying form of lisse to prevent the /s/ from deleting (v p. 209).

As with the minor rule of vowel nasalization, the constraint on consonant truncation is included to account for liaison phenomena. The syllabification rules (122a-b) would apply in a fashion parallel to (123), adjusting syllable boundaries so as to block truncation in liaison contexts. Tranel gives the following examples to illustrate the interaction between syllabification and truncation in deriving the liaison and non-liaison forms of the masculine of /pətit/ 'little':<sup>1</sup>

(125)	petit ami	petit résultat	c'est petit
	/pətit#ami/	/pətit#rezülta/	/sɛ#pətit##/
(122)	pəti\$t#ami	pətit#rezülta	sɛ#pətit##
		\$	\$
(124)	—————	pəti #rezülta	sɛ#pəti ##
		\$	\$
	[pətitami]	[pətirezülta]	[sɛpəti]

Justification for the concrete analysis is presented in the form of substantive evidence obtained from observing popular speech tendencies. The separate treatment of alternating and non-alternating masculine and feminine forms is based on the claim that the difference between the two sets "is not something which phonologically follows naturally, but something which must be learned lexically, i.e., some adjectives lose their final consonant in the masculine, and

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<sup>1</sup>Ibid.:195.

others do not."<sup>1</sup> The abstract analysis, on the other hand, assumes that the distinction between the two sets is completely accountable for by the major rule of truncation, which applies freely in the masculine forms of the alternating pairs, but which is blocked in the feminine and throughout the non-alternating forms by the presence of an abstract final schwa:

In other words, for the abstract analysis, there is little reason to expect native speakers to make mistakes, whereas for the concrete analysis, it is conceivable that native speakers could confuse the two classes of adjectives, that is, the adjectives which undergo rule [(124)] and those that do not. The fact is that, in popular speech, mistakes of this very type are actually made; tiède 'tepid' for instance may give [tjɛ] in the masculine, although normally it is pronounced [tjɛd] in both the masculine and feminine (Tranel 1974b:195-6).

### 3.3.3. Proposal for schwa epenthesis

Our opinion as regards the phonological status of final schwa in Modern French is essentially that of Tranel.<sup>2</sup> In light of its historical development and the evidence brought to bear against the abstract analyses that postulate underlying schwas which never show up on the surface phonetic level, we believe that restructuring occurred subsequent to the general apocope of schwa around the end of the seventeenth century, with underlying forms changing to correspond to their predominant surface realization. Specifically, we assume

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<sup>1</sup>Ibid.

<sup>2</sup>With respect to Tranel's treatment of liaison phenomena, however, a recent study by Klausenburger (1974) presents a considerable amount of substantive evidence to show that liaison is governed by a process of consonant epenthesis. How this would affect the underlying representations of the alternating masculine/feminine forms is not dealt with in his paper.

that, for example, Middle French forms such as espine [epinɔ̃] 'thorn,' filcelle [fisɛlɔ̃] 'string,' femme [famɔ̃] 'woman,' peinture [pɛ̃tʏrɔ̃] 'painting,' honte [hɔ̃tɔ̃] 'shame,' chose [ʃozɔ̃] 'thing,' barbe [barbɔ̃] 'beard,' force [forsɔ̃] 'force,' have been relexicalized as /epin/ (épine), /fisɛl/ (ficelle), /fam/, /pɛ̃tʏr/ (peinture), /ɔ̃t/, /ʃoz/, /barb/, /fors/, respectively.

As regards the appearance of a phonetic schwa between a word ending in two or more consonants and followed by another word with a consonantal onset, we believe that its categorical or variable presence is governed by a process of epenthesis. Before attempting to formalize the rule of schwa epenthesis, let us examine the contexts in which schwa is manifested obligatorily or variably in the context CC \_\_ #(#) C.

First of all, it is observed that schwa appears obligatorily when a word ending in a cluster of obstruent+liquid is followed by another word beginning with a consonant. For example:

- (126) un sabre byzantin [œsabrɛbizãtɛ̃] 'a Byzantine sabre'  
quatre jours [katrɛʒur] 'four days'  
un maigre repas [œmɛgrɛrɛpa] 'a scanty meal'  
le pauvre gars [lepovrɛga] 'the poor lad'  
une table de bois [üntablɛdɛbwa] 'a wooden table'  
l'ongle pointu [lɔ̃glɛpwɛ̃tʏ] 'the sharp-pointed claw'  
un souffle d'air [œsufledɛr] 'a puff of air'

However, when a word ending in a consonant cluster which is not of

the obstruent-liquid type is followed by a word with a consonantal onset, schwa may or may not appear. Its presence in this case is never obligatory.<sup>1</sup> For instance:

(127) <u>une carte verte</u>	[ünkart(ə)vɛrt]	'a green card'
<u>l'arc-boutant</u>	[lark(ə)butɑ̃]	'the flying buttress'
<u>quatorze chiens</u>	[katorz(ə)ʃjɛ̃]	'fourteen dogs'
<u>le serf docile</u>	[ləsɛrf(ə)dɔsil]	'the docile serf'
<u>le porche spacieux</u>	[ləpɔʁʃ(ə)spasjø]	'the roomy porch'
<u>l'ours blanc</u>	[lurs(ə)blɑ̃]	'the polar bear'
<u>le film tchèque</u>	[ləfilm(ə)ʃɛk]	'the Czech film'
<u>de l'algue comestible</u>	[dəlalɡ(ə)kɔmɛstibl]	'edible alga'
<u>une veste grise</u>	[ünvest(ə)griz]	'a grey jacket'
<u>l'acte courageux</u>	[lakt(ə)kuraʒø]	'the brave act'
<u>l'axe du soleil</u>	[laks(ə)düsɔlɛj]	'the sun's axis'
<u>une gourde moche</u>	[üngurd(ə)mɔʃ]	'a rotten gourd'
<u>le casque belge</u>	[ləkask(ə)bɛlʒ]	'the Belgian helmet'

Various proposals have been advanced to account for the obligatory or optional presence of preconsonantal schwa after clusters such as those in (126) and (127). Delattre proposes the phonetic "loi des apertures" according to which the ability of two consonants to unite into a single syllable is related to their respective degrees of aperture. Their affinity increases as the first is more closed than the second: "Deux consonnes sont syllabiquement unies lorsque la première

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<sup>1</sup>See Dell 1973b:224.

est plus fermée que la seconde. L'ordre de fermeture des consonnes en allant des plus fermées aux plus ouvertes est approximativement: p t k b d g m n f s š v z ž p l r.<sup>1</sup> Thus, the fact that groups of obstruent+liquid are "syllabiquement unies" according to the criterion of apertures is supposed to account for the appearance of schwa in cases such as those in (126). In the examples in (127), the optional presence of schwa is evidently related to the lesser degree of syllabic affinity. This does not constitute a satisfactory explanation, however. Why, for example, should schwa appear obligatorily in un souffle d'air, but not necessarily in l'ax(e) du soleil, when approximately the same difference in aperture exists between f-l and k-s according to Delattre's scale?

Malécot, trying to account more precisely for the behaviour of schwa, elaborates on Delattre's principle by adding another phonetic variable, that of "points of articulation." Unlike Delattre, he also takes into consideration the consonant of the following word. According to his proposal, if there would occur a sequence of three consonants whose points of articulation go from "back-to-front" (e.g., gourde moche [rdm]), schwa is least likely to appear. On the other hand, if the sequence of consonants would present a deviation from the "non-linear" and back-to-front order with respect to their points of articulation, such a sequence would presumably be more difficult to articulate (e.g., sabre byzantin [brb]) and consequently schwa would intervene to break up the cluster and ease articulation.<sup>2</sup>

<sup>1</sup>Delattre 1966:19.

<sup>2</sup>See Malécot 1955/56:55. It should be noted that both Delattre

Malécot's account, like Delattre's, lacks explanatory adequacy however, since it does not account for why schwa obligatorily appears in a case such as sabre byzantin but not for example, in casque belge ([skb]) where the articulation is likewise non-linear, going from front-to-back, then front again.

Although the phonetic nature of the juxtaposed consonants undoubtedly is an important factor in determining whether or not an epenthetic schwa will appear between the two words, its obligatory occurrence after obstruent-liquid clusters seems to be best explained by examining the status of such clusters within the whole phonotactic system of French. According to the distributional criteria established by Pulgram which dictate where schwa must appear, it at first seems that we are no further ahead in explaining the obligatory presence of schwa in sabre byzantin and the other examples in (126), since he says that schwa "must be articulated where its omission would produce a non-occurring (by implication, non-permissible) consonant cluster within a syllable..."<sup>1</sup> Due to the fact that a syllable division can be made after clusters of obstruent+liquid, these being permissible syllable-final clusters in Modern French, there should be no need for schwa to be present in [sabre<sub>β</sub>izãtẽ].

However, the interesting fact about obstruent-liquid clusters is that, unlike the majority of the final clusters in (127), they can

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and Malécot, influenced by the orthography, consider that schwa is deleted, and not inserted in these cases.

<sup>1</sup>Pulgram 1961:317.

also occur in syllable-initial position. In effect, the tendency of obstruent-liquid clusters to avoid closing a syllable is, and always has been, a feature of the French sound-system. In Modern French, even in prepausal position, a schwa is often inserted after a cluster ending in /r/ or /l/, thus keeping the syllable open.<sup>1</sup> Historical change bears further witness to this proneness of obstruent-liquid clusters to avoid syllable-final position. When apocope occurred in Gallo-Roman, effacing final unstressed vowels which happened to separate an obstruent from /r/ or /l/, an epenthetic schwa was developed in all such instances. Old French examples of this include semper>sempre 'always,' inter>entre 'between,' quatt(u)or>quatre 'four,' insimul>ensemble 'together.' To be noticed also is that in Modern French, if schwa does not intervene between the liquid and the following consonant, the liquid is obligatorily deleted, e.g., notre bête [notrɛbɛt]/[notbɛt] 'our animal,' la pauvre femme [lapovrɛfam]/[lapovfam] 'the poor woman.' The liquid may also be deleted in prepausal position, e.g., la poudre [lapud] 'the powder.'<sup>2</sup> Epenthesis of schwa and liquid effacement can thus be considered as processes functioning to prevent clusters of obstruent+liquid from closing a syllable.

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<sup>1</sup>See Klausenburger 1970:68. Notice that this insertion rule would have to be ordered after PAUS (lll).

<sup>2</sup>See *Ibid.*:53. The process of liquid deletion was active even in the sixteenth century. In 1657, Duëz remarks that "...nicht allein das e sondern auch oft noch ein ander vorhergehender Buchstab an dem Ende des Worts aussgelassen und verschwiegen wird: welches vornehmlich in diesen Wörtern geschicht, wann sie vor ein ander Wort oder Substantivum gesetzt werden...Als: L'aut(re) jour, Nost(re)

Even though factors related to syllable-structure in French can account quite satisfactorily for the presence of schwa after obstruent-liquid clusters, they fail to provide an explanation for why schwa should sometimes appear after other final clusters such as those in (127). Léon, in an interesting study, introduces another set of factors, however, which he considers to be influential in determining the occurrence of schwa in these latter instances. The variables examined by Léon are those related to the accentual and rhythmic patterning of French. He observed that when a word ending in a consonant cluster is followed by another word with a consonantal onset, a schwa is more likely to intervene between the two if the latter word is monosyllabic and is the last element of the word-group, in other words, if the syllable directly following the word-final cluster is stressed. By contrast, the further the cluster is from the accent, the less likely a schwa will appear between it and the following consonant-initial word. Léon found, for instance, that schwa occurred in approximately 94% of his test cases in:<sup>1</sup>

- (128) a) i. ours blanc [ursəblɑ̃] 'polar bear'  
 ii. bourse plat [bursəplat] 'flat pouch'  
 iii. garde-côte [gardəkot] 'coast-guard'

but only in around 12% of the cases in:

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voisin, Vost(re) manteau, Quat(re) fols, etc."(124-5).

<sup>1</sup>Léon 1966:119.

- b) i. arc-boutant [ark(ə)butɑ̃] 'flying buttress'  
 ii. bourse trouée [burs(ə)trœe] 'pouch with holes in it'  
 iii. garde-côtier [gard(ə)kotje] 'coastal protection'

Rhythmical and accentual factors are believed to be the principle variables determining the appearance of schwa in such cases as the above:

E tend à se maintenir à la pénultième, (type: garde-côte) ou à y apparaître (type: ours(e) blanc). D'autre part, toutes conditions égales d'ailleurs, lorsque le nombre des syllabes avant l'accent augmente (type: gard'-côtier), E tend à tomber ou à apparaître moins fréquemment comme voyelle parasite (type: arc-boutant)" (Léon 1966:122).

Léon believes, furthermore, that distributional constraints on the occurrence of complex consonant sequences, along with the rhythmical and accentual factors, carry more weight in determining the appearance of schwa at word boundaries than do the articulatory phonetic criteria of consonant aperture (Delattre) and relative points of articulation (Malécot).<sup>1</sup>

With respect to the former criterion, notice that in the examples in (128a), that schwa appears after the final clusters rs and rd even though the order of apertures conforms to the type where one would not expect schwa to appear. As regards the latter criterion, notice that if schwa did not intervene in cases (i-ii) of (128a), we would have sequences of rsb and rsp which, according to the predictions of Malécot's principle, should not require an epenthetic schwa since the points of articulation go in a linear sequence from

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<sup>1</sup>Ibid.:114-5.

back to front. On the other hand, we would expect a schwa in case (iii) of (128b), since we have the non-linear sequence rdk.

Dausés agrees in principle with Léon's results and considers that accent is a dominant factor in determining the occurrence of schwa. He found that "l'e tombe plus facilement quand l'accent du groupe rythmique ne suit pas immédiatement le groupe consonantique que quand il le suit immédiatement."<sup>1</sup> Following are a number of examples from his corpus, followed by the percentage of subjects who indicated they did not pronounce a schwa in the position marked by an apostrophe:<sup>2</sup>

(129) a)	ça, c'était une énorm' gaffe	37.8%
	c'était un énorm' scandale	80.0%
b)	c'était un act' juste	17.8%
	c'était un act' justifié par...	35.6%
	c'est le pact' Germano-russe	60.0%
c)	c'est un text' court	22.2%
	c'est un text' connu	40.0%
	c'est le text' qu'on a lu la...	62.2%

Dausés considers, furthermore, that the likelihood that schwa will not be pronounced is directly proportional to the number of syllables separating the word-final cluster from the final syllable of the word-group:

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<sup>1</sup>Dausés 1973:50.

<sup>2</sup>Ibid.:49.

Quand une syllabe est intercallée ("c'est un text' connu"), l'e est environ deux fois moins stable que quand l'accent suit immédiatement le groupe de consonnes ("c'est un text' court"). Dans l'exemple: "c'est le text' qu'on a lu la dernière fois," l'e est trois fois moins stable que dans "c'est un text' court" (Dausés 1973:50).

With respect to compound nouns, however, on which Léon's study was based, Dausés believes that they constitute a special case as regards the appearance of schwa between their two components. In words of this type, he found that it was principally the number of syllables in the second component of the compound noun (i.e., rhythmical factors) rather than the position of the accent that determined the presence of schwa in these instances:

Certes, quand on dit: "donne-moi mon porte-feuille," "c'est moi qui ai acheté ce tourne-disques," "il était porte-faix," l'accent suit immédiatement le groupe de trois consonnes et l'on intercale donc un e instable entre la seconde et la troisième consonne. Mais quand on dit: "il était porte-faix de profession," l'accent n'est plus sur la syllabe qui suit le groupe consonantique, mais, automatiquement sur la dernière syllabe du groupe rythmique (Ibid.:51).

According to the accentual factors found to influence the appearance of schwa in (129), therefore, one would not expect that porte-faix would be pronounced [pɔrtɛfɛ] in il était porte-faix de profession, where the compound is internal to the word-group at some distance from the accent. Such, however, was not found to be the case: "Dans [cette phrase-ci] l'e se maintient avec une très grande régularité."<sup>1</sup> It would appear, then, that rhythmical factors, irrespective of accent, constitute the dominant variable conditioning the insertion of schwa in compound nouns. When the second, consonant-initial component of the word has only one syllable, the probability that schwa

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<sup>1</sup>Ibid.:51.

will appear after the final cluster of the first component is extremely high, no matter what the position of the compound word within the word-group. This probability accordingly decreases as the number of syllables in the second component of the compound noun increases.

In light of all these considerations, it is obvious that the process determining the appearance of an epenthetic schwa at word boundaries is controlled by a number of interacting factors.<sup>1</sup> Restricting ourselves to what we believe are the most influential of these, we shall formalize the process by means of the following variable rule:

(130) EPEN:

$$\emptyset \rightarrow \langle \text{ə} \rangle / \left\langle \begin{array}{c} * \\ \text{C} \\ [-\text{son}] \end{array} \right\rangle \left\langle \begin{array}{c} \text{C} \\ [+ \text{son}] \\ [-\text{nas}] \end{array} \right\rangle \text{---} \#(\#) \text{C}_1 \left\langle \begin{array}{c} \text{V} \\ [+ \text{stress}] \end{array} \right\rangle \text{C}_0 \langle \text{Noun} \rangle$$

Schwa is variably inserted following a final consonant cluster before a consonant-initial word. The process is favoured a) if the following syllable is stressed, b) if the environment is a compound noun, the second element of which is monosyllabic. There is one categorical constraint on the rule (symbolized by (\*)): schwa is obligatorily inserted after a final cluster consisting of obstruent+liquid.

In addition to these linguistic variables there are, of course,

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<sup>1</sup>Another factor which may influence the epenthesis of schwa in this environment (mentioned by Dell in a paper given at the Sixth Linguistic Symposium on Romance Languages) is the juxtaposition of consonantal segments which do not occur within lexical items. Schwa functions to break up these sequences which arise across word boundaries, e.g., large valée /larʒ#vale/ → [larʒəvale].

a number of non-linguistic factors that influence the rule's application. Among these one might cite, for example, style, emphasis, rate of speech, word frequency, etc. Finally, there are a number of lexical items which are seen to render the rule opaque. Before a word beginning with a consonant, schwa always appears at the end of the words quelque 'some, any,' presque 'almost,' jusque 'until,' lorsque 'when,' puisque 'since,' and parce que 'because,' despite the fact that they do not end in an obstruent-liquid cluster, and even when they are not directly followed by the group accent:

(131)

<u>quelque dix ans</u>	[kɛlkədizã]	'about ten years'
<u>presque brûlé</u>	[prɛskəbrüle]	'almost burned'
<u>jusque chez lui</u>	[žüskəʃelqi]	'up to his very door'
<u>lorsque Jean arriva</u>	[lɔrskəžãariva]	'when John arrived'
<u>puisque vous venez</u>	[pɥiskəvuvəne]	'since you are coming'
<u>parce que nous irons</u>	[parskənuzirɔ̃]	'because we shall go'

The fact that schwa always appears in the above cases can only be considered as an idiosyncratic feature of these particular lexical items. Other words ending in the clusters /lk/ and /sk/ do not exhibit the same behaviour:

(132)

<u>un calque de l'anglais</u>	[ãkalk(ə)dəlãg ɛ]	'a calque from Eng.'
<u>un masque bizarre</u>	[ãmask(ə)bizar]	'an odd mask'

Since the forms in (131) are true exceptions to the general pattern exhibited by the majority of consonant-final words, we consider that the best way to handle their irregularity is to posit a final schwa in their lexical representations, viz., /kɛlkə/, /prɛskə/, /ʒyʁskə/, /lɔʁskə/, /pɥiskə/, /parskə/.

### 3.3.3.1. Occurrence of schwa before the affixes /z/ and /t/

The process of epenthesis formalized in (130) can be modified to account for the presence of schwa in liaison contexts involving the affixes /z/ (plural and second person singular) and /t/ (third person). Although it has previously been suggested that these affixes were preceded by a word boundary,<sup>1</sup> recent evidence indicates that they require a special type of boundary, symbolized by Dell as (%).<sup>2</sup> The following examples illustrate that the boundaries (#) and (%) function analogously in determining the epenthesis of schwa in the environment C C [-seg] (#) \_\_ C:

(133)

- a) parle-t-il /par!%till/ [parl(ə)till] 'is he talking'  
parlent-ils /par!%tillz/ [parl(ə)till] 'are they talking'  
 cf. il parle turc /il#parl##türk/ [ilparl(ə)türk] 'he speaks Turkish'

<sup>1</sup>See Dell 1973b:243.

<sup>2</sup>"On word internal boundaries in French phonology" (paper read at the Vth Ling. Symp. on Rom. Lgs.). Dell showed that % must be distinguished from # so as to be able to give a natural formulation of the /a/ → /o/ rule enabling one to account for, e.g., Libéraux élus /liberal%z#elü%z/ [liberozeleü] 'elected Liberals' vs. Libéral zélé /liberal#zele/ [liberalzele] 'zealous Liberal.' He also demonstrated that the boundary preceding /z/ and /t/ must be distinguished

<u>parles-en</u>	/parl%z#ã/		
	→ /parl%#zã/ <sup>1</sup>	[parl(ə)zã]	'talk about it'
cf. <u>il parle zoulou</u>	/il#parl##zulu/	[ilparl(ə)zulu]	'he speaks Zulu'
b) <u>rentre-t-il</u>	/rãtr%til/	[rãtrətii]	'is he returning'
cf. <u>il rentre tôt</u>	/ilrãtr##to/	[ilrãtrəto]	'he returns early'
<u>rentres-en</u>	/rãtr%z#ã/		
	→ /rãtr%#zã/	[rãtrəzã]	'return from there'
cf. <u>il rentre Zoé</u>	/il#rãtr##zœ/	[ilrãtrəzœ]	'he is taking Zoe home'
c) <u>tristes années</u>	/trist%z#ane%z/		
	→ /trist%#zane/	[trist(ə)zane]	'gloomy years'
cf. <u>triste zone</u>	/trist#zon/	[trist(ə)zon]	'bleak zone'
<u>pauvres enfants</u>	/povr%z#ãfã%z/		
	→ /povr%#zãfã/	[povrəzãfã]	'poor children'
cf. <u>ma pauvre zozotte</u>	/ma#povr#zɔzɔt/	[mapovrəzɔzɔt]	'my poor darling'

In order that the parallel functioning of (%) and (#) with respect to the process of epenthesis might be reflected in the rule, we shall reformulate (130) in the following way:

(130') EPEN (REV.):

$$\emptyset \rightarrow \langle \text{ə} \rangle / \left\langle \begin{array}{l} *[-\text{son}] \\ [+ \text{son}] \\ [-\text{nas}] \end{array} \right\rangle \left\{ \begin{array}{l} \# \\ \% \end{array} \right\} (\#) C_1 \quad V \quad C_0 \langle +\text{stress} \rangle \langle \text{Noun} \rangle$$

from that present before other affixes. For example, we want epenthesis to occur in mordent-ils /mɔrd%til%z/ [mɔrd(ə)til] 'do they bite,' but not in mordre /mɔrd=r/ [mɔdr]/\*[mɔrdɛr], nor in mordra /mɔrd=r=a/ [mɔdra]/\*[mɔrdɛra] '(it) will bite.'

<sup>1</sup>The word boundary is moved by a rule presented in Dell (1970: 105) which permutes the final C of a word and the following word boundary in liaison contexts: [-syll] # [-cons]

1 2 3 → 2 1 3

We should note in conclusion that the synchronic rule of epenthesis (130') constitutes what Vennemann has termed an 'inverted rule,' inverted with respect to apocope (112), which was characteristic of the language in the sixteenth and seventeenth centuries in particular. Epenthesis, in other words, replaces zero by schwa in a clear inversion of the earlier rule which replaced schwa by zero. The concept of rule inversion as a mechanism of grammar change will be discussed in greater detail below (Appendix I).

CHAPTER IV  
DEVELOPMENT OF SCHWA IN INTERNAL  
INTERCONSONANTAL POSITION

4.0. Introduction

In this chapter we shall examine the evolution of schwa in internal interconsonantal position.<sup>1</sup> As we recall from our discussion of Early Old French, schwa was synchronically syncopated in this environment in syntactic constructions involving pronominal clitics and definite articles. Stress dynamics was seen to be the major conditioning factor for the deletion processes during that period. It was also noted that syncope was highly constrained by the phonotactic patterning of the language. The processes were blocked if consonantal clusters would arise which violated the SPC's of Old French. Although no lexical restructuring took place as a result of the variable deletion of schwa in the object pronouns, the categorical effacement of schwa in the definite articles le and les after the prepositions à, de and en did eventually lead to a fusion of the originally lexically distinct elements into single lexical items, viz. au(x), du, des, ès before the end of the Early Old French period.

In Later Old and Middle French, the gradual change in the

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<sup>1</sup>By "internal," we refer to schwas occurring both within polysyllabic words and as the vowel in monosyllabic clitics.

prosodic character of language resulted in the elimination of the critical accentual pattern necessary for syncope to occur in the pronominal clitic constructions. Stress on individual words was progressively obliterated, and the word or rhythmical group with stress only on the final syllable (on the penultimate if the ultimate contained a schwa) became the fundamental sentence unit in French. The relatively slow rate of speech during the transition period produced a 'monosyllabic' rhythm characterized by the open syllable. In Middle French, however, as the word group became more firmly entrenched as the basic prosodic and morphonological unit, the speed of emission of words within the word group accordingly increased.<sup>1</sup> As a consequence, there developed a tendency to slur weak vowels both in monosyllabic clitics and polysyllabic words. With the deletion of lax schwa in interconsonantal position (and also its apocope), the open syllable aspect of the language was considerably destroyed:

In Early Old French, as far as extant documents enable us to judge, there was little diminution in the intensity of the tonic stress: some diphthongs were differentiated further, countertonic *ē* was reduced to *ĕ* when free, and in the sentence the practice of enclisis remained frequent. In Period II, on the other hand, the whole rhythm of the language was gradually changed: the intensity of the tonic stress was gradually diminished, and there manifested itself with increasing strength a tendency to link closely together words closely associated in thought. Diminution of stress led to a relatively rapid levelling of diphthongs and the disappearance of enclisis: the tendency to run words together increased speed of speech within the group; and this, combined with the strength of stress remaining led to a gradual reduction of syllables among weaker vowels juxtaposed to stronger ones, and finally to the effacement of atonic *ĕ* [i.e., schwa] (Pope 1934:103).

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<sup>1</sup>Cf. Delamothe (1592): "'Nous joignons tellement nos mots ensemble par une mutuelle liaison et proportion de voyelles et consonantes qu'il semble que chasque comma n'est qu'un mot: car encore

Although isolated instances of interconsonantal schwa deletion are noted in the Later Old French period, the phenomenon did not become frequent until around the sixteenth century.<sup>1</sup> Since the behaviour of interconsonantal schwa differs somewhat, depending on whether it occurs in the initial syllable of the word or word group, or whether it occurs in a non-initial syllable, we shall first of all examine separately the historical development of schwa in the two environments. We shall then show how the various processes of deletion apply in cases where schwa occurs in contiguous syllables.

#### 4.1. Schwa in initial post-pausal syllables

The Modern French process of schwa deletion in initial post-pausal syllables has been in existence since the sixteenth century. As a first approximation, it can be formally represented as the following optional rule:<sup>2</sup>

$$(134) \text{INI: } \epsilon \rightarrow \emptyset / \text{ || } C \text{ \_\_\_ } (\#) C_1$$

where (||) represents a pause

As can be seen from the form of the rule, deletion does not take place when more than one consonant precedes the schwa. INI

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qu'il y en ait quelque fois sept ou huict, ils sont si bien mariez et enchainez ensemble, qu'on ne les puet desjoindre, sans rompre les reigles de la vraye et naturelle prononciation'" (Thurot 1966. II:7).

<sup>1</sup>See Pope 1934:118.

<sup>2</sup>See Dell 1973b:253.

This rule will be reformulated below, p. 250.

would not apply, for example, in such words as:

(135) <u>crevasse</u>	'crack'	<u>frelon</u>	'hornet'
<u>crevette</u>	'shrimp'	<u>grelot</u>	'small bell'
<u>brebis</u>	'ewe'	<u>grenouille</u>	'frog'
<u>bretelle</u>	'strap'	<u>premier</u>	'first'
<u>fredaine</u>	'prank'	<u>prenez</u>	'take (imperative)'

The obligatory retention of schwa in such cases as the above is explainable by recourse to the phonotactic constraints of French. Deletion of schwa would result in three-member consonant clusters consisting of consonant+liquid+consonant which have never been permissible in syllable-initial position.

INI is further blocked when a vowel follows schwa, e.g., rehausser [rəose] 'to raise,' dehors [dɔr] 'outside.'

After a single consonant in post-pausal position, however, schwa was regularly deleted from the sixteenth century on. Deletion appears to have taken place earlier when schwa was preceded or followed by a liquid:

Dans ces conditions [i.e., e féminin entre deux consonnes], principalement soit entre l'l et l'r, soit après ou devant l'une ou l'autre de ces deux consonnes, l'e a été syncopé dès le XVIIe siècle en un grand nombre de mots. La syncope a fait de nouveau progrès au XVIIIe siècle, et alors elle n'avait pas une étendue très différente de celle qu'elle a eue au XVIIIe siècle, où la prononciation de cet e était celle d'aujourd'hui (Thurot 1966 [1881-1883]. I:146.

Lexical restructuring only took place, in fact, when the cluster arising from schwa deletion in initial syllables was one composed of obstruent+liquid. Examples of this restructuring are rare, but

one may cite the following:

(136) <u>beluteau</u> > <u>bluteau</u>	'bolter-sieve'
<u>beluter</u> > <u>bluter</u>	'to sift'
<u>belouse</u> > <u>blouse</u>	'smock'
<u>beluette</u> > <u>bluette</u>	'spark'
<u>berouette</u> > <u>brouette</u>	'wheelbarrow'
<u>verai</u> > <u>vrai</u>	'true'

All of the above consonant clusters (bl, br, vr) conform to the type permissible in syllable-initial position. Around the end of the fifteenth century, the phonotactic constraints of French restricted initial clusters to being only of the obstruent+liquid category within the non-learned stratum of the lexicon. From the sixteenth century on, however, due to the influence of the Erasmian reform and also to a high degree of borrowing,<sup>1</sup> the phonotactic constraints were gradually modified to allow initial clusters consisting of s+consonant(s) in the popular stratum of the vocabulary. Basing ourselves on the syllable as the basic unit for expressing constraints on sequence structure, the permissible two-member (non-learned) onset consonant clusters in lexical representations can be described as follows:

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<sup>1</sup>See Pope 1934:234.



Even though restructuring took place only when the consonant clusters arising from syncope did not violate the syllable-structure constraints in (137), it did not, however, always occur when these conditions were met. For example, schwa still remains in the underlying representations of the following forms and is synchronically subject to undergo INI:

(138) <u>belette</u>	/hɛlɛt/	'weasel'
<u>pelage</u>	/pɛlaʒ/	'coat (of animal)'
<u>pelisse</u>	/pɛlis/	'fur-lined coat'
<u>pelote</u>	/pɛlot/	'ball (of wool, etc.)'
<u>pelouse</u>	/pɛluz/	'lawn'
<u>peluche</u>	/pɛluʃ/	'plush, shag'
<u>pelure</u>	/pɛlür/	'peel'
<u>querelle</u>	/kɛrɛl/	'quarrel'
<u>semaine</u>	/sɛmɛn/	'week'
<u>semelle</u>	/sɛmɛl/	'sole'
<u>semence</u>	/sɛmɔ̃s/	'seed'
<u>semonce</u>	/sɛmɔ̃s/	'reprimand'
<u>secours</u>	/sɛkur/	'aid'
<u>secousse</u>	/sɛkus/	'shake'
<u>selon</u>	/sɛlɔ̃/	'according to'
<u>cependant</u>	/sɛpɑ̃dɑ̃/	'however'

Evidence to support the postulation of a lexical schwa in the above cases comes from the observation that all these forms, unlike

those in (136) and (137) show an allomorph with a schwa obligatorily present when the preceding word ends in a consonant, e.g., une belette [ünbəlet], quelle semaine [kɛlsəməɛn], etc., but une blouse [ünbluz]/<sup>\*</sup>[ünbəluz], quel smoking [kɛlsmøki ŋ]/<sup>\*</sup>[kɛlsəmkøki ŋ]. Because of such forms as blouse, smoking, etc., whose initial clusters are the same as those in the allomorphs of the forms in (138) with their schwa deleted, it is unreasonable to consider that it is a process of epenthesis that accounts for the allomorphs of these latter forms with schwa. The environments not being mutually exclusive, it would be impossible to predict where schwa should be inserted and where it should not. Furthermore, even if the epenthesis analysis were adopted and the lexical items to be affected were individually marked to undergo the process, not one, but two rules would be required. One would obligatorily insert a schwa after a word ending in a consonant, whereas the other would apply optionally after a pause. A final undesirable consequence of the epenthesis analysis is that it would necessitate setting up underlying representations such as /šmɛ/ (chemin 'road'), /fnɛtr/ (fenêtre 'window'), /gnij/ (guenille 'rag'), etc., with initial consonant clusters which violate the syllable-structure constraints (137) holding on lexical items.

The structural description of INI also accounts for the fact that deletion of schwa takes place in the clitics je, me, te, le, se, ce, ne, de, que when they occur post-pausally and are followed by another word with a consonantal onset. In fact, the process applies more frequently in clitic constructions since, except when cited in

isolation, the majority of other lexical items to which INI could potentially apply, nouns for the most part, are usually preceded by an article or some other determiner in post-pausal position. As examples of schwa deletion by INI in clitic constructions, the following may be cited:

(139) <u>J(e) vais le faire.</u>	'I'm going to do it'
<u>M(e) laisseras-tu?</u>	'Will you leave me?'
<u>T(e) méprisent-ils?</u>	'Do they despise you?'
<u>L(e) beurre est mou.</u>	'The butter is soft'
<u>S(e) gantent-elles?</u>	'Are they putting on their gloves?'
<u>C(e) genre de vie leur plaît.</u>	'They like this kind of life'
<u>N(e) bois pas cette eau-là.</u>	'Don't drink that water'
<u>D(e) quel livre parles-tu?</u>	'What book are you talking about?'
<u>Qu(e) changes-tu?</u>	'What are you changing?'

Evidence for the deletion of schwa in initial post-pausal syllables is scarce for the sixteenth century. Sylvius in 1531 writes pelote as plote. In the 1549 edition of R. Estienne's Dictionnaire Francois-latin..., he notes "'plote, ploter, voyez pelote, ploton, voyez peloton,...scurgeon ou secourgeon,...squenie [i.e., sequenie], ...bluteau.'"<sup>1</sup> Concerning cependant, H. Estienne writes in 1582: "'beaucoup de gens prononcent et même écrivent spandant.'"<sup>2</sup>

<sup>1</sup>Thurot 1966: I:150, 158-9.

<sup>2</sup>Ibid.:159.

Seventeenth century comments, however, are very numerous, and from all indications, it would seem that the scope and manner of application of INI was essentially the same as it is today. In 1633, Oudin, in his Grammaire françoise..., remarks that in "semondre & semonce, [la lettre e] se prononce bref ou feminin: smondre, smonce." Further on, he says that "E feminin au milieu des mots se mange tout à fait; comme demander, lisez dmander; leçon, lçon : devant, dvant : ...cela, sla : renom, rnom : tenéz, tnéz..." With respect to clitics, Oudin writes that "Si la particule se trouve seule, ledit e ne se prononce point du tout. que la, kla : que mon, kmon : de mon, dmon."<sup>1</sup>

The best source of evidence for the seventeenth century is found in a French grammar written for speakers of German by Nathanaël Duëz in 1657. Among the transcriptions of French words and phrases into German script, we find schwa deleted by him in the following cases:<sup>2</sup>

(140) <u>c(e)pendant</u>	'however'	<u>d(e)meurer</u>	'to stay'
<u>ch(e)min</u>	'road'	<u>d(e)ssus</u>	'above'
<u>ch(e)minée</u>	'fireplace'	<u>d(e)vant</u>	'in front of'
<u>ch(e)val</u>	'horse'	<u>f(e)nestre</u>	'window'
<u>ch(e)valier</u>	'knight'	<u>f(e)ray, -ois</u>	'(I) shall, would do'
<u>d(e)main</u>	'tomorrow'	<u>l(e)çon</u>	'lesson'
<u>d(e)mander</u>	'to ask'	<u>p(e)tit</u>	'small'

<sup>1</sup>Oudin 1640:6-7.

<sup>2</sup>Duëz 1657:129-33, 135-7, 140-2.

r(e)nom 'renown'      t(e)nant 'hold (pr. part.)'

r(e)tenir 'to retain'      v(e)nir 'to come'

r(e)tourner 'to go back'

J(e) m'estonne. 'I am astonished'

J(e) m'esmerveille. 'I am amazed'

J(e) m'habille. 'I am getting dressed'

J(e) m'y mets. 'I am starting it'

J(e) m'en vay. 'I am going away'

J(e) m'en iray. 'I shall go away'

J(e) m'en suis allé. 'I went away'

J(e) te prie. 'I beg you'

J(e) te dy. 'I tell you'

J(e) vous baise les mains. 'I kiss your hands'

J(e) vous suivray. 'I shall follow you'

J(e) l'entends. 'I hear it'

J(e) l'attends. 'I wait for him'

J(e) l'ay veu. 'I saw him'

J(e) l'ay oublié. 'I forgot it'

J(e) l'ay trouvé. 'I found it'

J(e) la connoy. 'I know her'

J(e) les voy bien. 'I see them well'

J(e) les ay en ma pochette. 'I have them in my little pocket'

J(e) suis las. 'I am tired'

J(e) suis bien aise. 'I am very glad'

J(e) suis votre serviteur. 'I am your servant'

<u>N(e) fay-je pas bien?</u>	'Aren't I doing well?'
<u>N(e) parle-je pas bien?</u>	'Aren't I speaking well?'
<u>D(e) la biere.</u>	'Some beer'
<u>D(e) la chair.</u>	'Some flesh'
<u>D(e) la moustarde.</u>	'Some mustard'
<u>D(e) la monnoye.</u>	'Some change'
<u>D(e) l'argent.</u>	'Some silver'
<u>D(e) l'or.</u>	'Some gold'
<u>D(e) l'esprit.</u>	'Of the spirit'
<u>D(e) l'eau.</u>	'Some water'
<u>D(e) l'herbe.</u>	'Some grass'
<u>D(e) bon pain.</u>	'Some good bread'
<u>D(e) bon vin.</u>	'Some good wine'
<u>D(e) bonnes pommes.</u>	'Some good apples'
<u>D(e) bonnes armes.</u>	'Some good arms'
<u>D(e) belles bottes.</u>	'Some <b>fine</b> boots'
<u>Qu(e) mon, qu(e) ma</u>	'That my (masc., fem.)'
<u>Qu(e) ton, qu(e) ta</u>	'That your (masc., fem.)'
<u>Qu(e) notre</u>	'That our'
<u>Qu(e) votre</u>	'That your'
<u>Qu(e) leur</u>	'That their'
<u>C(e) pain la.</u>	'That bread'
<u>C(e) livre la.</u>	'That book'
<u>C(e) couteau cy.</u>	'That knife'
<u>C(e) garçon cy.</u>	'That boy'

c(e)cy 'this'

c(e)la 'that'

From examining the above seventeenth century data, it is evident that INI was operating in essentially the same manner as it is in the contemporary language. However, when it comes to determining from the surface data, any systematic interplay of factors conditioning the rule's application, we are faced with a seemingly impossible task. Clearly, the process cannot be classed as simply 'optional'; that is, it is not the case that the rule may or may not apply in any given context. Rather, it would appear that the deletion of schwa in initial post-pausal syllables is a variable process, constrained by a number of factors, both linguistic and non-linguistic.

Dell, who classes INI as an optional rule, recognizes, nevertheless, its variable aspect and says that

certaines syncopes de schwa en syllabe initiale derrière une pause sont senties comme plus naturelles que d'autres. Il nous semble que le premier schwa tombe moins facilement dans je repartirai ([ʒrɛpartirɛ]) que dans je rattrapperai ([ʒratraprɛ]). Parmi d'autres facteurs qui influent sur la facilité avec laquelle INI prend effet il faut compter la nature des consonnes environnantes, et aussi les faits accentuels: schwa tombe d'autant plus facilement que le groupe au début duquel il figure est long, c'est-à-dire d'autant plus facilement qu'il est éloigné de l'accent principal de groupe. Il tombe par exemple avec une facilité croissante dans les trois phrases suivantes: venez, venez ici, venez boire un verre. La syllabe initiale après une pause est un des contextes où le comportement de schwa varie de plus en plus d'un locuteur à l'autre, ce qui expliquerait que les intuitions sur ce qui est bien formé ne soient pas aussi tranchées ici qu'ailleurs. De toutes façons, il ne fait pas de doute que l'effacement de schwa en cette position est soumis à des restrictions particulières (Dell 1973b:228-9).

No comprehensive study has been done with the aim of determining what "lawful co-occurrence relations" exist among the various factors

conditioning the application of INI. In view of this, we shall attempt an integration of several constraints which, individually or concurrently, have a deterministic effect on the rule's application.

First of all, we would perhaps expect that syncope of schwa in initial post-pausal syllables would be favoured if the resultant cluster did not violate any of the phonotactic constraints holding on the form of lexical items. Referring to the syllable-structure conditions in (137), then, we might claim that, all things being equal, deletion would be more likely to occur in the forms in (141a) than in those in (141b):

(141) a)	<u>p(e)louse</u>	'lawn'	[pɪ]
	<u>b(e)lette</u>	'weasel'	[bɪ]
	<u>Qu(e) laves-tu?</u>	'What are you washing?'	[kɪ]
	<u>T(e) rases-tu?</u>	'Are you shaving?'	[tr]
	<u>d(e) riche en riche</u>	'richer and richer'	[dr]
	<u>qu(e)relle</u>	'quarrel'	[kr]
	<u>c(e)pendant</u>	'however'	[sp]
	<u>c(e) tapis-ci</u>	'this carpet'	[st]
	<u>s(e)cousse</u>	'shake'	[sk]
	<u>s(e)maine</u>	'week'	[sm]
	<u>c(e) niveau-ci</u>	'this level'	[sn]
	<u>c(e)la</u>	'that'	[sɪ]
b)	<u>b(e)don</u>	'belly'	[bd]
	<u>p(e)naud</u>	'shame-faced'	[pn]
	<u>Qu(e) veux-tu?</u>	'What do you want?'	[kv]

<u>T(e) gēnons-nous?</u>	'Are we in your way?'	[tʒ]
<u>d(e)bout</u>	'standing'	[db]
<u>C(e) vent m'effraie.</u>	'This wind scares me'	[sv]
<u>l(e)vure</u>	'yeast'	[lv]
<u>m(e)rise</u>	'wild cherry'	[mr]
<u>n(e)veu</u>	'nephew'	[nv]
<u>ch(e)min</u>	'road'	[ʃm]
<u>v(e)dette</u>	'(movie) star'	[vd]
<u>g(e)lure</u>	'frost-bite'	[ʒl]

This assumption, however, has been shown to be invalid in a recent study conducted by Bazylko. With a corpus restricted to polysyllabic lexical items (i.e., no clitic constructions), he compared the percentage of schwa deletion in initial syllables in post-consonantal position to that in post-vocalic position.<sup>1</sup> Bazylko found that, in familiar conversational speech ("conversation courante"),

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<sup>1</sup>Although we do not assume that post-consonantal and post-pausal environments can be equated with respect to the overall functioning of INI, it is possible that the deletion of schwa in the initial syllable of polysyllabic lexical items in post-pausal position is comparable to some extent to that in post-consonantal position. In the first place, syncope is extremely rare in post-consonantal position and when it does occur, it is often accounted for by analogical generalization of the allomorph with schwa in the initial syllable deleted after a word ending in a vowel (y next section), e.g., une p(e)-tite fille [ʏnptitʃij] : la p(e)tite fille [laptitʃij]. Furthermore, the occurrence of polysyllabics in post-pausal position is uncommon in conversation, since most of the lexical items involved are nouns, requiring some preceding quantifier. It is, therefore, conceivable that the **occurrence** of the syncopated allomorph of polysyllabics in post-pausal position (=in isolation for the most part) is accountable for to some extent by the same factors influencing its appearance in post-consonantal position.

schwa was regularly maintained in words beginning with /bəl/, /dər/, /kər/, regardless of the preceding context: "Le fait que la latérale et la vibrante forment, du point de vue phonétique, une seule unité sonore avec la consonne précédente ne favorise nullement la formation de groupes secondaires, comme en témoigne le maintien de /ə/ dans des syllabes telles que /bəl/, /dər/, /kər/ par 100% des informateurs."<sup>1</sup>

Textual word frequency seems to be a far more important factor than phonotactic considerations in conditioning the syncope of schwa in initial syllables.<sup>2</sup> For instance, in the Petit Robert (from which Bazylko extracted his data), the only words beginning with /bəl/, /dər/ and /kər/ are the following: belette 'weasel,' belon 'type of oyster,' belote 'card game, similar to pinoche,' de-rechef 'once again (archaic),' querelle, -er, -eur 'quarrel (N, V), quarreller.' None of these words occurs with any considerable frequency in the French vocabulary. On the other hand, a high percentage of subjects deleted schwa, regardless of context, in certain words beginning with /pəl/, /səm/, /ʒəm/, /sər/, /dəs/, /dəm/,<sup>3</sup> only the first two of which are composed of consonants which occur in

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<sup>1</sup>Bazylko 1976:80. The term 'secondaires' is used to describe consonantal groups "qui se forment par suite de la chute de /ə/ instable" in word-initial syllables, as opposed to 'groupes primaires' which "existent effectivement en français à l'initiale du mot" (Ibid.: 63).

<sup>2</sup>"Dans ce type de syllabe [i.e., à noyau /ə/ à l'initiale du mot], la fréquence du mot dans les textes du français semble jouer un rôle important pour la chute de /ə/ instable" (Ibid.:69).

<sup>3</sup>Ibid.:74.

syllable-initial position in lexical items (y 137). Syncope occurred with a high percentage in pelote, -er 'ball, to wind into a \_\_,' pelouse 'lawn,' peluche, -eux, -er 'shag, shaggy, to become \_\_,' but not in pelade 'alopecia (disease),' pelisse 'fur-lined coat'; in semaine 'week,' semelle 'sole,' but not in semeur 'sower,' semoncer 'to reprimand'; in chemin 'road,' chemisette 'blouse,' but not in cheminement 'trudging (along),' chemiser 'to case (boiler, cylinder)'; in seringue 'syringe,' but not in serein (N) 'evening dew,' seringa 'seringa (shrub)'; in dessus 'above,' dessous 'below,' but not in deça 'on this side'; in demander 'to ask for,' but not in demeure 'delay (archaic), abode (liter.).' In all the above cases where deletion of schwa was found to occur at a high rate, the words can be considered to have a comparatively greater frequency of occurrence than those in which syncope was rare.<sup>1</sup>

Although the potential for producing consonant clusters conforming to those existing in lexical representations does not seem to carry much weight in determining the likelihood that INI will apply, the particular feature composition of the consonants does appear to be an influential variable constraint. According to Grammont, syncope is favoured if the consonant preceding schwa is a continuant, "quelle que soit la nature de la deuxième consonne, parce que la continue initiale a suffisamment de son par elle-même:

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<sup>1</sup>See Juilland et al. 1970:passim.

[(142)] j(e) n'en sais rien.	j(e) m'en vais.
j(e) t'écrivais.	j(e) donne aux pauvres.
j(e) caresse mon chat.	j(e) garantis le succès.
j(e) porte une flanelle.	j(e) bois du vin.
j(e) répondrai.	j(e) l'ai vu.
j(e) vous remercie.	j(e) fais la sieste.
j(e) cherche un moyen.	j(e) sais lire.
c(e) n'est pas ça.	c(e) tableau vaut cher.
c(e) papillon est bleu.	c(e) beurre est rance.
n(e) faites pas de scandale.	n(e) l'oublie pas.
n(e) vois-tu rien?	n(e) peux-tu pas le dire?
v(e)nez nous voir.	l(e) meilleur moyen.
r(e)mettez-vous.	r(e)tirez-vous.
l(e)vez-vous.	j(e)tez les dés." <sup>1</sup>

On the other hand, if the initial consonant is a stop, the norm is to retain the following schwa. However, "dans un parler particulièrement vif ou familier, l'e de la première syllabe peut tomber, surtout si la deuxième consonne est une continue qui se combine aisément avec la momentanée initiale, et même si c'est une autre momentanée:

[(143)] qu(e) voulez-vous qu'on y fasse?	t(e) faut-il quelque chose?
d(e)vant vous je dirai tout.	qu(e) faites-vous là?
qu(e) savez-vous?	t(e) lèveras-tu bientôt?

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<sup>1</sup>Grammont 1963:117.

qu(e) rapportes-tu?                      qu(e) cherchez-vous?  
 p(e)lez-lui sa pomme.                    qu(e) nous chantez-vous là?  
 d(e)main matin vous viendrez.        qu(e) m'importe?  
 p(e)tits enfants, soyez sages. qu(e) te faut-il encore?"<sup>1</sup>

In light of these various factors found to influence schwa deletion in initial post-pausal syllables, we might reformulate INI with variable rule notation in the following manner:

$$(134') \text{ INI: } \underset{\langle \delta \text{INI} \rangle}{\text{ə}} \rightarrow \langle \text{s-r } \emptyset \rangle / \left| \left| \underset{\langle +\text{cont} \rangle}{\text{c}} \text{ \_\_\_\_\_\_ } (\#) \text{ c}_1 \text{v} (\text{c}_0 \text{v}) \langle \sigma \rangle \right| \right|$$

Condition:  $\delta > \emptyset$

INI is interpreted in the following way: schwa is variably deleted following a single consonant in post-pausal position. Deletion is favoured if the initial consonant is a continuant. The weight of this variable decreases, however, as the rate of speech (r) increases and as the style (s) becomes more informal. Finally, syncope is favoured the greater the value assumed by ( $\sigma$ ) which represents the number of syllables intervening between the syllable containing the affected schwa and the end of the phonological word.

The diacritic feature [INI] will be associated with all lexical items that undergo the rule either categorically or variably. The value of ( $\delta$ ) lies between 0 and 1. The constraint is necessary because "when the diacritic has the value zero, rather than cancelling the rule, it simply has no effect, and the rule will continue

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<sup>1</sup>Ibid.:118. Emphasis added.

to apply variably."<sup>1</sup> All lexical items to which INI never applies will then carry no value for the feature [INI]. Obviously, the particular items involved will vary from speaker to speaker; however, one class of words, proper nouns, is practically always a categorical exception to the rule for all speakers (e.g., René, Renault, Besançon, Sedan, Leroux, Venise).<sup>2</sup> The low-frequency words discussed above (pp. 247-8) would likewise have no value for the feature. (In Dell's vocabulary, the clitics que and ne would be unmarked for INI, since their schwa is never syncopated in post-pausal position in his dialect.)<sup>3</sup> When the feature has the value 1, "it has the effect of cancelling out the contribution of all other variables and the rule applies categorically."<sup>4</sup> In Bazylko's study, this condition was found to apply to such words as chelem 'slam,' peloter 'to wind into a ball' and peluché 'shaggy.' In words to which the rule applies variably, the diacritic will have some value between zero and one and will be assumed "to contribute no more or less than any other variable constraint on the rule."<sup>5</sup>

There is one output constraint on INI which we shall introduce here, but which applies to schwa deletion in general and not just in

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<sup>1</sup>Reighard 1975:167.

<sup>2</sup>See Dell 1973b:230, 236; Warnant 1968:passim.

<sup>3</sup>See Dell 1973b:236.

<sup>4</sup>Reighard:Ibid.

<sup>5</sup>Ibid.

this particular environment. Schwa deletion is blocked by "a derivational constraint which prohibits sequences of the form /CLj/ (consonant+liquid+yod) from arising in the course of a derivation."<sup>1</sup> As a consequence of this constraint, INI will not apply in such cases as:

(144)

- i. Serions-nous à l'heure? 'Would we be on time?'  
[sɛrjɔ̃nualœr]
- ii. Feriez-vous bâtir une maison? 'Would you have a house built?'  
[fɛrjevubatrünmezɔ̃]
- iii. Ce lieu-ci me plaît. 'I like this spot'  
[sɛljøsimœplɛ]
- iv. Ce lion-là est domestiqué. 'That lion is tame'  
[sɛljɔ̃laɛdomestike]

Before terminating our examination of INI, we should mention one ordering relationship that has been found to exist (at least for some speakers) between it and elision. According to Dell,<sup>2</sup> his intuitions on the language lead him to believe that one pronounces more easily [ʒlavɛ] for je lavais 'I was washing,' than [ʒlɛm] for je l'aime 'I love him,' or [ʒlav] for je lave 'I wash,' these latter two phrases being more commonly pronounced [ʒlɛm] and [ʒlɛlav], respectively. In order to account for this observation, it is seen

<sup>1</sup>Tranel 1974b:99.

<sup>2</sup>See Dell 1973b:251.

that if elision (102) were to apply before INI,  $/| | \text{ʒ} \text{ə} \# | \text{ə} \# \text{é} \text{m} | | /$  (je l'aime) would first be rewritten as  $/| | \text{ʒ} \text{ə} \# | \# \text{é} \text{m} | | /$ . This has the effect of situating the schwa of je directly before the word-group accent and consequently, according to one of the variable constraints<sup>1</sup> holding on INI, to reduce its probability of undergoing the process. In  $/| | \text{ʒ} \text{ə} \# | \text{av} \text{é} | | /$  (je lavais), on the other hand, the schwa of je is not immediately followed by the group-accent and thus is more likely to undergo INI. The application of elision before INI is thus proposed as an appropriate rule ordering relationship.

This concludes our discussion of INI. We shall now examine another process of syncope affecting schwa in initial syllables.

#### 4.2. Schwa in initial syllables preceded by a vowel-final word

Another process in Modern French which results in the syncope of schwa in initial syllables is conditioned by the presence of a vowel as the final segment of the preceding word. This process, like INI, applies to monosyllabic clitics as well as to polysyllabic words. It is formalized by Dell as the following optional rule:<sup>2</sup>

$$(145) \text{VCE}_1: \text{ə} \rightarrow \emptyset / \text{V} \# \text{C}_1 \text{ \_\_\_ } (\#) \text{C}_1$$

(OPT)

Like INI,  $\text{VCE}_1$  does not apply if more than a single consonant

<sup>1</sup>Viz., the value assumed by  $(\sigma)$  would be 0 in this instance.

<sup>2</sup>See Dell 1973b:253. The initials VCE are interpreted as 'vowel-consonant-schwa.'

precedes schwa. Compare, for example:

(146)

<u>ces guenilles</u>	[seg(ə)niʝ]	vs.	<u>ces grenouilles</u>	[segrənɥ]
'these rags'			'these frogs'	
<u>on redonne</u>	[ɔ̃r(ə)dɔ̃]	vs.	<u>on fredonne</u>	[ɔ̃frədɔ̃]
'one gives again'			'one hums'	
<u>nous venons</u>	[nuv(ə)nɔ̃]	vs.	<u>nous crevons</u>	[nukrəvɔ̃]
'we are coming'			'we are dying'	
<u>en tenant</u>	[ɑ̃t(ə)nɑ̃]	vs.	<u>en prenant</u>	[ɑ̃prɑ̃nɑ̃]
'while having'			'while taking'	
<u>sa bedaine</u>	[sab(ə)dɛ̃]	vs.	<u>sa brebis</u>	[sabrəbi]
'his paunch'			'his ewe'	

As the form of the rule also indicates,  $VCE_1$  does not apply if the segment following schwa is a vowel. Schwa is not deleted, for example, in:

(147) <u>Ça l'a rehaussé</u>	[salarəose]	'That raised it'
<u>Va dehors</u>	[vadəɔ̃r]	'Go outside'
<u>pas de hache</u>	[padəaʃ]	'no axe'
<u>Prends ce harpon</u>	[prɑ̃səarpɔ̃]	'Take this harpoon'

Although  $VCE_1$  was probably an active rule in French in the sixteenth century, the first definite evidence attesting to its application does not appear until the beginning of the seventeenth century. Making reference to clitics, Oudin (1633) writes:

à la fin des particules lors qu'elles se rencontrent seules on l'oste [i.e., schwa] entierement, & pour en bien trouver la

prononciation, il faut attacher la consonnante de la particule avec le mot precedent: par exemple il n'y a que trois, nous dirons, il n'y ac trois:...en ce point: ens point, & ainsi des autres (Oudin 1633:7).

The most numerous examples are again to be found in Duëz (1657) where we find, among others. the following cases of schwa deletion by  $VCE_1$ :<sup>1</sup>

(148)

<u>Soyez l(e) bien venu.</u>	'Welcome'
<u>Tu m(e) romps la teste.</u>	'You're deafening me'
<u>Tu l(e) penses.</u>	'You think so'
<u>Tu l(e) dis.</u>	'You say it'
<u>Tu n(e) fais rien.</u>	'You're doing nothing'
<u>Vous m(e) rompez la teste.</u>	'You're deafening me'
<u>Vous vous l(e) faites accroire.</u>	'You make yourselves believe it'
<u>Vous l(e) dites.</u>	'You say it'
<u>Vous l(e) pensez.</u>	'You think so'
<u>Elle ne l(e) veut pas.</u>	'She doesn't want it'
<u>Nous l(e) verrons.</u>	'We shall see it'
<u>Vous l(e) verrez bien.</u>	'You will certainly see it'
<u>Vous n(e) beuvez pas.</u>	'You do not drink'
<u>Vous n(e) dites mot.</u>	'You don't say a word'
<u>Un peu d(e) vin.</u>	'A little wine'
<u>Un peu d(e) succre.</u>	'A little sugar'
<u>Un peu d(e) patience.</u>	'A little patience'

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<sup>1</sup>Duëz 1657:130, 133-8, 141.

<u>Un morceau d(e) pain.</u>	'A piece of bread'
<u>Un pot d(e) chambre.</u>	'A chamber-pot'
<u>Beaucoup d(e) peine.</u>	'Much trouble'
<u>Trop d(e) peine.</u>	'Too much trouble'
<u>Tant d(e) peine.</u>	'So much trouble'
<u>Beaucoup d(e) ceremonies.</u>	'Many ceremonies'
<u>Tant d(e) compliments.</u>	'So many compliments'
<u>Il n'est pas d(e) besoin.</u>	'There is no need'
<u>Que d(e) gens.</u>	'What a lot of people'
<u>Que d(e) mouches.</u>	'What a lot of flies'
<u>Il n'y a qu(e) trois jours.</u>	'There are only three days'
<u>Je r(e)viendray.</u>	'I shall return'
<u>En c(e) temps la.</u>	'At that time'
<u>Portez c(e)la au logis.</u>	'Take that to the home'
<u>Ma l(e)çon.</u>	'My lesson'

From the above evidence, it would appear that the functioning and scope of  $VCE_1$  has not changed in any significant way since the early stages of the Modern French period. Rather than simply classifying the process as 'optional,' however, we believe that, like INI,  $VCE_1$  should be considered as a variable process whose application is constrained by a number of conditioning factors.

As was the case with INI, non-linguistic factors such as style, rate of speech and word frequency/dispersion have been found to be influential in determining the probability of the rule's application. According to Dell, schwa in initial syllables preceded by a

vowel-final word "tombe d'autant plus facilement que le débit est rapide et que le locuteur porte moins d'attention à son élocution."<sup>1</sup>

Bazylko distinguishes stylistic factors conditioning deletion of schwa depending on whether they relate to the individual word or to the textual context as a whole:

- a) Valeur stylistique du mot; plus le mot est "noble," plus /ə/ est maintenu.
- b) Valeur stylistique du texte; plus le texte est pédant, plus /ə/ se maintient (1976:80).

With respect to lexical constraints on  $VCE_1$ , the following factors have been determined to be of significance:<sup>2</sup>

- a) Fréquence de la syllabe dans la langue et surtout fréquence du mot dans les textes; plus la fréquence est grande, plus le /ə/ a tendance à tomber.
- b) Appartenance du mot aux divers sous-codes de la langue: langue littéraire, scientifique, courante, populaire, argot. Plus l'usage tend vers l'argot, plus le /ə/ est susceptible de tomber (Bazylko 1976:80).

These non-linguistic variables seem to carry more weight in determining the probability that  $VCE_1$  will apply in any given instance than do any phonetic factors related to the feature composition of the consonants surrounding schwa.<sup>3</sup> Furthermore, as Dell points out, it is, in fact, words, and not morphemes, that must be lexically marked with respect to their behaviour as regards  $VCE_1$ .

<sup>1</sup>Dell 1973b:229.

Recall that rate of speech and style are also assumed to have acted as variables conditioning synchronic syncope in Vulgar Latin (see fn., p. 27).

<sup>2</sup>See also Dell 1973b:230: "En général ce sont les mots peu courants ou d'usage littéraire qui ont tendance à être des exceptions à  $VCE_1$ ."

<sup>3</sup>"Nous avons dressé la liste exhaustive de tous les mots commençant par #Cə- contenus dans le Petit Robert et connus de nous, et

In his dialect, for example, schwa is deleted in m(e)ner 'to lead,' but not in meneur 'leader'; in s(e)mer 'to sow,' but not in semailles 'sowing'; in ch(e)min 'way,' but not in cheminer 'to make headway.'<sup>1</sup> Bazytko's study reaches essentially the same conclusions. For instance, after a vowel-final word, over 40% of his subjects deleted schwa in the words in the left column in (149), whereas in the right column, deletion was less than 40% and sometimes did not occur at all, even though the same root-morpheme was involved:<sup>2</sup>

(149) Over 40% Deletion		Less than 40% Deletion		
<u>tenir</u>	'to hold'	<u>tenante</u>	'holding'	(20%)
<u>chevaucher</u>	'to ride'	<u>chevauchée</u>	'ride'	(10%)
<u>mesurer</u>	'to measure'	<u>mesurage</u>	'measuring'	(10%)
		<u>mesureur</u>	'measurer'	( 0%)
<u>melon</u>	'melon'	<u>melonné</u>	'shaped like a melon'	(10%)
		<u>melonnière</u>	'melon bed'	( 0%)
<u>fenêtre</u>	'window'	<u>fenêtrer</u>	'to install windows'	(10%)
<u>repaire</u>	'den'	<u>repaireur</u>	'to be in a den'	( 0%)
<u>levure</u>	'yeast'	<u>levurier</u>	'yeast maker'	( 0%)

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nous les avons répartis entre deux colonnes, selon que dans notre parler ils peuvent ou [non] perdre leur schwa lorsque le mot précédent est terminé par une voyelle. L'examen de cette liste ne fait apparaître aucune régularité simple qui permettrait de prédire à partir des consonnes qui l'entourent si un schwa en syllabe initiale de mot est ou non sujet à VCE<sub>1</sub>" (Dell 1973b:230).

<sup>1</sup>Ibid.

<sup>2</sup>Bazytko 1976:71-2.

<u>semaine</u> 'week'	<u>semainier</u> 'person on duty (10%) for a week'
<u>chemin</u> 'way'	<u>cheminement</u> 'headway' (20%)

As was the case with INI, proper nouns are practically always categorical exceptions to  $VCE_1$ .<sup>1</sup> Compare, for instance, the opposition between:

- (150) J'ai cru l(e) sage : J'ai cru Lesage  
 'I believed the wise man : I believed Lesage'  
sans ch(e)valier : sans Chevalier  
 'without a knight : without Chevalier'  
près d(e) la haie : près Delahaie  
 'near the hedge : near Delahaie'

The output constraint prohibiting sequences of consonant+liquid+jod from arising during derivation (v p. 252) is manifest here, blocking application of  $VCE_1$  in such cases as:

- (151) Nous serions contents. 'We would be happy'  
 [nusəɾjɔ̃kɔ̃tɑ̃]  
Nous ferions mieux. 'We would do better'  
 [nufəɾjɔ̃mjø]  
Vous reliez. 'You tie'  
 [vurəljɛ]  
En ce lieu 'In this spot'  
 [ɑ̃səljø]

In view of the above examination of factors found to influence

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<sup>1</sup>See Dell 1973b:230.

the application of  $VCE_1$ , we believe that in order to more appropriately reflect the nature of the process, (145) should be reformulated as a variable rule with lexical constraints. As a rough approximation, we might propose the following:

$$(145') \ VCE_1: \ \text{ə} \rightarrow \langle \text{s-r } \emptyset \rangle / V\#_1 C \text{ \_\_\_\_ } (\#)C_1 \\ \langle \delta VCE_1 \rangle$$

Condition:  $\delta > \emptyset$

$VCE_1$  is now interpreted in the following manner: schwa preceded by a single consonant in word-initial position is variably deleted when the preceding word ends in a vowel. Deletion is more probable as the rate of speech (r) increases and as the style (s) becomes more informal.

The diacritic feature [ $VCE_1$ ] will be associated with all lexical items that undergo the rule either categorically or variably. As with INI, all lexical items to which  $VCE_1$  never applies will carry no value for the rule feature. There will be some overlap here with the words that are exceptions to INI, for example, proper nouns. However, we do not believe, as does Dell,<sup>1</sup> that all lexical items behave in the same way with respect to the two rules. Even in Dell's own speech, the clitics que and ne which for him do not undergo INI, do undergo  $VCE_1$ : "que et ne sont à notre connaissance les seules exceptions à INI qui ne soient pas aussi des exceptions à  $VCE_1$ : que

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<sup>1</sup>"...on constate que tout mot qui est une exception à  $VCE_1$  est aussi une exception à INI, et réciproquement" (Dell 1973b:236).<sup>1</sup>

c'est beau!, mais il faut qu(e) ça mousse; ne pars pas, mais Jean n(e) part pas."<sup>1</sup> Although there is a lack of statistical evidence, it seems plausible that, particularly in the case of polysyllables, there will be a much greater number of exceptions to INI than to VCE<sub>1</sub>. Specifically, it would seem not unreasonable to predict that there would be very few, if any, instances where, in post-pausal position, schwa would be deleted in the initial syllable of a polysyllabic word when it is followed by more than one consonant, especially if the resultant cluster would result in a violation of the syllable-structure constraints holding on the form of lexical items:<sup>2</sup> cf.

||replanter : sans r(e)planter, ||secret : le s(e)cret.

We do, however, believe that words in which schwa is categorically deleted by INI will always behave in the same way with respect to VCE<sub>1</sub>, but not vice versa. That is, the words lexically marked with the diacritic [1 INI] (v p. 251) should also be marked [1 VCE<sub>1</sub>]. If such an implicational relationship were indeed found to hold, the redundancy of having two features could be eliminated either by marking the affected items only with the feature [1 INI] and stating the implication by means of a redundancy rule, or by assigning such words lexical representations without a schwa in their initial syllable, e.g., chelem /š'lem/ 'slam,' peluché /plüše/ (also

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<sup>1</sup>Bazytko also found that in polysyllabics where initial schwa was followed by more than a single consonant, deletion never occurred when the preceding word ended in a consonant (1976:68).

<sup>2</sup>The only three-member syllable-initial clusters (excluding cases where the final element is a glide) are: /spr/, /str/, /skr/, /spl/, /skl/.

written pluché in the Petit Robert).<sup>1</sup> On the other hand, certain words which categorically undergo  $VCE_1$  (e.g., lequel and leçon in Bazylko's study)<sup>2</sup> would not necessarily be assumed to behave in a parallel fashion with respect to INI.<sup>3</sup> In the same vein, we would expect that words in which the value of the feature  $VCE_1$  is particularly low (e.g., chevaleresque 'chivalrous,' venin 'venom,' rebuter 'to rebuff,' rebelle 'rebel,' tenure 'tenure')<sup>4</sup> would probably not be subject to undergo INI.

Before concluding our discussion of  $VCE_1$ , it should be noted that this process, unlike INI, does not produce consonant clusters that violate the syllable-structure constraints on lexical representations. Due to the fact that the preceding word ends in a vowel (i.e., an open syllable), the consonant preceding schwa can always attach itself to this open syllable after  $VCE_1$  applies if it cannot combine with the following consonant to form a permissible syllable-initial cluster. In other words, it is always possible to readjust

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<sup>1</sup>The latter option, i.e., restructuring, is attractive in view of the fact that schwa was unconditionally deleted in these words, even after a consonant-final word. If schwa is never realized on the surface level and is not involved in any morphophonemic alternation with another vowel, the lexical marking of such words to categorically undergo INI and  $VCE_1$  seems rather void of motivation other than orthographic.

<sup>2</sup>Bazylko 1976:73.

<sup>3</sup>Cf. Thurot 1966. I:162: "L'e féminin ne subit pas toujours la syncope à la première syllabe des mots qui ne sont précédés d'aucun autre. Demandre [1769] remarque (255) que l'e féminin 'se fait sentir davantage' lorsque 'des consonnes plus difficiles à réunir... se trouvent après l'e pour articuler la voyelle suivante, comme retraite.' Il semble qu'on dise en tête d'une phrase retraite et après un mot, la r'traite, leçon, ma l'çon."

<sup>4</sup>See Bazylko 1976:71-2.

the syllable boundaries in the sequence of consonants resulting from the application of VCE<sub>1</sub> so that there occurs a syllable division conforming to the syllable-structure constraints. The following examples will serve to illustrate this:<sup>1</sup>

(152) i. <u>un peu de riz</u> 'a little rice'	ii. <u>la vedette</u> 'the star'
$\tilde{e}$ \$pø\$də\$ri	la\$vē\$dət
VCE <sub>1</sub> $\tilde{e}$ pø d ri	VCE <sub>1</sub> la v dət
\$-Readjustment $\tilde{e}$ \$pø\$dri	\$-Readjustment lav\$dət

It is perhaps the case that VCE<sub>1</sub> would be more likely to apply if the resultant sequence of consonants was one that is independently found word-internally. Although no statistical evidence is available that would give some indication of a tendency in this direction, we could speculate that syncope might possibly be more favoured in (153i) than in (153ii):

(153)

i. <u>un petit</u>	[ $\tilde{e}$ p(ə)ti]	'a little one'
<u>sans remords</u>	cf. <u>aptitude</u> [aptitüd]	'aptitude'
<u>devant ce prison</u>	[sãr(ə)mør]	'without remorse'
<u>Je n'ai vu que Stephan</u>	cf. <u>charmer</u> [šarme]	'to charm'
<u>sans ce travail</u>	[dévõs(ə)prizõ]	'in front of this prison'
	cf. <u>esprit</u> [ɛspri]	'mind'
	[·vük(ə)stefan]	'I only saw S.'
	cf. <u>externe</u> [ɛkstɛrn]	'external'
	[sõs(ə)travaj]	'without this work'
	cf. <u>bistro</u> [bistro]	'pub'

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<sup>1</sup>Resyllabification is done in these examples in accordance with the universal rules for \$-boundary insertion proposed by Hooper (1972). Readjustment is made in i) according to the principle which says that when two or more non-syllabic segments occur together, "if there is one non-sonorant (not followed by a nasal), the \$-boundary is inserted before it, no matter what the other segments are..." and in ii) by the rule which states that "if there are two

ii. <u>un jeton</u>	[œ ʒ(ə)tɔ̃]	'a token'
<u>sans geler</u>	[sɑ̃ʒ(ə)lɛ]	'without freezing'
<u>devant ce château</u>	[dɛvɑ̃s(ə)ʃato]	'in front of this castle'
<u>Je n'ai vu que Paul</u>	[··vük(ə)pɔl]	'I only saw Paul'
<u>sans ce flatteur</u>	[sɑ̃s(ə)flatœr]	'without this flatterer'

#### 4.3. Schwa in initial syllables preceded by a word-final consonant

Although somewhat of a rare phenomenon, deletion of schwa in word-initial syllables is occasionally observed to take place after a consonant-final word. If one examines the words in which the process occurs, however, it is seen that they are generally either high-frequency words which regularly undergo  $VCE_1$  after a vowel-final word or words forming part of a commonly used fixed expression:

- (154) quelle fenêtre [kɛlfnɛtr] 'which window'  
 cf. la f(e)nêtre, sans f(e)nêtres, etc.  
c'est pour demain [··purdmɛ̃] 'it's for tomorrow'  
 cf. à d(e)main, après-d(e)main, etc.  
par semaine [parsmɛn] 'per week'  
 cf. la s(e)maine, etc.  
une petite fille [ünptitfiʝ] 'a girl'  
 cf. la p(e)tite fille, un p(e)tit garçon, etc.

Dell cites the example fin de semaine 'week-end' which is

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non-sonorant segments, the \$-boundary will be inserted between them" (535).

pronounced, not only [fɛ̃dsəmɛn] and [fɛ̃dɛsmɛn] according to VCE<sub>1</sub>, but also [fɛ̃dsɛmɛn]. Other words in Dell's vocabulary beginning with #Cə- which exhibit an allomorph without schwa after a consonant-final word are je (as in Il faut que je m'en aille [··fokʒmɑ̃naj] 'I have to go'), semelle 'sole,' cerise 'cherry' and chemise 'shirt.'<sup>1</sup> In the study conducted by Bazylko, he found that word-frequency was perhaps the most important criterion here in determining syncope:<sup>2</sup>

Les mots très fréquents dans les textes et surtout dans les expressions toutes faites perdent /ə/ à l'initiale même après consonne. Il suffit de citer les mots: demain, demander, la famille du mot peloton, fenêtre, seringue, recueillir et les expressions: par semaine et sens dessus dessous (Bazylko 1976:80).

Probably the best way to account for the deletion of schwa in such words as the above is to consider that the allomorph without schwa that occurs after a consonant-final word has been analogically generalized from its frequent occurrence after a vowel-final word. Nyrop, citing such cases of schwa deletion in the environment C#CəC as counter-examples to the "loi des trois consonnes," attributes the syncopated allomorph to analogical factors:

Il faut tenir compte aussi de l'analogie, c'est-à-dire de l'influence exercée par les groupes à deux consonnes sur les groupes à trois consonnes. Ainsi, régulièrement on devrait dire: un' petit'fille; mais en fait on dit très souvent un' p'tit fille par analogie avec la p'tit fille et avec le ou un p'tit garçon; sans doute le groupe [npt] est difficile; mais l'analogie l'emporte... (Nyrop 1923:70).

<sup>1</sup>See Dell 1973b:230-1. The behaviour of schwas in contiguous syllables will be discussed below.

<sup>2</sup>The expression sens dessus dessous 'upside down' cited by Bazylko is ill-chosen as an example, since it is regularly pronounced [sɑ̃dsüdsu] with deletion of the final s of sens (see Petit Robert).

The observation of syncope in initial syllables after consonant-final words as well as after a pause and vowel-final words is interesting from a diachronic viewpoint. As we saw in the case of historical apocope, the extension of this process to pre-consonantal position, though unnatural from a phonetic viewpoint, resulted in the attainment of a unique surface realization for the words containing an underlying final schwa with eventual restructuring taking place.

In light of the ways in which the process of linguistic change are seen to be implemented, it is not unreasonable to suggest that deletion of schwa in the environment C#C \_ could be the sign of a change in progress. We have already suggested above (v pp. 261-2) that restructuring has already taken place in certain words, at least for some speakers. Particularly as regards polysyllables, it is possible to imagine the weight of the variable lexical constraint [VCE<sub>1</sub>] to raise in time to 1 implying categorical application of the rule in one environment, e.g., la semaine [lasmɛn]. If deletion were then extended to post-pausal and post-consonantal position, e.g., cette semaine [sɛtsmɛn], ||semaine [smɛn], we would expect eventual restructuring, with the predominant surface form, [smɛn], replacing /sɛmɛn/ as the underlying form; With respect to the concept of lexical diffusion, we would predict that the context V#C \_ would act as the 'primary context' for the change. That is, the change would be initiated in this environment, spreading then to post-pausal (||C \_) and post-consonantal (C#C \_) positions. Presumably, this was the

course followed by the words in (136) which have undergone restructuring since the sixteenth century. For example, before berouette /b̄erueɪ/ 'wheelbarrow' was restructured to /bruɪɪ/, we might imagine that it first showed a syncopated allomorph in environments such as la berouette [labruɪɪ], but retained its underlying form when pronounced in isolation ([b̄erueɪ]) or when preceded by a consonant-final word (une berouette [ünb̄erueɪ]). Eventually, however, the allomorph without schwa was extended to the latter environments as well, and the underlying form was ultimately restructured.

It is, **naturally**, impossible to predict with certainty the course of development which the language will undergo in the future. We can only point out, from examining past and present tendencies, possibilities for change and possible conditions for changes which have the potential to occur within the given socio-linguistic system:

...carece de fundamento la idea de poder prever los cambios lingüísticos. En general, el futuro como tal no es materia de conocimiento y la previsión no es problema de ciencia. Pero, en el caso del lenguaje, la idea aludida implica, además, una pretensión irracional: la poder establecer de antemano cómo se organizará en el futuro la libertad expresiva de los hablantes. En realidad, toda "previsión" es una afirmación genérica: dice qué cambios suelen ocurrir en determinadas condiciones. Y, puesto que en la historia la generalización es formal, y no material, solo es posible decir que, en tales condiciones ya conocidas, podrán ocurrir tales y cuales tipos de cambios, pero no cuáles serán los cambios en su particularidad, ni si ellos ocurrirían efectivamente o no. Asimismo, comparando dos "estados de lengua" sucesivos, podemos comprobar cuáles cambios están ya ocurriendo; mas nada nos autoriza a asegurar que ellos seguirán en el futuro las mismas direcciones (Coseriu 1973:232).

A host of factors, both linguistic (e.g., competing changes, paradigmatic pressures, phonotactic constraints) and non-linguistic (e.g.,

literacy, peer-group influence) may alter the course of or completely reverse the expected change.

This concludes our discussion of the behaviour of schwa in initial syllables. We shall now examine its development and synchronic status in word-internal position.

#### 4.4. Schwa in word-internal position

The deletion of schwa in word-internal position (i.e., not in word-initial syllables) preceded by a single consonant has been a persistent rule in French since around the sixteenth century.<sup>1</sup> Unlike INI and VCE<sub>1</sub>, this process is categorical rather than variable, and can be formalized in the following way:<sup>2</sup>

$$(155) \text{ VCE}_2: \quad \text{ə} \rightarrow \emptyset / \text{V C } \underline{\quad}$$

(OBL)

The evolution of schwa with respect to this process depended essentially on its morphological status within the word. Schwa could occur either a) morpheme-internally or b) between word-internal boundaries. Within a), a distinction must be made between i) schwas that

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<sup>1</sup>It is possible that the rule was operating in a very minor status in Old French and essentially only in the environment r\_r and n\_r, with assimilation of n\_r to rr: mairerie, contrerole, denegree>derree, durerai, donerai>dorrai, menerai>merrai (see Fouché 1969:510-11). This process of assimilation is still noted in the sixteenth century. According to H. Estienne (1582), one pronounced j'amerray, je dorray for j'ameneray, je donneray: "'Dicimus...I'amerray, facta syncope, pro I'ameneray: itidemque Ie dorray pro Ie donneray:'" This assimilation was not categorical, however: "'Quidam tamen hic pro rr ponunt nr'" (Thurot 1966. I:151).

<sup>2</sup>See Dell 1973b:229.

do not alternate with [ɛ] and ii) schwas that alternate with [ɛ].<sup>1</sup>

Following are examples of schwa deletion by (155) found in the sixteenth and seventeenth centuries within these three classes:

(156)

- a) i) calamar [kalɔmar] 'squid' (M.F. calmar)  
jassemín [ʒasɔmɛ̃] 'jasmine' (M.F. jasmin)  
taffetas [tafɔta] 'taffeta'  
médecin [medɔsɛ̃] 'doctor'
- ii) acheter /aʃet=e/ [aʃɛte]/achète /aʃet/ [aʃɛt] 'to buy/(he) buys'  
cabaretier /kabarɛt+je/ [kabarɛtje]/cabaret /kabarɛt/ [kabarɛ]  
'tavern-keeper/tavern'  
charretier /ʃarɛt+je/ [ʃarɛtje]/charrette /ʃarɛt/ [ʃarɛt]  
'carter/cart'  
déchiqúeter /deʃikɛt=e/ [deʃikɛte]/déchiqúète /deʃikɛt/ [deʃikɛt]  
'to shread/(he) shreads'
- b) aimera /ɛmɛr=a/ [ɛmra] '(he) will love'  
abandonnement /abɔ̃dɔnɛ+mɔ̃/ [abɔ̃dɔnmɔ̃] 'abandonment'  
broderie /brɔdɛ+ri/ [brɔdri] 'embroidery'  
pureté /pürɛ+te/ [pürte] 'purity'

#### 4.4.1. Morpheme-internal, non-alternating schwas

We consider that only those forms in a)i), that is, forms with morpheme-internal, non-alternating schwas underwent restructuring

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<sup>1</sup>The ə/ɛ alternation will be discussed in Appendix I.

due to VCE<sub>2</sub>. We assume, furthermore, that the change occurred over an extended period of time by means of a process of lexical diffusion. Although it is difficult to accurately trace the process of diffusion throughout the vocabulary, from the evidence we have at hand, we may cite the following forms in which deletion is first attested in the sixteenth and seventeenth centuries, respectively:<sup>1</sup>

(157) a) Sixteenth century:

<u>alebastre</u>	[alɛ́batr]	'alebaster' (M.F. <u>albâtre</u> )
<u>alezan</u>	[alɛ́zɔ̃]	'chestnut (horse)'
<u>allemand</u>	[alɛ́mɔ̃]	'German'
<u>bequefigue</u>	[bɛkɛ́fig]	'warbler' (M.F. <u>becfigue</u> )
<u>calemar</u>	[kalɛ́mar]	'squid'
<u>carrefour</u>	[karɛ́fur]	'cross-roads'
<u>couretier</u>	[kurɛ́tje]	'broker' (M.F. <u>courtier</u> )
<u>éperon</u>	[epɛ́rɔ̃]	'spur'
<u>esperit</u>	[ɛspɛ́ri]	'mind' (M.F. <u>esprit</u> )
<u>fauteuil</u>	[fodɛ́tɔ̃j]	'armchair' (M.F. <u>fauteuil</u> )
<u>hobereau</u>	[ɔbɛ́ro]	'hobby (bird)'
<u>horeloge</u>	[ɔrɛ́lɔ̃ʒ]	'clock' (M.F. <u>horloge</u> )
<u>jassemín</u>	[ʒasɛ́mɛ̃]	'jasmine' (M.F. <u>jasmin</u> )
<u>lapereau</u>	[lapɛ́ro]	'young rabbit'
<u>materas</u>	[matɛ́ra]	'quarrel (arrow)' (M.F. <u>matras</u> )
<u>ourreler</u>	[urɛ́le]	'to hem' (M.F. <u>ourler</u> )
<u>palefrenier</u>	[palɛ́frɛ̃nje]	'groom'

<sup>1</sup>Examples are taken from Thurot 1966. I:147 ff.

<u>rapetasser</u>	[rapətase]	'to patch up'
<u>réguélisse</u>	[regəlís]	'liquorice' (M.F. <u>réglisse</u> )
<u>souspeçon</u>	[supəsɔ̃]	'suspicion' (M.F. <u>soupeçon</u> )
<u>surpelis</u>	[sürpəli]	'surplice' (M.F. <u>surplis</u> )
<u>toquesin</u>	[tɔkəsɛ̃]	'alarm' (M.F. <u>tocsin</u> )
<u>vilebrequin</u>	[viləbrəkɛ̃]	'brace and bit'
b) Seventeenth century:		
<u>banderole</u>	[bãdərɔl]	'steamer'
<u>betterave</u>	[betərav]	'beet'
<u>casemate</u>	[kazəmat]	'casemate (fort.)'
<u>Cherebourg</u>	[ʃərbur]	'Cherbourg'
<u>émeri</u>	[eməri]	'emery'
<u>galerie</u>	[galəri]	'gallery'
<u>Harfleur</u>	[arɛflœr]	'Harfleur'
<u>hochepot</u>	[ɔʃəpɔ]	'ragout'
<u>hoqueton</u>	[ɔkətɔ̃]	'smock-frock (arch.)'
<u>houbelon</u>	[ubəlɔ̃]	'hops' (M.F. <u>houblon</u> )
<u>larrecin</u>	[larəsɛ̃]	'larceny' (M.F. <u>larcin</u> )
<u>mademoiselle</u>	[madəmwaʒɛl]	'Miss'
<u>maletoste</u>	[malətɔt]	'illegal tax' (M.F. <u>maltôte</u> )
<u>maquereau</u>	[makəro]	'mackerel'
<u>médecin</u>	[medəsɛ̃]	'doctor'
<u>lansepessade</u>	[lãs əpəsad]	'infantryman (nobleman)' (M.F. <u>anspessade</u> )
<u>taffetas</u>	[tafətɑ]	'taffeta'
<u>talemouse</u>	[taləmuz]	'cheese pastry (archaic), slap in the face (fam.)' (M.F. <u>talmouse</u> )
<u>troussequin</u>	[truskɛ̃]	'candle (rear part of a saddle)'

As can be seen from these examples, orthographic reform occurred rather arbitrarily as a result of the change. Restructuring did not take place in cases where the deletion of schwa would have led to a violation of the phonotactic constraints. For example, schwa remains in the lexical representations of atelier [atəljɛ] 'workshop,' râtelier [ratəljɛ] 'denture,' etc. in order to avoid the impermissible sequence \*CLj. It cannot be a rule of epenthesis that accounts for the schwa in such cases as the above, since that would force us to set up underlying representations containing sequences of \*/CLj/ and the rule:  $\emptyset \rightarrow \text{ə} / C \_ Lj$ . This is undesirable since we want to exclude this ungrammatical sequence from underlying forms, but would be necessary because of such forms as baudrier [bodrijɛ] 'shoulder belt,' madrier [madrijɛ] 'plank,' tablier [tablijɛ] 'apron,' where we do not want a schwa to be inserted before Li (\*[tabɛlijɛ], etc.).

Our opinion that VCE<sub>2</sub> has led to restructuring in the present-day language is not universally shared. Dell considers that in all cases such as (157) where an orthographic e remains in Modern French, a schwa is accordingly present in their underlying representations which is categorically deleted by VCE<sub>2</sub>. This position is adopted essentially because of his abstract analysis of nasalized vowels. In order to prevent his "across the board" rule of nasalization (120)<sup>1</sup> from applying, Dell has to posit an underlying schwa in such cases as:

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<sup>1</sup>Recall from our discussion above (p. 208), that Dell's vowel nasalization rule transforms sequences of /VN/ to [ṽ] both before a consonant and before a word boundary.

(158) <u>Danemark</u>	[danmark]	'Denmark'
<u>ennemi</u>	[ɛnmi]	'enemy'
<u>Fontainebleau</u>	[fɔ̃tɛnblo]	'Fontainebleau'
<u>Geneviève</u>	[ʒənvjɛv]	'Genevieve'
<u>hanneton</u>	[antɔ̃]	'may-bug'
<u>mannequin</u>	[mankɛ̃]	'model'
<u>omelette</u>	[ɔmlɛt]	'omelette'
<u>samedi</u>	[samdi]	'Saturday'

Dell's argument that a morpheme-internal lexical schwa is justified in these cases because it is realized in slow speech, has been shown to carry little or no weight in determining the proper form for underlying representations. In a test conducted by Tranel, it was found that, at least for some speakers, omelette and samedi, for instance, were never realized as [ɔmɛlɛt], [samɛdi], no matter how slow the words were pronounced even though there is an e in their orthographic representations.<sup>1</sup> Moreover, as Tranel points out, there is a substantial number of words with phonetic sequences of [XNCY] which are never realized as [XNɔCY] and which, furthermore, do not have an orthographic e.<sup>2</sup> For example:

(159) <u>amnistie</u>	[amnistɪ]	'amnesty'
<u>gymnase</u>	[ʒimnaz]	'gymnasium'
<u>hamster</u>	[amstɛr]	'hamster'

<sup>1</sup>See Tranel 1974b:38.

<sup>2</sup>See Ibid.:81, 96.

<u>Kremlin</u>	[krɛmlɛ̃]	'Kremlin'
<u>sprint</u>	[sprɪnt]	'sprint'
<u>stencil</u>	[stɛnsɪl]	'stencil'
<u>suspense</u>	[süsɛpsɛ]	'suspense'

The complications that would arise in the abstract analysis in order to handle such "exceptions" to the general rule of vowel nasalization (ad hoc underlying representations, exception features, rule complexity) leads Tranel to adopt a more concrete analysis which restricts the nasalization rule from applying morpheme-internally. In such an approach, nothing prevents the forms in (158) (with orthographic schwas) as well as those in (159) (without orthographic schwas) from having underlying forms identical to their surface forms.<sup>1</sup>

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<sup>1</sup>Ibid.:133-4: "...it is posited that the process of vowel nasalization does not apply within morphemes. This proposal is of explanatory value.

It explains why such words as amnésie [amnezɪ] 'amnesia,' hymne [imn] 'hymn,' grammaire [gramɛr] 'grammar,' etc.,...do not undergo vowel nasalization; the same goes for borrowed words such as Linda [lɪnda] 'Linda,' stencil [stɛnsɪl] 'stencil,' week-end [wikɛnd] 'week-end,' etc., or colloquial native words such as binse [bins] 'disorder' or clamsér [klamse] 'to croak'...These words can have very straightforward underlying representations of the form /XVNCY/ and they do not have to be considered as exceptional in any way.

...it also allows for a unified explanation of the facts concerning slow speech pronunciation...If the production of internal schwas in slow speech pronunciation is to be attributed to orthographic knowledge, which some speakers, but not all, put into practice under such a condition, then there is no reason to assume that words such as samedi and omelette should not have underlying representations such as /samdi/ and /ɔmlɛt/, without internal schwas; for all speakers then, the non-nasalized surface forms must necessarily be explained by the fact that there is no process of vowel nasalization within morphemes."

4.4.2. Morpheme-internal schwa alternating with ε

The reasons for considering schwa to be the underlying segment in the [ə]/[ε] alternations such as in (156a)ii) and the historical development of the rule accounting for this alternation are examined in Appendix I.

## 4.4.3. Schwas across word-internal boundaries

Within the word, schwa may occur either as an epenthetic segment between a root-morpheme and a derivational affix or as the thematic vowel of Class I verbs in the future and conditional tenses. For reasons of paradigmatic uniformity, we consider that a schwa is present in these cases, even though it is sometimes never realized phonetically. Compare, for example, the behaviour of schwa before the following derivational affixes:

(160) a)	<u>saleté</u>	/sal+ə+te/	[salte]	'dirtiness'
	<u>dureté</u>	/dür+ə+te/	[dürte]	'hardness'
	<u>gravement</u>	/grav+ə+mã/	[gravmã]	'gravely'
	<u>stupidement</u>	/stüpi d+ə+mã/	[stüpi dmã]	'stupidly'
	<u>broderie</u>	/brød+ə+ri/	[brødri]	'embroidery'
	<u>moquerie</u>	/møk+ə+ri/	[møkri]	'mockery'
b)	<u>chasteté</u>	/šast+ə+te/	[šastəte]	'chastity'
	<u>fermeté</u>	/fərm+ə+te/	[fərməte]	'firmness'
	<u>superbement</u>	/süperb+ə+mã/	[süperbëmã]	'superbly'
	<u>fortement</u>	/fort+ə+mã/	[fortəmã]	'strongly'
	<u>brusquerie</u>	/brüsk+ə+ri/	[brüskəri]	'abruptness'
	<u>dentisterie</u>	/dätist+ə+ri/	[dätistəri]	'dentistry'

Since schwa is always realized phonetically in the forms in (160b), i.e., in the environment  $C_2 \_$ , we can achieve paradigmatic uniformity by considering that the forms in (160a) also contain an underlying schwa which is obligatorily deleted by  $VCE_2$ .

The behaviour of schwa in its status as a thematic vowel differs from that before a derivational affix. Although it never appears phonetically when the verb stem ends in a single consonant, as in (161a), evidence to support the postulation of its presence in underlying forms is derived from the observation that it sometimes occurs when the verb stem ends in more than one consonant and always after sequences of obstruent+liquid, as in (161b):

- (161) a) quittera /kɪt=ə=r=a/ [kɪtra] '(he) will leave'  
aimerait /ɛm=ə=r=ɛ/ [ɛmrɛ] '(he) would love'
- b) regardera /rɛgard=ə=r=a/[rɛgard(ə)ra] '(he) will look at'  
fixerait /fik=ə=r=ɛ/ [fik(ə)rɛ] '(he) would fix'  
montrera /mɔ̃tr=ə=r=a/ [mɔ̃trəra] '(he) will show'  
semblerait /sɔ̃bl=ə=r=ɛ/ [sɔ̃bləɛ] '(he) would seem'

Further evidence to support the assumption of an underlying schwa, at least in the conditional tense of Class I verbs comes from the observation that a schwa always appears phonetically between a consonant-final stem and the affix =r= in the first and second persons plural.

For example:

(162) <u>quitterions</u>	[kɪtɛrjɔ̃]	'(we) would leave'
<u>regarderiez</u>	[rɛgɑrdɛrjɛ]	'(you) would look at'
<u>fonderiez</u>	[fɔ̃dɛrjɛ]	'(you) would found'

If schwa were not present in the underlying structure of the above forms, then they would behave like Class III verbs and undergo yod insertion instead of yod formation.<sup>1</sup> Compare, for example:

(163) a) <u>fondriez</u>	/fɔ̃d=r=i=e/	'(you) would melt'
yod formation:	—————	(blocked by * /CLj/)
yod insertion:	fɔ̃d r i j e	
phonetic:	[fɔ̃drije]	
b) <u>fonderiez</u>	/fɔ̃d=ɛ=r=i=e/	'(you) would found'
yod formation:	fɔ̃d ɛ r j e	
VCE <sub>2</sub> :	—————	(blocked by * /CLj/)
phonetic:	[fɔ̃dɛrjɛ]	

In order to account for the data in (161), we shall adopt Dell's analysis and consider that the schwas in a) are deleted by VCE<sub>2</sub> and that the following minor optional rule accounts for the behaviour of schwa in the forms in b):<sup>2</sup>

<sup>1</sup>For a discussion of these rules, see Tranel 1974b:99-103.  
 Yod Formation: i → j / \_\_\_ V  
 Yod Insertion: ∅ → j / i \_\_\_ V

<sup>2</sup>See Dell 1973b:231-2. The symbol (=) is the boundary recently proposed by Dell to occur in front of all inflexional suffixes except /z/ and /t/. Use of this boundary enables us to distinguish the behaviour of schwa in, e.g., calmerai /kalm=ɛ=r=e/ [kalm(ɛ)re] '(I) shall calm' vs. palmeraie /palm+ɛ+rɛ/ [palmɛrɛ] 'palm-grove.'

(164) E-FUT:  $\text{ə} \rightarrow \emptyset / \text{C C} \underline{\quad} =$   
 (OPT)

Condition:  $\text{C C} \neq \text{Obstruent+Liquid}$

This concludes our discussion of the historical development and synchronic behaviour of interconsonantal schwa. The final section of this chapter will be devoted to an examination of the manner in which these various deletion rules apply in instances where schwa occurs in contiguous syllables.

#### 4.5. Schwa in contiguous syllables

If one examines the well-formed phonetic outputs derived from underlying representations in which schwa occurs in contiguous syllables, the following constraint is always found to hold true:

(165) Constraint:

INI,  $\text{VCE}_1$  and  $\text{VCE}_2$  can delete as many schwas as fit their respective structural descriptions on condition that the final output does not contain any sequence of consonants  $\text{C}_1\text{C}_2\text{C}_3$  where  $\text{C}_2$  and  $\text{C}_3$  were separated by a schwa in the input.

The validity of this constraint is evident if we compare the possible pronunciations with the ungrammatical pronunciation of the phrase je demeure ici 'I live here,' in which the first schwa is subject to INI, the second to  $\text{VCE}_1$ :

- (166) /||ʒə#dœmœr#isi||/  
 a) [ʒdœmœrisi]                      b) \*[ʒdmœrisi]  
       [ʒədœmœrisi]  
       [ʒədœmœrisi]

In the well-formed phonetic representations in (166a), no three-member consonant sequences are present in the output which derive from underlying forms in which schwa occurred between  $C_2$  and  $C_3$ , whereas the ungrammatical form in (166b) does contain a three-member consonant sequence in which a schwa originally occurred between  $C_2$  and  $C_3$ .

It is evident that (165) is not a 'derivational constraint' (in the sense that it is the reflection of some phonotactic constraint),<sup>1</sup> but rather a 'basic constraint' which logically follows from the form of the schwa deletion rules.<sup>2</sup> In our previous discussion of  $INI$ ,  $VCE_1$  and  $VCE_2$ , it was seen that none of these processes applied to a given form if more than a single consonant

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<sup>1</sup>See Dell 1973b:246. For example, in il veut que ce travail soit bien fait 'he wants this work to be done well,' we can have the pronunciations [ $\cdot\cdot v\phi ks\epsilon tra \cdot\cdot$ ], [ $\cdot\cdot v\phi ks\epsilon tra$ ] but not \* $[\cdot\cdot v\phi kstra \cdot\cdot]$  even though the sequence [kstr] occurs for example in extrême [ekstrɛm] 'extreme,' extraire [ekstrɛr] 'to extract,' etc. Cf. also il voit que ce plan marche bien 'he sees that this plan is working well' which can be realized phonetically as [ $\cdot\cdot waksep|ã \cdot\cdot$ ], [ $\cdot\cdot waksep|ã \cdot\cdot$ ] but not \* $[\cdot\cdot waksp|ã \cdot\cdot]$  despite the fact that [ksp|] occurs for example in expliquer [eksp|ike] 'to explain,' explorer [eksp|ore] 'to explore,' etc.

<sup>2</sup>The terms 'derivational constraint' and 'basic constraint' are borrowed from Kisseberth (1970) who distinguishes them in the following way: "Basic constraints are particular to the rule itself, unconnected with any other facts about the grammar. Derivative constraints are simply reflections of some more general constraint that is not peculiar to the rule itself" (128).

preceded the affected schwa. Compare, for example:

(167)	INI:	<u>  d(e)main</u>	vs.	<u>  prenez</u>
	VCE <sub>1</sub> :	<u>le m(e)lon</u>	vs.	<u>sept melons</u>
	VCE <sub>2</sub> :	<u>avidement</u>	vs.	<u>fortement</u>

This restriction on the consonantal environment to the left of schwa was reflected in the form of the deletion rules which we repeat here for convenience (with simplification in the case of the variable processes):

INI:	$\epsilon \rightarrow \langle \emptyset \rangle /   c \_ (\#)c_1$
VCE <sub>1</sub> :	$\epsilon \rightarrow \langle \emptyset \rangle / v\#_1c \_ (\#)c_1$
VCE <sub>2</sub> :	$\epsilon \rightarrow \emptyset / v c \_$

According to the structural description of all three rules, deletion can never occur if more than one consonant occurs to the left of schwa. In what follows, we shall see that this single consonant constraint, which holds when only one syllable containing schwa is subject to one of the three deletion rules, will have significant consequences for the order of application of INI, VCE<sub>1</sub> and VCE<sub>2</sub> in relation to each other. It will also have important implications concerning the manner in which the problem of multiple application of a single rule is to be treated.

#### 4.5.1. Ordering relations re INI, VCE<sub>1</sub> and VCE<sub>2</sub>

In order to insure that no two schwas in consecutive syllables are deleted, thus violating the constraint (165), the following

ordering relationships must be established: 1)  $VCE_1$  must apply before  $VCE_2$ ; 2) INI must apply before  $VCE_1$ ; 3) INI must apply before  $VCE_2$ . The following examples will serve to illustrate the necessity for these orderings:

(168)

a)  $VCE_1$ - $VCE_2$ :tu recevais 'you were receiving'

i) /t̥#rəseve/	ii) /t̥#rəseve/	iii) /t̥#rəseve/
$VCE_1$ t̥#r səve		$VCE_2$ t̥#rəs ve
$VCE_2$ _____	t̥#rəs ve	$VCE_1$ t̥#r s ve
[t̥r̥səve]	[t̥r̥əsve]	*[t̥r̥sve]

In /t̥#rəseve/, the first schwa fits the structural description for  $VCE_1$  and the second that for  $VCE_2$ . The environments in fact overlap, since the first schwa constitutes the v part of the structural description for  $VCE_2$ :

 $VCE_1$ : v#C\_ $VCE_2$ : VC\_

Since  $VCE_1$  is a variable rule, it may or may not apply. If it does, as in i), its output is a representation to which  $VCE_2$  cannot apply, since schwa is now preceded by two consonants. Should  $VCE_1$  not apply to efface the first schwa, as in ii), then  $VCE_2$  can and must apply, since it is an obligatory rule. If the opposite order held, with  $VCE_2$  applying before  $VCE_1$ , both schwas would be deleted, thus violating the constraint (165). In neither output in (i-ii), however,

have two schwas in consecutive syllables been effaced. The application of  $VCE_1$  before  $VCE_2$  is thus considered to be a 'transparent' ordering relationship with respect to the constraint. The impossibility for more than one schwa to be deleted results from the bleeding effect that the application of  $VCE_1$  has on  $VCE_2$ . As a result of the application of the former rule, the potential for the latter process to apply is destroyed by the presence of two consonants to the left of the remaining schwa.

b) INI- $VCE_1$ :

je reviens 'I am coming back'

i) /  žə#rəvjě/	ii) /  žə#rəvjě/	iii) /  žə#rəvjě/
INI   ž #rəvjě		$VCE_1$   žə#r vjě
$VCE_1$ —————	žə#r vjě	INI   ž #r vjě
[žrəvjě]	[žərvjě]	*[žrvjě]

The well-formed phonetic representations in b) demonstrate that, just as in a), the potential for the second schwa to delete depends on what happens to the first schwa. Again, the structural descriptions of the two rules partially overlap when applied to the input string; the v in the structural description of  $VCE_1$  is the schwa that is also subject to INI: /||žə#rəvjě/

INI: ||c\_

$VCE_1$ : v#c\_

Since both rules are variable in this case, it is possible for neither of them to apply, thus allowing as well, the surface manifestation [žərvjě]. If INI does apply, however, effacing the first schwa

as in i), then the potential for  $VCE_1$  to apply is destroyed since there are now two consonants preceding the remaining schwa. Should INI not apply, the environment then remains intact for  $VCE_1$  to delete the first schwa, as exemplified in ii). The starred output in iii) demonstrates that  $VCE_1$  cannot precede INI, since if it did, both schwas would be effaced in violation of the constraint (165). The transparency of the order  $INI-VCE_1$ , just as with  $VCE_1-VCE_2$  results from the bleeding relationship between the two rules.

c)  $INI-VCE_2$ :

devenons riches 'let's get rich'

i) /  dɛvənɔ̃#riʃ/ INI   d vənɔ̃#riʃ VCE <sub>2</sub> ————— [dvənɔ̃riʃ]	ii) /  dɛvənɔ̃#riʃ/   dɛv nɔ̃#riʃ [dɛvnɔ̃riʃ]	iii) /  dɛvənɔ̃#riʃ/ VCE <sub>2</sub>   dɛv nɔ̃#riʃ INI   d v nɔ̃#riʃ *[dvnɔ̃riʃ]
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The well-formed outputs in c) again demonstrate that only one of two schwas in adjacent syllables can be deleted. The transparency of the constraint is maintained by the bleeding ordering relationship established between the two rules. The successful application of INI (i), destroys the conditions for the subsequent application of  $VCE_2$  by effacing the first schwa. In ii) where INI fails to apply, the structural description of  $VCE_2$  remains satisfied and the second schwa is obligatorily deleted. The ill-formed output in iii), obtained by ordering  $VCE_2$  before INI, renders the constraint (165) opaque, since it produces surface sequences of three consonants, the

latter two of which were originally separated by a schwa in the input string.

#### 4.5.2. Multiple application of $VCE_1$

In addition to the above examples where schwas in contiguous syllables were subject to deletion by different rules, the situation may also arise in which an input string with schwa in adjacent syllables may satisfy the structural description for a single rule at several points. In such an instance we are faced with what is known as the 'multiple application' problem.<sup>1</sup>

Consider for example the underlying structure of the phrase on me le refuse 'they are refusing me it': /ɔ̃#mə#lə#rəfüz/. Each of the schwas in this string satisfies the structural description for  $VCE_1$ , that is, each occurs in the environment  $V\#_1C\_(\#)C_1$ . According to the theory of rule application as presented in Chomsky and Halle (1968) (henceforth SPE), the following principle is assumed to hold under such conditions:

To apply a rule, the entire string is first scanned for segments that satisfy the environmental constraints of the rule. After all such segments have been identified in the string, the changes required by the rule are applied simultaneously (344).

It is immediately evident that if  $VCE_1$  applied to /ɔ̃#mə#lə#rəfüz/ in accordance with this Simultaneous Application Principle, the following output would result: \*[ɔ̃m|rüz]. All of the schwas would be effaced regardless of the fact that the application of  $VCE_1$  at one

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<sup>1</sup>"This question arises when a string has more than one segment that meets the structural description of the rule, or when the output of the rule also serves as its (nonvacuous) input" (Howard 1972:8). It is with the former situation that we shall be concerned.

point in the input string may potentially interfere with its application at another point. Within the standard approach to the multiple application problem,

It is the original input structure that determines a rule's applicability to a given  $\underline{x}$ , not the structure that results from changing other  $\underline{x}$ 's in the string to  $\underline{y}$ 's. SPE claims, then, that one application of a rule cannot 'bleed' another application of the same rule (Kenstowicz and Kisseberth 1973:13-4).

The behaviour of  $VCE_1$  with respect to a given string indicates, however, that the Simultaneous Application Principle is not an adequate device for handling the problem of multiple application in this instance. If we examine the possible pronunciations for the string /ʒ#mæ#læ#rəfüz/, we see that the same constraint that governed the interaction of two separate rules of schwa deletion also determines the well-formedness of surface forms derived from underlying forms subject to multiple application of the single rule  $VCE_1$ :

(169) [ʒmlərɸüz]	[ʒmælərɸüz]
[ʒmælɸrɸüz]	*[ʒmlɸrɸüz]
[ʒmlərɸüz]	*[ʒmælɸüz]
[ʒmælərɸüz]	*[ʒmlɸüz]

All of the ill-formed phonetic representations, but none of the well-formed outputs contain sequences of three consonants where  $C_2$  and  $C_3$  were separated by a schwa in the input. As the grammatical pronunciations indicate, then, it is necessary to constrain  $VCE_1$  in multiple application contexts so that it cannot efface two successive schwas.

Various attempts have been made to modify the SPE Simultaneous Application Principle in order to account for this and other counter-examples to the standard analysis (e.g., global constraints, Anderson's 'Revised Simultaneous Application Convention,' etc.). It is now generally agreed,<sup>1</sup> however, that the problem of multiple application, at least as regards the rule under discussion here, is best handled by an alternative principle for rule application which has been widely discussed,<sup>2</sup> and termed by Tranel the 'Principle of Iterative Rule Application.' He defines the principle as follows:

A rule R applies to a string S, its phonological domain of application, either from left-to-right or from right-to-left. In the order thus specified,<sup>3</sup> the segments of the string are checked for the environmental constraints of the rule and changed as required by the rule one at a time. Any change made on any segment of the string is taken into consideration for the subsequent applications of the rule (Tranel 1974a:9).

In order to illustrate the implications of this proposal, consider how it would affect a string of schwas as in the following phrase:

(170) il vient de me le dire 'he just told me'

/#i|#vjẽ#də#mə#lə#dir#/  
 \_\_\_\_\_

#i|#vjẽ#d #mə#lə#dir# VCE<sub>1</sub> (first application)

#i|#vjẽ#d #mə#l #dir# VCE<sub>1</sub> (second application)

<sup>1</sup>See Dell 1973b:248-9; Howard 1972:138-40; Morin 1974:71; Tranel 1974a:9-10.

<sup>2</sup>See, for example, Howard 1972; Kenstowicz and Kisseberth 1973; Tranel 1974a.

<sup>3</sup>For a discussion of the predictability of directionality of iterative rules, see Howard 1972:28-35.

In this instance, the first and third schwas are deleted. If vient is replaced by viennent, however, a different pattern is seen to occur:

(171) ils viennent de me le dire 'they just told me'

/#i|#vjɛn#də#mə#lə#dir#/  
 #i|#vjɛn#də#m #lə#dir#

The first schwa cannot be deleted since the preceding word ends in a consonant. Its retention, however, provides an environment that satisfies the structural description of  $VCE_1$  to delete the second schwa. Notice that the left-to-right iterative application of  $VCE_1$  is self-bleeding, in the sense that each application of the rule destroys the environment for deletion of the following schwa.

The output in (170) is not the only possible pronunciation of the phrase il vient de me le dire. Since  $VCE_1$  is a variable rule, it may or may not apply at any point where the structural description of the rule is satisfied during the scansion of the string from left-to right. Besides the pronunciation in (170), the following are also derivable by iterative application of  $VCE_1$ :

(172) [i|vjɛdɛmlɛdir]  
 [i|vjɛdɛmɛdir]  
 [i|vjɛdmɛdir]  
 [i|vjɛdɛmɛlɛdir]

Impossible pronunciations would be the following:

(173) \*[iɪvʲɛdmlɛdir]

\*[iɪvʲɛdɛmlɛdir]

\*[iɪvʲɛdmlɛdir]

The ill-formedness of the above sequences results from the fact that two or more adjacent schwas have been deleted. These ungrammatical outputs would not be produced if  $VCE_1$  applied iteratively since, at any point in the derivation a schwa can only be effaced if it is preceded by a single consonant. Any previous application of the rule produces a sequence of two consonants; consequently, the schwa which follows a deleted schwa can never be effaced.

This solution to the multiple application problem (i.e., iterative application) is attractive<sup>1</sup> since the same conditions that governed the interaction of two different schwa deletion rules apply in the same fashion as regards successive applications of the single rule  $VCE_1$ . The same type of bleeding ordering relationship that was established between  $INI-VCE_1$ ,  $VCE_1-VCE_2$  and  $INI-VCE_2$  when they had the potential for affecting schwas in contiguous syllables also characterizes the relation between two successive applications of  $VCE_1$ .

As an historical footnote to conclude this discussion of rule ordering and rule application, it is interesting to note that the behaviour of schwa in contiguous syllables which we have observed in

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<sup>1</sup>It is also in accordance with the position taken by Kenstowicz and Kisseberth who adopt this solution as a possible alternative device which "would permit the multiple application problem to be reduced to the general problem of rule interaction..." They argue that "any analysis of the multiple application problem that assumes a difference between the interaction of separate rules and the interaction of different applications of the same rule has little empirical foundation" (1973:39).

the present-day language does not appear to have changed significantly since at least the seventeenth century. In the grammar of Duëz (1657) we find, for example, the interaction of INI and VCE<sub>1</sub>, and multiple application of VCE<sub>1</sub>, manifest in the alternate pronunciations indicated by the author for the following phrases:<sup>1</sup>

(174)

- i. J~~é~~ seray tousjours vostre r~~é~~devable. 'I shall always be  
Je s~~é~~ray tousjours vostre r~~é~~devable. indebted to you'
- ii. Vous me l~~é~~ voulez faire accroire. 'You want to make  
Vous m~~é~~ le voulez faire accroire. me believe it'
- iii. J~~é~~ ne l~~é~~ croy pas. 'I don't believe it'  
Je n~~é~~ le croy pas.

The example in (174iii) would seem to indicate that in the the seventeenth century the application of INI and VCE<sub>1</sub> was less restricted than it is today. The current language does not allow both these alternatives. Within the sequence, je ne, it is necessarily the schwa of ne which is deleted, or else both schwas are pronounced.<sup>2</sup> In other words, only the latter pronunciation of (174iii) found in the seventeenth century is considered grammatical today.

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<sup>1</sup>Duëz 1657:131-3. Cf. also the remark of Fauleau (1781) who says that "dans le langage ordinaire, s'il ne se trouve qu'un e féminin au milieu des mots, 'on ne le prononce point; et s'il s'en trouve plusieurs de suite, on n'en prononce gueres que de deux l'un ...j'te rdeumandrai [= j~~é~~ te r~~é~~demand~~é~~rai]'" (Thurot 1966. I:149).

<sup>2</sup>See Delattre 1966:26.

## CONCLUSION

Our study of the historical development of schwa in French has provided numerous occasions for the consideration of a rich and diverse set of problems having many interesting implications for linguistic theory. Within the theoretical framework adopted here, we have seen how certain of the concepts proposed to account for diachronic and synchronic phenomena have received support from the various (morpho)phonological processes involving schwa.

We have observed, for instance, how individual linguistic changes affecting schwa have served as supporting evidence for certain of the mechanisms by which historical change is assumed to be implemented. For example, 'rule addition' characterized such processes as PAUS, INI, VCE<sub>1</sub> and VCE<sub>2</sub>. 'Rule loss' was attributed to Early Modern French apocope and to the Early Old French rules of pretonic syncope and post-tonic apocope. Rule loss was also the mechanism through which simplification was effected in the morphological readjustment rule for the imperfect tense marker (v p. 125). The concept of 'lexical diffusion' was seen to be an important device by means of which the processes of syncope and apocope and deletion of schwa in hiatus brought about restructuring. In addition, we have had several opportunities to resort to the notion, 'variable rule,' in order to provide an adequate account for the complexity of certain

processes existing both in previous stages of the language and in its current state, e.g., the Early Old French rules of syncope and apocope in object pronouns, the Modern French rules of INI,  $VCE_1$ , and schwa epenthesis. The recent development of a formal apparatus to express the notion of variable constraints on rule application has proven extremely valuable for this study.

Recourse to certain principles of phonological theory was also necessary in order to obtain a framework for handling a number of functional relationships among rules. For instance, a 'feeding' relationship was established between final-t deletion and elision in Old French, whereas a 'bleeding' relationship characterized the interference between  $INI-VCE_1$ ,  $VCE_1-VCE_2$ , etc. The notion of linear ordering was found to be an essential device in accounting, for example, for the interaction of the various rules determining the deletion of schwa in contiguous syllables, as well as for the functioning of E-AJ with respect to  $VCE_2$  and to the stress assignment rule (v p. 309). One set of data, that related to the multiple application of  $VCE_1$ , posed problems for the standard theory. However, a more recent alternative to the Simultaneous Application Principle, termed the Principle of Iterative Rule Application, proved to be an adequate theoretical device in accounting for the phenomena of multiple application.

Considerations of naturalness as regards the formulation of phonological rules and underlying representations have played a central role in shaping and constraining our analysis at all times.

Related to naturalness was the notion of persistent rules characterizing natural processes (e.g., elision) which have continued to operate in the language over extended periods of time with only minor changes in the form of the rules.

The advantages of taking a long-range view of the behaviour of schwa through the centuries became increasingly evident as the study progressed. Not only did an extended picture of the changing language help to better understand such things as persistent rules and the lexical gradualness of sound change, but also it shed light on the analysis of problems found in the current state of the language. The various processes of syncope, for instance, sometimes considered to be recent innovations in French, were seen to have been in existence for several centuries and, rather than having extended their scope of application have, if anything, become more restricted in the modern language. Evidence from earlier periods has at times aided us in preferring certain solutions over others, for example, the treatment of final schwa. It has also provided support and contributed to a better understanding of certain recently proposed analyses dealing with problematic issues in French phonology, for example, Tranel's concrete analyses of vowel nasalization and consonant truncation as morphologized rules. The long-range scope of our study has also illustrated, in two instances, the manifestation of another mechanism characteristic of language evolution, that of rule inversion. The Modern French rules of schwa adjustment (E-AJ) (v p. 306) and epenthesis are both examples of this type of change.

The importance of textual evidence for the composition of this thesis cannot be overly emphasized. Due to the fact that the first grammatical treatises of the language did not appear until the sixteenth century, all our interpretations of the state of the language prior to this period are based almost entirely on the generalizations formed from the study of literary texts. The many instances which called for the scansion of poetry<sup>1</sup> in order to substantiate assumptions related to the functioning of a particular process again exemplified the complexity involved in the reconstruction of earlier language stages. The necessity for determining the precise dating of a work, the importance of isolating the exact dialect of an author, the type of audience for which the work was written, etc., all contribute to the difficulties one has to face in the pursuit of a uniform picture of the Old and Middle French periods.

Although we have not dealt extensively with notions of style involved in the behaviour of schwa, the analysis we have proposed does not consider that the presence or absence of schwa in a given utterance is solely due to the application of a particular rule in one style of speech as opposed to its non-application in another.

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<sup>1</sup>Although, for a variety of reasons, the scansion of poetry might be questioned as a valid reflexion of the pronunciation of schwa, such a scansion gives more reliable results when used as an indication of the suppression of schwa. If, for example, in a decasyllabic line there would be eleven syllables counting the schwa, we may reliably conclude that the schwa was not counted. Since the most important use of scansion in this thesis was to indicate when schwa first began to be deleted, not to indicate when it was maintained, we may draw justifiable inferences from a study of versification.

For example, as regards the rules INI and  $VCE_1$ , style constituted but one of a number of variable constraints determining the probability of the rules' application. The rules we have proposed here, furthermore, are not intended to apply to poetry, the reading of which is governed by a number of orthographic rules which must be learned by the native speaker. The pronunciation of schwas in traditional poetry, whose syllable-counting rules were fixed during the late sixteenth and early seventeenth centuries, reflects the state of the language around the end of the Middle French period before such rules as apocope and  $VCE_2$  entered the language and brought about lexical restructuring.

Finally, the multitude of related problems that constantly emerged in the transition from one area of detailed study to the next demonstrated the impossibility of avoiding issues not central to the specific topic of discussion, but directly affected by the analysis. This interrelationship between a variety of mutually interacting factors served to enhance the view of language as a "dynamic system."

APPENDIX I

DEVELOPMENT OF THE MODERN FRENCH ə/ɛ ALTERNATION

In Old French, schwa was involved in an interesting set of alternations with the diphthongs [jɛ] and [ej]. These alternations were determined for the most part by conditions of stress. The diphthongs occurred in stressed syllables, schwa in unstressed syllables. The following examples of verbs where stress shifts from the stem to the person ending, illustrate these alternations:

(175) a)

achieve/achevons-achevera	'terminate (3sg/lpl-3sg fut)'
[ačjéʋə/ačəvũns-ačəvərá]	
crieve/crevons-crevera	'crush " '
[krjéʋə/kрэvũns-krəvərá]	
depiece/depeçons-depecera	'cut up " '
[dəpjésə/dəpəsũns-dəpəsərá]	
embrievе/embrevons-embrevera	'draw up " '
[ãbrjéʋə/ãbrəvũns-ãbrəvərá]	
engriege/engregeons-engregera	'grieve " '
[ãngrjéʋə/ãngrəʋũns-ãngrəʋərá]	
esmiere/esmerons-esmerera	'purify " '
[ezmjéřə/ezmərũns-ezmərərá]	

grieve/grevons-grevera	'overpower (3sg/lpl-3sg fut)'		
[grjévə/grévũns-grævərə]			
lieve/levons-levera	'raise	"	'
[ljévə/lævũns-lævərə]			
b)			
peise/pesons-pesera	'weigh	"	'
[pɛjzə/pɛzũns-pɛzərə]			
adeise/adesons-adesera	'touch (O.F.)	"	'
[adɛjsə/adɛsũns-adɛsərə]			
aveire/averons-averera	'accomplish (O.F.)	"	'
[avɛjrə/avɛrũns-avɛrərə]			
preie/preons-preera	'pillage (O.F.)	"	'
[prɛjə/prɛũns-prɛərə]			
seivre/sevrons-sevrera	'wean	"	'
[sɛjvrə/sɛvrũns-sɛvrərə]			
ceile/celons-celera	'hide	"	'
[t <sup>s</sup> ɛjlə/t <sup>s</sup> ɛlũns-t <sup>s</sup> ɛlɛrə]			
meine/menons-menera	'lead	"	'
[mɛjnə/mɛnũns-mɛnərə]			
aseine/asenons-asenera	'indicate (O.F.)	"	'
[asɛjnə/asɛnũns-asɛnərə]			

In order to derive the phonetic forms in (175), underlying representations are set up with the vowels ɛ and e for (175a) and (175b), respectively:

(175') a) /ačɛv/	b) /pes/
/krɛv/	/ades/
/dɛpɛs/	/aver/
/embɛv/	/pre/
/engɛʝ/	/sevr/
/esmɛr/	/t <sup>s</sup> el/
/grɛv/	/men/
/lɛv/	/asen/

The diphthong [ɛj] in the forms in (175a) is derived by the following rule:

(176) Low Vowel Diphthongization:<sup>1</sup>

$$\emptyset \rightarrow \left[ \begin{array}{c} G \\ \alpha\text{back} \\ \alpha\text{round} \end{array} \right] / \text{---} \left[ \begin{array}{c} V \\ +\text{low} \\ \alpha\text{back} \\ \alpha\text{round} \\ +\text{stress} \end{array} \right] C_0^1$$

Insert a glide preceding stressed ɛ and ɔ (followed by no more than one consonant) which agrees with these vowels in backness and rounding.

The constraint on the rule which blocks diphthongization of ɛ when it is followed by more than one consonant is required because of such cases as:

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<sup>1</sup>Walker 1971:21. Besides accounting for the diphthongization of stressed ɛ, this rule also serves to derive the diphthong wɔ (subsequently shifted to wɛ) from underlying ɔ in such alternations as: [trwɛf/trɔvɔns] '(I/we) find,' [ɟwɛ/ɟɔvɔns] '(I/we) play,' [mwɛl/mɔlɔns] '(I/we) grind.' etc. Additional constraints not germane to the present discussion must be built into this rule (see Walker 1972: 16-7).

(177) feste	/fɛstə/	'festival'
teste	/tɛstə/	'head'
herbe	/ɛrbə/	'grass'
ivern	/ivɛrn/	'winter'
fenestre	/fənɛstrə/	'window'

The diphthong [ej] in the examples in (175b) is derived from underlying e by the rule for mid vowel diphthongization:

(178) Mid Vowel Diphthongization:<sup>1</sup>

$$\emptyset \rightarrow \left[ \begin{array}{c} \text{G} \\ \alpha\text{back} \\ \alpha\text{round} \end{array} \right] / \left[ \begin{array}{c} \text{V} \\ -\text{high} \\ -\text{low} \\ \alpha\text{back} \\ +\text{stress} \end{array} \right] \longrightarrow \text{C}_0^1$$

Insert a glide following stressed e and o (followed by no more than one consonant) which agrees with these vowels in backness and rounding.

Again, the constraint which prevents diphthongization of e followed by no more than one consonant is necessary due to such forms as:

(179) ferm	/fɛrm/	'firm'	aresté	/arestə/	'fish hook'
vert	/vɛrt/	'green'	verge	/vɛrʝə/	'rod'
creste	/krestə/	'summit'			

<sup>1</sup>Walker 1971:21. Rule (178) derives the diphthong [ow] from underlying o in such alternations as [plɔ̃wr/plɔ̃rɔ̃ns] '(I/we) cry,' [labɔ̃wrɛ/labɔ̃rɔ̃ns] '(he/we) work,' [savɔ̃wrɛ/savɔ̃rɔ̃ns] '(he/we) savour, etc. As was the case with (176), the form of this rule is somewhat oversimplified. Clusters of Obstruent+Liquid, e.g., seivre do not block the rule in most lexical items (cf. also peivre 'pepper,' teivre 'animal (O.F.),' but metre 'to put'). See Ibid.:54.

The schwa in the pretonic syllables which alternates with [jɛ] and [ej] in the forms in (175) is derived by a rule of schwa conversion:

(180) Schwa Conversion:

$$\begin{bmatrix} \text{V} \\ -\text{back} \\ -\text{high} \\ -\text{stress} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{back} \\ +\text{low} \\ -\text{tense} \end{bmatrix} / \text{--- } C_0^1 \text{V}$$

Pretonic  $\underline{\epsilon}$ ,  $\underline{e}$  become  $\underline{ə}$  in open syllables.

In closed syllables, the Schwa Conversion rule does not apply, as illustrated by such cases as:

(181) <u>s</u> ervant	'servant'
fer <u>m</u> er	'to close'
ver <u>t</u> u	'virtue'
fer <u>t</u> e	'fort'
gouver <u>n</u> er	'to govern'
enter <u>v</u> er	'to interrogate'
rever <u>ch</u> ier	'to examine'

In certain instances, underlying  $\underline{\epsilon}$  and  $\underline{e}$  alternated phonetically as [ɛ] and [e] with [ə] without undergoing diphthongization. For example:

(182)

- a) apele/apelons-apelera 'call (3sg/lpl-3sg fut)'  
 [apɛl'ə/apəl'ũns-apəl'ɛrə]

- b) tavele/tavelons-tavelera 'stain (3sg/1pl-3sg fut)'  
 [tavɛ|ə/tavɛ|ũns-tavɛ|ərə]
- c) ostel/ostelier-ostelerie 'inn/inn-keeper-hostelry'  
 [ostɛ|/ostɛ|je-ostɛ|əriə]
- d) jet/jetons-jetera 'throw (1sg/1pl-3sg fut)'  
 [ʃɛ|t/ʃɛ|tũns-ʃɛ|tərə]

Because of such cases as those in (182), the rules of diphthongization (176, 178) were rendered opaque, since their effects were not manifested at the surface phonetic level in such forms. /apɛ|/ and /tavɛ|/ would, therefore, have to be marked with the rule feature [-Low Vowel Diphthongization] and /ostɛ|/ and /ʃɛ|t/ with [-Mid vowel Diphthongization] in the lexicon.

In Middle French, the alternations [jɛ]/[ɛ] and [ej]/[ɛ] in the examples in (175) were levelled. Schwa was generalized to cases where the stem received stress,<sup>1</sup> so that one had the uniform paradigms:

(183) a)

- achever /aʃɛv=e/: acheve/achevons-achevera  
 [aʃɛvə/aʃɛvũ-aʃɛvərə]
- crever /krɛv=e/ : creve/crevons-crevera  
 [krɛvə/krɛvũ-krɛvərə]
- depecer /depɛs=e/: depece/depeçons-depecera  
 [dɛpɛsə/dɛpɛsũ-dɛpɛsərə]

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<sup>1</sup>See Fouché 1967:67-8, Rosset 1904:441. Lanoue in 1596 recognizes

grever /grɛv=e/: greve/grevons-grevera

[grɛvə/grɛvɔ̃-grɛvɛra]

lever /lɛv=e/ : leve/levons-levera

[lɛvə/lɛvɔ̃-lɛvɛra]

b)

peser /pɛs=e/ : pese/pesons-pesera

[pɛzə/pɛzɔ̃-pɛzɛra]

celer /sɛl=e/ : cele/celons-celera

[sɛlɛ/sɛlɔ̃-sɛlɛra]

sevrer /sevr=e/: sevre/sevrons-sevrera

[sɛvrɛ/sɛvrɔ̃-sɛvrɛra]

mener /mɛn=e/ : mene/menons-menera

[mɛnɛ/mɛnɔ̃-mɛnɛra]

At this stage, then, we can assume that the diphthongization rules (176) and (178) no longer applied to the above forms and that the schwa conversion rule was generalized through loss of the feature [-stress] from the structural description of (180), since the only condition for schwa conversion now is that ɛ and e be in an open syllable. The modified rule can thus be formulated as:

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the first e as schwa in peze (peser): "'empeze avec de l'empois,' 'veze, vne cornemuse,' 'veze (joue de la veze),' et il ajoute a propos des mots en éze long, comme diocése, thése, etc.: 'Ceux cy ri-ment fort mal avec la suyante terminaison, eze, pour ce qu'ils ont l'é masculin en la penultiesme longue, au lieu qu'elle l'a breue avec l'e feminin'" (Thurot 1966. I:45).

(180') Schwa Conversion:

$$\begin{bmatrix} \text{v} \\ -\text{back} \\ -\text{high} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{back} \\ +\text{low} \\ -\text{tense} \end{bmatrix} / \text{--- } \text{c}_0^1 \text{v}$$

Since rule (180') converted all instances of  $\underline{\varepsilon}$  and  $\underline{e}$  to  $\underline{e}$  in alternations such as those in (175), we can assume that these segments were 'relexicalized' as schwa, and that the rule (180') was 'lexicalized,' which implies its elimination from the grammar.<sup>1</sup> The underlying representations of the morphemes in (175') which survived into Middle French are now restructured as:

(175'') a) /aʃev/	b) /pes/
/krev/	/səvr/
/depəs/	/səl/
/grev/	/mən/
/ləv/	

The situation of non-alternation in the paradigms of the verbs in (175'') did not last long, however. In the seventeenth century, a new rule was added to the grammar which converted schwa to  $\underline{\varepsilon}$  in certain paradigmatic forms. In 1644, Lancelot states that

'Dans les verbes qui ont un  $\underline{e}$  féminin à la penultième de l'infinitif, comme peser, mener, il se change en  $\underline{e}$  ouvert dans les tems qui finissent par cet  $\underline{e}$  féminin; de sorte que l'on dit, cela se pese, il me mene, comme s'il y avoit paise, maine, etc. en quoi faillent souvent les provinciaux, prononçant la première dans pese comme dans peser, et de même les autres' (Thurot 1966. I:46-7).

<sup>1</sup>See Vennemann 1972:211.

Oudin, in his Grammaire françoise rapportée au langage du temps, published in 1633, remarks that

'en quelques verbes où l'e féminin se rencontre, principalement en ceux-cy, crever, lever, mener et leurs composez, il se prononce ouvert...par tout au futur et aux temps qui en sont formez ...ie leueray...leuerois,' etc. (Ibid.:139).

In L'Art de bien prononcer et de bien parler la langue françoise (1687), Hindret attests that

'les verbes en er qui ont un e féminin sur la penultième syllabe de l'infinitif changent cet e féminin en e ouvert...aux antepenultièmes syllabes des futurs...et de leurs imparfaits terminez en rois,...comme je chancèlleray...je mèneray...j'achèteray...' (Ibid.:139-40).

From such statements as the above, what seems to have been taking place was that schwa was converted to  $\underline{\epsilon}$  when it was followed by another schwa in the next syllable. Actually, in not all cases where two schwas followed on each other in consecutive syllables was the first  $\underline{\epsilon}$  changed to  $\underline{\epsilon}$ . For this to occur, the consonant following the first schwa had to form part of the same morpheme, and the second schwa had to be followed directly by a boundary. Semiformally, the rule can be stated as:

(184) Schwa Adjustment:

$$\epsilon \rightarrow \underline{\epsilon} / \text{---} \overset{\frown}{C_1} \epsilon \text{ [-segment]}$$

By (184), schwa was changed to  $\underline{\epsilon}$  in such cases as:

(185) a) (il) mène	(il) mènera	(il) mènerait
/mən=ə/	/mən=ə=r=a/	/mən=ə=r=ε/
[m <u>ε</u> n(ə)]	[m <u>ε</u> n <u>ɛ</u> ra]	[m <u>ε</u> n <u>ɛ</u> r <u>ɛ</u> ]

b) (il) achève	(il) achèvera	(il) achèverait
/aʃəv=ə/	/aʃəv=ə=r=a/	/aʃəv=ə=r=ɛ/
[aʃɛv(ə)]	[aʃɛvəra]	[aʃɛvəre]

but not in, for example ressemelez /rə+səməl=e/ '(you) re-sole,' where the consonant following the first schwa belongs to a different morpheme and where the third schwa is not followed directly by a boundary.

Although the shift of ə to ɛ appears to have been quite general in the present tense, the application of schwa adjustment in other tenses was not so immediate. Hindret (1687) remarks that one hears

'j'acheterai, tu acheteras, il achetera, etc. sans faire sonner les e des pénultièmes de ces mots; et non pas j'achèteré, tu achèteras, etc...Il est vrai que cette manière de prononcer [par e ouvert] les futurs et les imparfaits du verbe acheter est un peu douteuse. C'est pourquoi je ne crois pas que ce seroit une grande faute de prononcer les e des antepenultièmes [sic] de ces futurs, et des imparfaits du subjonctif comme des e féminins' (Ibid.:140).

Even in the eighteenth century schwa remained in certain future and conditional forms, as indicated by such graphic representations as ach't'rai, empaqu't'rai, -ais which imply syncope of schwa.<sup>1</sup> In the nineteenth century, the dictionary of the Académie française (1835-1878) gives j'achèterai, but j'épousseterai ([epusət(ə)re]), today époussetterai ([epusətəre]).

Besides applying to verb paradigms, the rule of schwa adjustment began also to show its effects in certain areas of derivational

<sup>1</sup>See Thurot 1966. I:140.

morphology during the sixteenth century. The nominal suffix -(e)ment /ə+mã/,<sup>1</sup> when added to the stems of such verbs as achever 'to conclude,' déceler 'to disclose,' ensorceler 'to bewitch,' chanceler 'to stagger,' étinceler 'to glitter,' niveler 'to level,' provided an environment for (184) to apply:

- (186) i. achèvement /aʃəv+ə+mã/ [aʃəvəʃmã]  
 (earlier achevement [aʃəvəmã])  
 ii. décèlement /desə+ə+mã/ [desələʃmã]  
 (earlier décelement [desələmã])  
 iii. ensorcellement /ɔ̃sɔrsə+ə+mã/ [ɔ̃sɔrsələʃmã]  
 (earlier ensorcelement [ɔ̃sɔrsələmã])  
 iv. étincellement /etɛsə+ə+mã/ [etɛsələʃmã]  
 (earlier étincelement [etɛsələmã])  
 v. nivellement /nivə+ə+mã/ [nivələʃmã]  
 (earlier nivelement [nivələmã])

Likewise, derivatives formed with the suffix -erie /ə+ri/ on morphemes with schwa in their final syllable started to be affected by the schwa adjustment rule in the late sixteenth century:<sup>2</sup>

- (187) i. sorcellerie /sɔrsə+ə+ri/ [sɔrsələʃri] 'sorcery'  
 (earlier sorcelerie [sɔrsələri])

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<sup>1</sup>See above pp. 130-4, 269, 275.

<sup>2</sup>See Thurot 1966. I: 141.

ii. grivèlerie /grivəl+ə+ri/ [grivəløri]

(earlier grivelerie [grivələri])

iii. hostellerie /otəl+ə+ri/ [otəløri]

(earlier hostelerie [otələri])

Like the conversion of ə to ɛ in the future and conditional of Class I verbs, this change before the derivational affixes -(e)ment and -(e)rie diffused slowly through the lexicon and was not completed until the nineteenth century.<sup>1</sup>

If we examine the data manifesting the ə/ɛ alternation, it is seen that the process of schwa adjustment is not limited to the environment in (184). Schwa now alternates with ə not only in the environment  $\widehat{\text{ə}}C_1[-\text{segment}]$  (e.g., hôtelier/hôtelerie /otəl+jə/ [otəlje]/ /otəl+ə+ri/ [otɛløri]), but also in closed syllables (e.g., hôtel, hotels /#otəl#/, /#otəl%#/, both phonetically [otɛl]). In order to account for this change of ə → ɛ in closed syllables, whether word-finally or followed by an affix, rule (184) must be modified to include these other contexts:

(184') Schwa Adjustment (E-AJ):

$$\text{ə} \rightarrow \text{ɛ} / \text{---} \widehat{C}_1 \begin{cases} \# & \text{a)} \\ C & \text{b)} \\ \text{ə}[-\text{segment}] & \text{c)} \end{cases}$$

Condition on (184'b):  $C_1 C \neq \text{Obstruent} + \text{Liquid}$

ə followed by one or more consonants belonging to the same morpheme as it is rewritten as ɛ when it occurs in a closed syllable

<sup>1</sup>See Ibid.:140-1.

or when the following syllable contains a schwa directly followed by a boundary.

The condition on (184'b) follows from the fact that clusters of Obstruent+Liquid do not constitute closed syllables in French. Thus ə is not rewritten as ɛ in, for example, devrais /dəv=r=ɛ/ [dəvrɛ] '(you) should' or in décevrez /desəv=r=e/ [desəvre] '(you) will deceive.'

The Schwa Adjustment rule, which we can consider to have been added to the grammar of French in the seventeenth century after the restructuring of ɛ and e as ə is still operating synchronically in Modern French.<sup>1</sup> In his discussion of the rule, Dell presents several factors which serve to motivate schwa as the underlying vowel in the set of alternations involving ə/ɛ.

In the first place, having schwa as the underlying vowel allows a higher degree of predictability. If we know that in alternations involving ə/ɛ that ə occurs in open syllables, it is practically always realized as ɛ in closed syllables, whereas if the underlying vowel were ɛ, it is not always possible to predict how it will behave in an open syllable. Compare, for example:

- (188) i. appel/appeler/appellerai 'call/to call/(I) shall call'  
 /#apɛl#/ /#apɛl=e#/ /#apɛl=ə=r=e#/  
 [apɛl] [apɛle] [apɛlɔre]

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<sup>1</sup>See Dell 1973b:202.

- ii. étiquette/étiqueter/étiquetterai 'label/to label/(I)  
shall label'

/#etiket#/ /#etiket=e#/ /#etiket=e=r=e#/

[etiket] [etikète] [etiketère]

Schwa receives further motivation as the underlying vowel in such alternations since it provides a means of distinguishing in underlying representations the ε's which are subject to alternate with e from those which always remain ε. Compare, for instance:

- (189) i. Genève/genevois 'Geneva/Genevan'

/#ʒənɛv#/ /#ʒənɛv+wa#/

[ʒənɛv] [ʒənɔ̃wa]

- ii. rêve/rêverie 'dream/dreaming'

/#rɛv#/ /#rɛv+ɛ+ri#/

[rɛv] [rɛvøri]

Furthermore, the establishment of schwa as the underlying vowel in the ə/ε alternations and the predictions the rule (184') makes would appear to be conceptually motivated, since, as Dell points out,<sup>1</sup> if one is asked to form derivatives in -iser, -isation from empaquetable [ãpakɛtabl] (cf. paquet [pakɛ] 'package') parallel to the series rentable, rentabiliser, rentabilisation, the forms given are always [ãpakɛtablize], [ãpakɛtablizasjɔ̃] and not \*[ãpakɛtablize], \*[ãpakɛtablizasjɔ̃]. Likewise, parallel to ouvriérisme, the form constructed from hôtelier is [otɛljerism] and not \*[otɛljerism].

<sup>1</sup>See Dell 1973b:208-9.

With respect to rule ordering, one consequence of having schwa as the underlying vowel in the ə/ɛ alternations is that it necessitates the application of E-AJ before the rule assigning stress. If the stress rule applied first, the representation /#otəl#/ (hōtel), for example, would be accented on the first syllable, since the penultimate vowel receives stress if the ultimate is ə.<sup>1</sup> After E-AJ applied, one would then have \*[ótɛl]. By establishing the opposite order, however, schwa would first be rewritten as ɛ (by 184'a) and then stress would be assigned to the ultimate vowel ([otél]).

Another ordering constraint on E-AJ is that it must apply before VCE<sub>2</sub> (155). As illustrative examples of the necessity for this ordering relationship, consider the forms achèterai /#aʃət=ə=r=e#/ '(I) shall buy,' and nivellement /#nivəl+ə+mõ#/ 'levelling' which contain sequences of VCəCə. According to the structural description of VCE<sub>2</sub>, either schwa in such a sequence is subject to deletion by this process. In light of this functioning of VCE<sub>2</sub>, if it were to apply before E-AJ to the representations /#aʃət=ə=r=e#/ and /#nivəl+ə+mõ#/ and efface the first schwa (it would, in fact be the first ə that is effaced since VCE<sub>2</sub> is obligatory) in each case, the ill-formed outputs \*[aʃtəre] and \*[nivləmõ] would result. If, however, the opposite order of application were to hold, the first schwa in both cases would be first adjusted to ɛ and VCE<sub>2</sub> could then affect the only remaining schwa, giving the well-formed outputs [aʃɛtɛre] and [nivɛləmõ].

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<sup>1</sup> Stress Rule:  $V \rightarrow \acute{V} / \text{--- } C_0(\text{ə}C_0)\#$

The historical development of E-AJ is interesting from a theoretical point of view in that it constitutes an example of what Vennemann has termed an 'inverted rule.' Roughly speaking, rule inversion, as a mechanism of grammar change, occurs when a segment previously derived by rule comes to be considered as underlying and the segment formerly having this status, the derived form. Schematically, the process of inversion can be represented as follows:<sup>1</sup>

Stage I: Underlying form: A

Rule:  $A \rightarrow B / D$

Stage II: Underlying form: B

Rule:  $B \rightarrow A / \bar{D}$

In the example of inversion which we have discussed, the underlying form at Stage I (Old and Middle French) was E (i.e., /e/ or /ɛ/) and the derived segment was [ə] arising from the rule of Schwa Conversion. At Stage II (Modern French), the underlying form is now /ə/ and the derived segment is [ɛ] arising from E-AJ.

The criteria on which schwa is established as the underlying segment conform to those proposed by Vennemann for deciding whether or not rule inversion has occurred. Both "predictability of the alternants from each other" and perhaps "relative frequency of the alternants, either in running text or in numbers of forms within the paradigm"<sup>2</sup> can be considered as determining factors for establishing

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<sup>1</sup>See Vennemann 1972:212.

<sup>2</sup>Vennemann 1974:139.

schwa as underlying. It has already been seen above that it is easier to predict when schwa is realized as [ɛ] rather than the converse (pp. 302-3). The forms with schwa are, furthermore, more frequent than those with [ɛ]. Within the verb paradigms, for example, schwa is realized phonetically in the infinitive (mener [mənɛ]), first and second persons plural, present indicative and subjunctive (menons, menez; menions, meniez [mənɔ̃], [mənɛ]; [mənʝɔ̃], [mənʝɛ]), imperfect indicative (menais, etc. [mənɛ]), imperfect subjunctive (menasse, etc. [mənɑs]), perfect (menai, etc. [mənɛ]), present participle (menant [mənɑ̃]) and past participle (mené [mənɛ]), whereas [ɛ] occurs in a considerably fewer number of paradigmatic forms, viz., future (mènerai, etc. [mɛnrɛ]), conditional (mènerais, etc. [mɛnrɛ]) and first to third persons singular, third person plural, present indicative and subjunctive (mène, mènes, mène (-ent) [mɛn]).

APPENDIX II  
THE PHONETIC REALIZATION OF SCHWA:  
AN HISTORICAL SURVEY

Although perhaps not particularly germane to the central subject of this thesis, which is concerned with the development of schwa in its phonological context, it is felt that a section devoted to a survey of historical attestations pertaining to its phonetic characteristics would be of interest as a complementary adjunct serving to enhance the diachronic study. Since it is, in fact, from phonetic representations that much of the basic criteria relevant to the formulation of underlying representations and phonological rules is derived, phonetic descriptions should not, in this respect, be disregarded. From the perspective gained by examining views advanced through the centuries, the often seemingly irreconcilable accounts of the phonetic manifestation of schwa seem to fall into a systematic pattern which provides in some sense an ancillary support for many of the statements made concerning its phonological behaviour.

Although no documentation is available from the Old French period which might give some indication as to its pronunciation, it is generally assumed that schwa was a central unrounded vowel which resembled the unstressed neutral vowel [ə] found in English (e.g.,

aloud, melon, radius) or German (e.g., Gabe, bitte, reden).<sup>1</sup> Acoustically, schwa probably retained a certain relationship to e and ε with which it alternated in unstressed open syllables, although it was quite definitely distinguished from these latter.

Of significance in establishing this differentiation between schwa and open and closed e are a number of medieval works in which Old French words are transcribed in Hebrew characters. The first known literary text of this kind is a Vatican elegy dating from the end of the thirteenth century. In this transliteration, the reduced vowel [ə] is reproduced as the Hebrew sheva (:): perir = פִּרִיר , de ces felons = דֵּלִי סֵלִינֹנָא , requerir = רִקְרִיר . On the other hand, [e] is represented as tsere ("): amené = אִמְנֵי , l'apeleit = לְאִפְלֵיט , and [ε] by the character segol ("): vanchere = וּוֹנְכֵרֵס .<sup>2</sup>

Evidence to support the assumed unrounded quality of schwa in Old French comes from the leonine rhymes, where schwa was freely coupled with both open and closed e. For example, in the Roman de la Rose, which dates from the second half of the thirteenth century, one finds, among others: de gris : amaigris; le sent : plaisant; ne seit : faisait; charretier : traitier; serait : lairait, plairait; tairait; entrepris : esté pris; anemis : esté mis; toutevois : verité vòis; ne ros : conter oð; jusque la : ostel a; fusses on, simples on, estes on : saison; le chief : meschief; je vueil : esveil; je

<sup>1</sup>See Pope 1934:119, Fouché 1969:509.

<sup>2</sup>See Darmesteter 1974:468, 470.

pas : trespas, etc.<sup>1</sup> Furthermore, it is hypothesized that it was due to the unrounded quality of schwa which led to its change to [e] in the interrogative form of the first person singular, present indicative of Class I verbs.<sup>2</sup> This development probably began during the thirteenth century after analogical extension of schwa to the first person singular, although indication of the change was not manifested graphically until the fifteenth century (portai ge, pensai ge).

This early unrounded nature ascribed to schwa is believed not to have persisted long into the Later Old French period, however. It is claimed that during the late twelfth or early thirteenth century schwa tended to labialize to [œ] when in the environment of a preceding or following rounded vowel or glide.<sup>3</sup> This change would have affected such words as dëu 'must (past part.),' bëu 'drink (past part.),' mëur 'ripe,' emperëeur 'emperor,' vendëeur 'seller,' rëond 'round,' louera 'praise (3sg. fut.),' nouera 'tie (3sg. fut.),' chëoir 'to fall,' vëoir 'to see.' Antedating the labialization of schwa to [œ] in the environment of a rounded vowel, was its labialization conditioned by a preceding or following labial consonant. In this case, [œ] shifted to [ü] and restructured as such, probably during the second half of the twelfth century. In any event, this change must have been completed before schwa was realized as [œ] in

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<sup>1</sup>Langlois 1965:247.

<sup>2</sup>See Fouché 1967:195.

<sup>3</sup>See Fouché 1969:429, 519.

the context of a rounded vowel, since these latter [œ] did not subsequently change to [ü].<sup>1</sup> For the conditioned change of [ə]>[œ]>[ü], the following examples may be cited:

- (190) femier > [fœ m-] > [füm-] 'dung'  
 bevant > [bœ v-] > [hüv-] 'drink (pres. part.)'  
 gemeaus > [ʝœ m-] > [ʝüm-] 'twin'  
 alemele > [alœ m-] > [alüm-] 'blade (of sword)'  
 chalemel > [çalœ m-] > [çalüm-] 'reed'  
 lemignon > [lœ m-] > [lüm-] 'wick'  
 treble > [trœ b-] > [trüb-] 'harrow'

Subsequent to the labialization of schwa in the context of a rounded vowel, it is thought that there occurred a general unconditioned change of [ə] to [œ] around the beginning of the fifteenth century.<sup>2</sup> Evidence to support this claim is scanty, but Cretin, in his Oeuvres Poétiques for example, presents the leonine rhymes renom : peu, non; repeu : ung peu.

In the sixteenth century, when the first grammatical treatises appeared, scholars attempted to describe the phonetic character of schwa, but their accounts are far from being precise. The fact that it was not compared to any other vowel and the very vague terms used when describing it would lead one to believe that it was a neutral vowel. Pleasants considers that "à cette époque, celle-ci semble

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<sup>1</sup>See Fouché 1969:429. Also, see above, Chapter II.

<sup>2</sup>See Ibid.:523.

avoir été une voyelle centrale non labialisée."<sup>1</sup> Most of the accounts are concerned with schwa in final position, where it practically always receives the designation 'e féminin' in accordance with its morphophonemic function of marking the feminine gender at that time.

Sibilet (1548) writes that

'L'e féminin...n'a que demy son et est autrement tant mol et imbecille, que se trouuant en fin de mot et de syllabe, tombe tout plat, et ne touche que peu l'oreille...Prononçant, aimée desestimée, tu sens bien le plein son du premier é masculin en la syllabe mé: et le mol et flac son du second é féminin en la syllabe dernière e' (Thurot 1966. I:163).

Pilot (1550) says that

'Le son de l'e féminin n'est pas plein ni fort, mais un peu obscur' (Ibid.).

Tabourot (1587) remarks that final schwa

'se prononce comme si on se vouloit retirer de la prononciation entiere et ne la declarer qu'à demy, comme en ces deux vers faits de foeminines terminaisons seulement:

Le sire de nostre prouince

Se monstre magnanime prince.

Lequel é, encor qu'il remplisse sa syllabe au milieu du vers aussi bien qu'une masculine, si est-ce qu'à la fin il n'a nul force et s'esuanouit en l'air, tellement qu'au lieu de neuf syllabes il n'en faut compter que huit' (Ibid.:163-4).

Finally Bèze (1584) notes that

'Les Français appellent cet e féminin à cause du son faible, à peine perceptible, avec lequel on le prononce' (Ibid.:164).

It should be recalled that at this time, the tendency for schwa to undergo deletion, both in internal and final position, was becoming increasingly prominent. It is evident from the above

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<sup>1</sup>Pleasants 1956:256.

attestations that this caducity of schwa had a definite influence on the manner in which it was perceived and characterized. It should also be noted that up until the sixteenth century the language had experienced a relatively free, unrestrained development. Change was not impeded, and the phonetic evolution proceeded at a swift and continuous rate. Now with the efforts of grammarians and theoreticians to fix the language, all innovation began to be looked upon with disdain.<sup>1</sup> Concerns of literary scholars are perhaps one of the main forces behind much of the proscriptive attitude which became more and more evident from the sixteenth century onward. The widening gap between popular pronunciation and the traditional versification threatened many poetical works with obsolescence and the fear of this led Malherbe and others at the beginning of the seventeenth century to the establishment of definitive rules for French versification, rules which were based only to a small extent on the actual pronunciation of the time.<sup>2</sup>

In the seventeenth century, the nascent puristic attitude of the 1500's became much more evident and the language fell increasingly subject to rigorous constraints. It is definitely from this period onwards that we find serious attempts made to characterize the phonetic realization of schwa. Although many of the descriptions would seem to indicate that schwa was marked phonetically by

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<sup>1</sup>See Wartburg 1965:156-7.

<sup>2</sup>See Elwert 1965:47. Also, see above, p. 190.

a certain rounded quality, the authors are by no means in total agreement on the subject. Furthermore, and perhaps of greater significance for our purposes is the fact that, although grammarians differed in their opinions as to how schwa should be realized (with individual opinions often changing according to the environment of schwa), and although most descriptions tended to identify it with other well-defined vowels, the majority of references to schwa would seem to indicate an awareness of the sui generis character of this segment. We find, in effect, juxtaposed to descriptions equating the manifestation of schwa with open or closed e or with one of the realizations of the archiphoneme OE, characterizations which continue, as in the sixteenth century, to detect in schwa an intrinsic quality which distinguished it from all other vowels. This quality, its tendency to be deleted in popular speech, and referred to by such adjectives as "molle," "sourd," "bref," "muet," "faible," is an undeniable fact for grammarians from the seventeenth century up until the present day.

Commenting on final schwa, Deimier (1610) writes that it

'se prononce non comme en l'alphabet, mais bien ainsi qu'une lettre qui tient de la nature de ce mot ou et de ceste mesme lettre e' (Thurot 1966. I:164).

Two years earlier, Mermet writes that e féminin

'se prononce mollement et ne sonne point si haut que l'autre' (Ibid.).

Martin (1632) compares schwa to the German e in gethan, genue, gesagt, die, ruhe, thue, and says that e in the endings e, es, ent is

very short ("brevissima").<sup>1</sup> Du Gardin (1620) writes that

'La feminine terminaison se faict à cause de l'e feminin non accentué, lequel se prononce mollement, doucement et comme en fonsée (sic) de musique ou quasi comme vne diese; à sçavoir à demy son, comme si on la negligeoit la prononciation entiere, ne la declarant qu'à demy: cest e feminin se prononce en la fin du mot françois de mesme son, et de mesme ton, comme l'e bref au latin en la penultieme de ces motz...mandere, currere, negligere...' (Ibid.:164-5).

It is very probable that in the seventeenth century schwa was still pronounced, albeit weakly, at the end of a line of poetry and thus the 'rime féminine' constituted a veritable rhyme and not, like today, only a rhyme for the eye. Towards the end of the 1600's, however, and certainly at the beginning of the eighteenth century, practically all accounts attest to the apocope of schwa in conversation, both in prepausal as well as in preconsonantal position. Lancelot (1660) remarks that

'L'e muet ou féminin...n'est dans son origine qu'un son sourd conjoint aux consonnes lorsqu'on les veut prononcer sans voyelle, comme lorsqu'elles sont suivies immédiatement d'autres consonnes, ainsi que dans ce mot scammum: c'est ce que les Hébreux appellent scheva, sur-tout lorsqu'il commence la syllabe. Et ce scheva se trouve nécessairement en toutes les langues, quoiqu'on n'y prenne pas garde, parce qu'il n'y a point de caractere pour le marquer. Mais quelques langues vulgaires, comme l'Allemand et le François, l'ont marqué par la voyelle e' (Ibid.:169).

This remark by Lancelot is typical of those made by seventeenth century grammarians who recognized in schwa its potential for preventing truncation of final consonants. Recall (pp. 197-200) that this process was still common in the seventeenth century in popular speech. With reference to poetry, Lancelot says that

'On appelle vers féminins ceux dont la dernière voyelle du dernier mot est un e muet ou obscur, c'est-à-dire, un e qui ne se

prononce presque point' (Ibid.).

As early as 1657, Duëz calls for the apocope of schwa in all environments in conversational speech:

man das kurtze e gantz ausslsst/wann das folgende Wort sich mit einem vocal anfangt; und an dem Ende der Rede/wann nichts mehr folget...Die meiste Wrter von zwei oder mehr Silben/so da auss ein kurtz E (nemhlich E und ES ohne accent) aussgehen/werden gemeiniglich so kurtz aussgesprochen/dass man dasselbige E in der letzten Silben gantz nicht hret. Als zum Exempel: Un bell chose, ...Une demi aune de sarge, ...Quells botts faits-vous la, ...Vous ests trop sage... (Duëz 1657:13, 119-22).

The pronunciation of schwa in monosyllables seemed to vary considerably. Oudin (1633) proscribes the pronunciation deu, ceu, queu for the clitics de, ce, que.<sup>1</sup> With respect to the pronoun le in imperative constructions, Bérain (1675) remarks that

'il y a des gens qui prononcent dites-le comme si l'on crivait dites-lai, et d'autres qui le prononcent comme si l'on crivait leu' (Thurot 1966. I:207).

Hindret (1696) writes that

'le rlatif le...se prononce comme un  ouvert...aprs un impratif...envoyez-lai...et non envoyl, ou envoys leu, comme on dit dans la plupart des provinces...S'il suit un pronom personnel...l'e reprend son son...envoy l-moi ou du moins envoy leu moi' (Ibid.).

De La Touche (1696) seems to detect a closed e sound in this position, for he remarks that

'une infinit de personnes font l'e masculin dans le pronom le aprs un impratif;...ils prononcent, lisez-le, faites-le, etc. comme s'il y avoit, lisez l, faites l. L'e est toujours fminin en ce pronom, et c'est une faute de le prononcer autrement' (Ibid.).

In the "langage familier," however, syncope of schwa in clitic

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<sup>1</sup>See Thurot 1966. I: 207.

constructions was the rule as Oudin (1633), despite his earlier comment cited above, indicates:

'A la fin des particules, lorsqu'elles se rencontrent seules, on oste l'e entierement, et pour en bien trouver la prononciation, il faut attacher la consonnante de la particule avec le mot precedent...il n'y ac trois jours:pours contenter:ens point: et ainsi des autres' (Ibid.:208).

With respect to schwa in interconsonantal position, Hindret (1696) says that

'l'e de la syllabe que ne s'entend presque point en empaqueter, etc...caqueter, etc...Prononcer donc ces mots à peu près comme s'ils étoient écrits ainsi...ampakter, etc. cakter, etc. dans le discours familier: mais dans la poésie faites sentir dans la syllabe que un peu du son de l'é, à peu près comme s'il y avoit...ampakeuter, cakeuter, etc.' (Ibid.:156-7).

In popular pronunciation, as Hindret's remarks show, the tendency since the sixteenth century was to delete schwa in internal interconsonantal position, both in initial and non-initial syllables (see above, Chap. IV). Oudin (1640) writes that schwa

au milieu des mots, se mange tout à fait; comme demande, lisez dmander; leçon, lçon: devant, dvant: acheter, achter: cela, sla, ... (Oudin 1640:7).

L'Anonyme of 1657 says that the e

'ne se prononce point en ces mots houbelon, larrecin, alezan, balezan, hobereau, esperon, taffetas' (Thurot 1966. I:147).

With regard to schwa in interconsonantal position, Morgues (1697) makes the remark that

'dans ces mots, peloton, peluche, pelouse, belouse, éperon, chaperon, quarteron, jarretiere, gallerie, hôtellerie, betterave, etc., cet e est alors coulé fort imperceptiblement, car on prononce comme ploton, épron, quartron, betrave...' (Ibid.).

Andry likewise favours syncope when he writes in 1689:

'On demande...s'il faut prononcer cabaretier ou cabartier,

esperon ou espron. Je réponds qu'en prose la bonne prononciation de ces mots est de retrancher l'e féminin...' (Ibid.).

Andry's comments, like those of Morgues and the Anonyme reflect the process of lexical diffusion of VCE<sub>2</sub> (see above, pp. 270-1).

Eighteenth century accounts differ little from those of the previous century. Although most grammarians tend to ascribe to schwa the sound of the graphic representation eu, it is never felt to be identical to either [œ] or [ø].

With respect to final schwa, restructuring seems to have taken place as a result of its general apocope, although certain literary scholars, influenced by the orthography, insist on its maintenance. Boindin (1709) asks,

'Quelle différence l'oreille peut-elle appercevoir dans la prononciation de bal et bale, sommeil et sommeille, encor et encore, feuil et feuille, vis à écroue et vice vitium?' (Ibid.:171).

D'Olivet (1736) is of the same opinion when he writes that

'Nous écrivons David et avide, un bal et une balle, un aspic et une pique, le sommeil et il sommeille, mortel et mortelle, caduc et caduque, un froc et il croque, etc. Jamais un aveugle de naissance ne soupçonneroit qu'il y eût une orthographe différente pour ces dernières syllabes, dont la désinence est absolument la même' (Ibid.).

Voltaire (1761), however, maintained that final schwa was pronounced and even comments on its aesthetic qualities:

'Empire, couronne, diadème, flamme, tendresse, victoire; toutes ces désinences heureuses laissent dans l'oreille un son qui subsiste encore après le mot prononcé, comme un clavecin qui résonne quand les doigts ne frappent plus les touches' (Ibid.: 172).

At the end of the century, the status of final schwa seems to have been the same as it is today, i.e., it is absent from the underlying

representations of the majority of lexical items and is inserted by a process of epenthesis under certain variable conditions (see pp. 227-30). De Wailly (1763) writes that

'L'e muet final et suivi d'un mot qui commence par une consonne doit se prononcer plus fort dans les vers qu'il ne se prononce dans la prose. Mais l'esprit a toujours une nouvelle grâce... Une nouvelle...cinq syllabes. Dans la prose au contraire' ils 'se prononcent comme s'ils ne fesoient que trois syllabes' (Ibid.: 173).

Fauleau's comments at the end of the century (1781) indicate the divorce now existing between orthography and the phonological status of final schwa, as well as the loss from the grammar of the process of final consonant truncation as a major phonological process:

'Si le mot suivant commence par une consonne, on appuie sur la dernière consonne du premier mot, comme s'il n'y avoit point d'e; ainsi on prononce terre natale comme s'il y avoit ternatal ...langues vivantes, langues mortes, comme s'il y avoit langvivant, langmort' (Ibid.:174).

With respect to definite remarks regarding the pronunciation of final schwa, the majority of them are made with reference to poetry or songs, where the vowel was retained preconsonantly and prepausally in the case of the latter. In 1736, d'Olivet remarks that

'Est-il vrai que dans le chant on doive prononcer gloi-reu, victoi-reu, etc. Il s'agit, non du fait, mais du droit' (Pleasants 1956:261).

Again, a rounded quality is ascribed to final schwa in poetry by Boulliette (1788) who writes that

'Précédé d'une voyelle à la fin d'un mot, il ne se prononce point et fait seulement traîner la voix sur la voyelle qui le précède, excepté à la fin des vers, où il forme une rime féminine et se fait prononcer ou chanter assez désagréablement, eu, la vi-eu, je jou-eu, j'étudi-eu' (Thurot 1966. I:173).

The pronunciation of final orthographic schwas in traditional poetry and songs can be attributed to the rules of syllable-counting which were fixed during the sixteenth century, as well as to rhythmic and melodic factors, especially in the case of songs.

Although schwa was regularly syncopated in internal position by  $VCE_2$ , eighteenth century grammarians who insisted on its articulation even after a single consonant, seemed to favour for the most part its realization as one of the manifestations of the archiphoneme OE. Thus Boulliette, writing in 1760, says that

'dans le discours ordinaire et familier, on prononce souvent' soutnir, atler, il montra, il fondera, au lieu de dire soutenir, atteler, il montera, il fondera. 'Il faut cependant éviter avec soin cette mauvaise prononciation, même dans le discours familier' (Ibid.:148).

Moreover, internal schwa, according to Boulliette,

'a un son un peu moins faible' que l'e muet final, 'très bref, un peu approchant de celui de la voyelle eu, quand il est à l'avant dernière syllabe d'un mot...venir, devenir. Il a le son très bref de la voyelle eu, lorsqu'on est obligé d'appuyer fortement dessus. Ce qui arrive lorsqu'il forme une syllabe isolée, comme dans ces monosyllabes, je, ne, me, se, ce, que, de, le, ne, ou lorsque dans un mot il est suivi de deux ou trois syllabes, comme dans...devenir, demander, redemander' (Ibid.).

With reference to clitics, Billecoq (1711) says that

'l'e qui se trouve à la fin des articles et des particules le de ce que je ne me te se se se prononce comme eu dans les mots feu, jeu' (Ibid.:208).

Dumas (1733) distinguishes final schwa from that found in clitics, terming the latter

'e françois et je le crois diferent de l'e que l'on entend dans les mots vie, juste, ils parlent, etc. et que je crois totalement muet dans le discours non chanté; au lieu que l'autre est

soutenu, et par conséquent un peu ouvert, moyen fermé ou approchant de la voyelle eu' (Ibid.).

This attestation, like that of Boindin et al. supports our claim on the restructuring of polysyllabic lexical items without final schwa (v pp. 217-8).

For the nineteenth century, we find the same kind of remarks made concerning the pronunciation of schwa. Again, opinions vary according to the position in which the segment occurs; final schwa is treated apart from internal schwa. Although the former was never pronounced in popular pronunciation, its orthographic presence prompted grammarians on occasion to ascribe to it a pronunciation, though usually worded in vague terms. This was in contrast with internal schwas subject to INI and VCE<sub>1</sub> which, when pronounced, were generally felt to be similar or identical to the vowel represented orthographically as eu.

Féline, in his Dictionnaire de la prononciation française (1851), makes the following remark concerning final schwa:

Pour l'e muet final, quand il se trouve à la suite d'une autre voyelle, il ne se prononce pas; il a pour effet seulement de rendre cette voyelle longue, et l'on ne fait sentir cette augmentation de temps que dans le langage soutenu et dans la prononciation des vers pour les rimes féminines...Lorsqu'il sert à marquer le féminin et qu'il est placé à la suite d'une consonne muette au masculin, il ne se prononce pas d'avantage, mais il faut articuler la consonne comme dans profond, profonde (47-8).

For those who support an abstract analysis postulating final morphological and/or lexical schwas and major rules of consonant truncation and final-schwa deletion, the above remark would no doubt serve to support their claims of an isomorphy between orthographic and

phonological rules. However, as was pointed out above (pp. 210-11), such an hypothesis is falsified by psycholinguistic experimental results in the area of reading strategies.

With respect to word-internal schwas, which Féline admits are pronounced for the most part only "dans le langage soutenu," they are considered to have a phonetic realization identical to the sound ascribed to the graph eu in jeune, pecheur (pp. 29-30).

Littré (1873) proposes two pronunciations for schwa. In final position he says that it is "faiblement articulé"; elsewhere it is pronounced "comme la voyelle eu, seulement un peu abrégé..." Although a phonetic similarity is established between schwa and the front rounded vowel, the intrinsic structural behaviour of schwa serves to maintain its identity distinct from all other vowels. Littré refers to this when he says that schwa has the peculiar characteristic that

Lorsqu'il y a plusieurs e non accentués de suite dans une phrase, on doit, par une alternance aussi constante que les consonnes qui précèdent ou qui suivent cet e sans accent le permettent, en éliminer un pour appuyer sur l'autre, en les prenant deux à deux comme dans: je ne le reprendrai pas; dites: jeu n'leu reprendrai pas (Tome IIe, p. 1257).

Littré is here making reference to the potential for interconsonantal schwa to be syncopated, in this particular instance, by  $VCE_1$ .

Despite the sophistication achieved in the field of instrumental phonetics during the twentieth century and the numerous studies devoted to the specific treatment of the phonetic characteristics of schwa, it is remarkable to find that there exists the same divergence of opinion among phoneticians, orthoepists and literary scholars

as was observed in earlier periods.

In an early instrumental study, Pernot (1928-9) distinguishes between "e final," "e atone," and "e tonique." With respect to the first case, he says that

notre e muet a disparu à la fin des mots. Le féminin de un [œ̃] est une [yn]; celui de petit [pəti] est petite [pətite]; de sorte que très souvent l'ancienne règle des adjectifs se trouve renversée: leur masculin se termine phonétiquement par une voyelle et leur féminin par une consonne (1929:67).

The treatment of masculine and feminine forms of alternating adjectives still remains a problem in the morphophonemic study of French. As we saw above (secs. 3.3.1-2), both Dell and Tranel consider the feminine form to be basic in this set of adjectives, although the rules deriving the masculine form are different. Whereas Dell postulates a final abstract feminine morpheme +ə+ in the underlying structure which is categorically deleted by a rule of apocope to derive the feminine surface form and a major phonological rule of consonant truncation to derive the masculine form, Tranel, though likewise taking the feminine surface form as basic, does not have to posit an underlying final morphological schwa to prevent the consonant from truncation in the feminine, since his rule is morphologically restricted to apply only when the adjective is supplied with the feature [+masculine].

With respect to schwa in stressed position (i.e., in the clitics le and ce in prepausal position), Pernot finds that the pronunciation seems to vary depending on the region:

C'est assez souvent un eu fermé bref [ø]. A Paris, chez certains gens, une sorte de [ø] moyen, et chez la plupart

une variété d'[œ] ouvert (1928:377).

Other twentieth century opinions advanced concerning the phonetic realization of schwa are summed up by Martinet:

Pour M. Grammont e caduc n'est pas autre chose que le [œ] ouvert inaccentué de jeunesse, par exemple; il transcrit de façon identique les deux premières voyelles de beuglement et déclare: "lorsqu'il subsiste, sa prononciation est aussi pleine que celle de n'importe quelle voyelle inaccentuée." La position de MM. Bruneau et Martinon est sensiblement différente. M. Bruneau écrit: "L'œ ouvert non accentué est très voisin de l'e dit muet." Il n'y a donc pas identité; Dans les textes phonétiques donnés à la fin de l'ouvrage, il confond les deux sons dans la transcription de Rousselot, mais les distingue dans la transcription internationale en notant e caduc au moyen d'un e renversé, ce qui semblerait devoir indiquer que, contrairement à [œ] ouvert, e caduc n'est ni antérieur, ni arrondi, ni probablement aussi ouvert. Pour M. Martinon, l'e muet de dis-le est "ouvert et bref, moins ouvert, mais aussi bref que eu dans oeuf. Et de même toutes les fois qu'il se prononce." La différence serait donc essentiellement une question d'ouverture. Mais lorsqu'il écrit: "Le groupe eu est...une voyelle simple, ouverte et fermée, dont le son se rapproche de celui qu'a l'e muet quand il n'est pas muet," il semble bien vouloir dire que l'e muet ne fait pas tout à fait partie de la série des voyelles antérieures arrondies. La position que prend M. Gougenheim ne se confond exactement avec aucune de celles examinées jusqu'ici: sur l'e caduc d'un groupe cher petit il partage l'opinion de M. Grammont: confusion complète avec [œ] ouvert non intense; mais celui de prends-le lui paraît "un œ assez fermé," plus fermé que l'e de sur ce, locution "qui se distingue nettement de sur ceux (Martinet 1971:64-5).

In Martinet's own investigation, the following statistics were reached for non-meridional speakers: 54% identified the pronunciation of schwa with [ø], 19% with [œ] and 25% accorded it other pronunciations.<sup>1</sup>

In Martinet's descriptive framework, the manner in which schwa is realized is of little significance. He attaches a negligible amount of phonological importance to it and considers its

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<sup>1</sup>Martinet 1971:70.

role as being essentially that of a "lubrifiant phonique" serving to facilitate the articulation of complex consonant clusters. Within Martinet's functionalist orientation,

l'e caduc n'a pas de fonction phonologique. Son apparition est prévisible puisque déterminée par la 'loi des trois consonnes'; il ne correspond donc pas à un choix du locuteur; ... son rôle est de soutien et non d'information (Martinet 1972:394).

As has been noted, however (pp. 238-9), the appearance of schwa on the phonetic surface level is not always predictable solely on the basis of phonological or phonetic criteria (cf. for example, une belette [ünbɛlɛt] and une blouse [ünbluz]/\*[ünbɛluz]). Phonotactic criteria were considered to be of some minor significance in determining the insertion of schwa at word boundaries (p. 227), but other factors, both phonological and morphological, were considered to carry more weight as variable constraints in conditioning schwa epenthesis. With the concept of the distinctive opposition forming the basis of his phonological analysis which is, moreover, limited to the domain of the word and deprived of morphological considerations, Martinet is confined to a limited range of data in his approach. This consequently prevents an integrated view of all the interacting factors which need to be taken into consideration for an exhaustive treatment of schwa, e.g., its behaviour as a thematic vowel and as an affix in derivational morphology (v pp. 128-40, 275-7).

In the conclusion to a detailed instrumental study of the phonetic characteristics of schwa, Pleasants considers its manifestation to be grosso modo that of a central vowel. She differentiates it from realizations of the archiphoneme OE

1<sup>o</sup> ... acoustiquement, par son timbre plus grave...; auditivement, par un timbre assourdi...

2<sup>o</sup> Articulatoirement, e muet paraît se distinguer des voyelles de la zone du type eu de la façon suivante:

a) Il a son point d'articulation en arrière de celui de eu fermé et même de eu ouvert;

b) La langue est moins élevée que pour eu ouvert et à plus forte raison que pour eu fermé;

c) Les mâchoires sont plus rapprochées que pour eu ouvert; elles sont aussi rapprochées que pour eu fermé, parfois même davantage.

Les caractéristiques de l'articulation de [ə] décrites ci-dessus sembleraient indiquer que [ə] est une voyelle centrale (Pleasants 1956:248).

Recent studies in French phonology have utilized information on the phonetic characteristics of schwa to varying degrees depending on the nature of their analysis. In establishing a distinctive feature matrix for schwa, Schane (1968) proceeds from the results obtained by Pleasants and represents it as a lax, low, central, unrounded vowel in his derived representations. Within his study of inflexional and derivational morphology, this phonetically motivated description produces the greatest degree of accountability and formal simplicity.

Dell (1973b), concentrating more on the 'late' phonological rules which determine the deletion and insertion of schwa, is less concerned with its feature specification, saying only that

Pour l'instant, nous ne sommes pas capable de définir exactement la colonne de spécifications représentée par ce symbole ə. Nous admettrons simplement qu'il s'agit d'une voyelle ([+syll, -cons]), et que cette voyelle est distincte de toutes les autres voyelles qui apparaissent dans les dérivations ... (197).

In his own dialect, schwa is realized always as [œ] except in stressed position, where it vacillates between [œ] and a vowel very close, if not identical to that in peu [pø]. He considers that after the

application of all phonological rules which delete or insert schwas, his grammar contains a rule which rewrites  $\underline{ə}$  as  $\underline{œ}$ .<sup>1</sup> We have followed Dell's example in representing schwa as  $\underline{ə}$ . Where we have resorted to a feature specification for the segment, we have represented it as [+syll, -tense]. Dell's (as well as our own) major reason for representing schwa as  $\underline{ə}$  in underlying representations, therefore, is to distinguish it from the phonetic [œ] which alternates with zero and that which does not, e.g., des genêts [deʒœnɛ]/[deʒnɛ] vs. des jeunets [deʒœnɛ]/\*[deʒnɛ]. The distinct symbol  $\underline{ə}$  also serves to differentiate phonologically those  $\underline{ɛ}$  subject to alternate with schwa (lève/levons [lɛv]/[lɛvɔ̃]) from those that do not manifest such an alternation (rêve/rêvons [rɛv]/[rɛvɔ̃]).<sup>2</sup>

As we have seen (sect. 3.3.1.), both Dell and Schane postulate abstract lexical and morphological final schwas in underlying representations in order to account, for example, for the phenomena of vowel nasalization and consonant truncation. In addition, they both posit underlying word-internal, non-alternating schwas in such cases as samedi [samdi] in order that their "across the board" respective rules of vowel nasalization will not affect such forms (v pp. 272-4). Our analysis of schwa differs from those of Dell and Schane on these two points.

In summary, an historical perspective on views related to the phonetic realization of schwa serves to corroborate the results that

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<sup>1</sup>See Dell 1973b:196-7.

<sup>2</sup>See Appendix I, p. 303.

have been reached with respect to its phonological status and behaviour in both its diachronic and synchronic aspects. The following points stand out in particular. In the first place, the very existence of the ever-present problem surrounding the phonetic nature of schwa establishes it as a vowel whose patterning is singularly different from all other French vowels. Although there has been a tendency by authors of all periods to identify schwa phonetically with other vowels, its phonological differentiation has always been maintained. Furthermore, the fact that the manifestation of schwa is often felt to vary depending on the context in which it is found is in accordance with certain of the historical developments it experienced. For example, the phonetic characteristics attributed to final schwa, especially in the sixteenth and seventeenth centuries, reflect its changing phonological status. The vague terms used to describe its realization in this position bear witness to the change in progress (i.e., apocope) which eventually led to restructuring of polysyllabic lexical items without final schwa. By contrast, the phonetic quality ascribed to internal schwas which remained in underlying representations and underwent synchronic syncope since the sixteenth century is generally much more definite. For most speakers, it is considered to be phonetically similar to one or the other realization of the archiphoneme OE. Phonologically, however, it remains distinct from this and all other vocalic segments both as regards its historical development and in its synchronic behaviour in Modern French as regards such processes as INI, VCE<sub>1</sub>, VCE<sub>2</sub>, PAUS, EPEN, E-AJ, etc.

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TABLE 2

DISTINCTIVE FEATURE COMPOSITION OF NON-SYLLABIC SEGMENTS IN LATE ELEVENTH CENTURY FRENCH

	p	b	t	d	t <sup>s</sup>	d <sup>z</sup>	ç	ʝ	k	g	f	v	θ	ð	s	z	m	n	ɲ	ŋ	r	l	ɫ	l <sup>j</sup>	ʎ	h	j	w	
SONORANT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	
CONSONANTAL	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
CONTINUANT	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
NASAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-
HIGH	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	-	-	+	+	+	-	+	+
LOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BACK	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	+	+	-	+	-	-	-	-	+
ROUND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
ANTERIOR	+	+	+	+	+	+	-	-	-	-	+	+	+	+	+	+	+	+	-	-	-	+	+	+	-	-	-	-	-
CORONAL	-	-	+	+	+	+	+	+	-	-	-	-	+	+	+	+	-	+	-	-	-	+	+	+	-	-	-	-	-
VOICED	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	+	+	+	+	+	+	+	+	+	+	-	+	+
DEL. REL.	-	-	-	-	+	+	+	+	-	-	+	+	+	+	+	+	-	-	-	-	+	+	+	+	+	+	+	+	+
STRIDENT	-	-	-	-	+	+	+	+	-	-	+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-



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