LEXICAL CLASSES IN MONTREAL FRENCH:  
THE CASE OF (e:)*

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A perceptual study of the use of (e:) in the Montreal French Vernacular (MFV) reveals that there is extreme variation in the vowel color used by different speakers for this phonological unit. Most men born before 1920 use a raised [e:] realization attested to by orthoepists for the last century, as well as by phoneticians in this century. Older working class women, however, often use a lowered [æ:] or [a:] nucleus. Speakers born after World War II use the more open pronunciation whatever their sex or social standing. Most older speakers use a high percentage of diphthongs in their realization of (e:), especially in stressed syllables and in specific lexical classes, while younger middle class men and women eliminate diphthongization more consistently than older middle class speakers, and certainly more than their working class age mates. Thus, variation in vowel color and diphthongization are found to be related to a speaker's age, sex, and social standing, as well as to specific lexical classes. The results are relevant to the analysis of Canadian French phonology, as well as to the theory of lexical phonology and to sociolinguistic theories of sound change.

*Key words:* Montreal French, vowel change, lexical phonology, diphthongization

INTRODUCTION

Labov (1981) contrasted the Neogrammhan Hypothesis and the Lexical Diffusion Hypothesis of language change (Schuchardt, 1885; Wang, 1977), in order to demonstrate that while they were initially proposed as mutually exclusive hypotheses, they were actually complementary. The Neogrammhan Hypothesis was named for the nineteenth century 'Neogrammarians' who first discussed this type of change in detail; they proposed that a phonological change can influence a given sound first in some phonological environments, then in others, while influencing all words in a given phonological

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environment at the same time. For example, in many American English dialects (æh)\(^1\) — as in band or bass — is raised; Labov, Yaeger, and Steiner (1972) found that a phonological environment which lengthens a vowel, like a following nasal or fricative, will permit (æh) to rise sooner and further than those environments which do not lengthen the vowel, like following voiceless stops.\(^2\) Labov (1981) proposed that this type of change can be characterized as 'phonologically gradual but lexically abrupt'. We will refer to it as **phonologically conditioned** sound change.

The concept of lexical diffusion has evolved to accommodate the case in which lexical classes (Kiparsky, 1988; Harris, 1989) emerge at the beginning of a phonological shift and remerge at the end (Wang, 1977). Analysis of specific cases of lexical diffusion has demonstrated that it is indeed possible for words in a lexical class to shift while other words in the same phonological environment but a different lexical class do not, or only shift many years later. Labov (1981) proposed that this type of change can be characterized as 'lexically gradual but phonologically abrupt'. We will refer to it as **lexically conditioned** sound change.

While most work on lexical classes and diffusion does not attempt to hypothesize what might condition a given lexical diffusion, Phillips (1984) presents a hypothesis which requires understanding of another sociolinguistic concept originally formulated by Labov (1966). Phillips (1980, 1984), following the lead of Schuchardt (1885), pointed out that lexically conditioned sound change is often influenced by word frequency; she also provided a socio-cognitive reason why lexical frequency might influence sound change. Some linguistic changes are unconscious, or, as sociolinguists phrase it, they are 'from below [the level of awareness]' (Labov, 1966); that is, since native speakers are not aware of these changes, they are not stigmatized. As a rule, these changes originate in the working class (Labov, 1966; Romaine, 1982). Phillips presented examples of changes from below which occur first in the most frequent lexical items of a given vowel class. For example, when Old English (a) rose to /ɔ/ before nasals, the most frequent lexical items shifted first, and less frequent ones later (Phillips, 1980); the same pattern occurred in Middle English when all (o(ː)) unrounded to /e(ː)/ (Phillips, 1984).

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1. We follow the sociolinguistic convention of using square brackets to represent phonetic details and slashes to represent stable phonological units, but parentheses to indicate an unstable phonological unit, referred to as a **sociolinguistic variable**. Word final position will be symbolized as ‘#’ Given the split common to many American dialects, with conditioned lengthening and raising of many words with /æ/, while many other words remain stable in open-front position, the discussion here will follow the convention Labov carried over from the structuralists (e.g., Labov et al., 1972; Labov, 1989) of using ‘æh’ to phonologically characterize the lengthened vowel in such words as band or bass, while using ‘æ’ only for the nonlengthened vowel.

2. As discussed in Labov et al. (1972), and Harris (1989), for most younger US speakers (æh) is raised to [yə], while (æ), where it occurs, is [æ]. Discussion of the split of (æ/æh), and of the phonetic realization of (æh) [or (a)] raising in British and Australian dialects, can be found in Harris (1985), Fudge (1977), and Laycock (1966).
Conversely, Phillips also presented evidence that linguistic changes 'from above [the level of awareness]', which are presumed to be conscious because they are initiated by middle class speakers or teachers, occur first in the least frequent, more learned words, and occur last in very frequent words. She presented two examples of such changes: the regularization of strong verbs, and (at least in Southern US dialects) the loss of the glide in words like new or nude (Phillips, 1984).

After contrasting lexically conditioned and phonologically conditioned diffusion, Labov (1981) demonstrated that certain types of linguistic change can be explained only if both kinds of diffusion are considered to be active forces in the change. To demonstrate this, Labov concentrated on (æh) and (æ) in Philadelphia English, which Ferguson (1959) referred to as 'the Philadelphia broad a'. Labov showed that the phonological conditioning of the (æh) shift is consistent with expectations based on previous phonetic and phonological studies: (æh) shifts first when it is followed by a high sonority consonant which induces lengthening, like nasals and certain fricatives (Lehiste, 1970). Thus, Philadelphia (æh) raising is phonologically conditioned. However, the raising is also advanced for some lexical items and retarded for some others, so the change must be lexically conditioned as well.

Labov wished to determine if there is any way to predict when sound change will be conditioned only by the phonological environment, and when lexical classifications will condition the change. He hypothesized that when a vowel does not shift from short to long (as occurs in the Philadelphia or New York split of (æ) and (æh)), or from diphthong to monophthong (as occurs in the Southern shift of (yu) to (u) in new and nude, discussed by Phillips), but shifts only within one set of vowels (e.g., the 'set' of long vowels), then the change is more likely to be conditioned only by the phonological environment, with no lexical conditioning complicating the change. Labov (1981) hypothesized that the more complicated the sound change (that is, the more phonological features must be altered before the change comes to completion), the more likely it is that lexical diffusion will take place.

In this study, we look at sound change of the (ɛ:) class in the Montreal French Vernacular (MFV), since both lexically and phonologically conditioned changes occur in this vowel class, so that the data bear on both Labov's and Phillips' proposals for sound change. Earlier researchers have maintained that no vowel shifts are in progress in MFV (Gendron, 1966; Santerre, 1974); however, this paper will show that (ɛ:), which under full stress is realized almost categorically as [ɛ:(o)] by most older men, is involved in two linguistic changes: a vowel height shift, and monophthongization. The vowel nucleus is shifting from mid-high [ɛ:] to low peripheral [æ:] or [a:]. This change is within the 'set' of French long vowels, and the evidence will show that it has all the earmarks of a change from below. Both the fact that this change is phonologically simple and the fact that the change is from below would lead us to project that while the change might be phonologically conditioned, it is not likely to be lexically conditioned.

On the other hand, all researchers of MFV maintain that diphthongization of (ɛ:) — for example, the realization of père 'father' as [pe:ɛr] or [pea:ɛr] — is stigmatized (Gendron, 1966; Santerre and Millo, 1978; Dumas, 1981), and some researchers claim that a change from above is eliminating diphthongs (Santerre and Millo, 1978). Native speakers are aware of diphthongization as a vernacular stereotype, and when asked what
they 'don’t like' about their dialect, it is one of the few phonological dialect characteristics which they mention. Consequently, not only does monophthongization shift the vowel from (variable) diphthong to monophthong, but it is a change from above. These facts should heighten the chance that there would be lexical conditioning of the sound change.

No other sound changes have been documented as having both a conscious and an unconscious component. Consequently, the change to be analyzed here provides a unique opportunity for students of sound change. Comparison of a change from above (here monophthongization) and a change from below (here vowel-lowering) may reveal differences in the trajectory of different types of change. For example: Will the changes advance through all social groups in the same way? Will the changes continue to completion or be reversed? Is there any way to predict when sound change will be neatly phonologically conditioned and when there will be lexical conditioning as well? That is, will only monophthongization be lexically conditioned (as Labov's (1981) theory would predict), while the vowel shift is only phonologically conditioned? If there is lexical conditioning, will least frequent words be influenced first by monophthongization (as Phillips (1984) would predict)? Answers to some of these questions will be presented below.

Labov (1981) would predict that the shift of the vowel color would not be lexically conditioned. However, the results presented below show that despite the fact that the (\(e:\)) shifts only in vowel color, without switching to the unlengthened vowel set, and despite the fact that the change is from below, this change is complicated by lexical conditioning: The data will demonstrate that although the vowel color of (\(e:\)) appears to shift in almost all lexical items for younger speakers, for older speakers even this shift is conditioned by lexical class.

On the other hand, Labov (1981) would predict that monophthongization of (\(e:\)) would be more likely to be complicated by lexical conditioning, and we will demonstrate that it is. In fact, there is evidence that at least two different kinds of lexical classes are implicated in the same change:

In some cases a historical, or etymological, residue of lexical classes remains, which does not necessarily contradict the Neogrammarians' theory of vowel shifting. That is, groups of words which are known to have been separate classes in earlier centuries (Thurot, 1881–83; Martinet, 1969; Morin, 1991b; Morin and Dagenais, 1988; Morin and Desaulniers, 1991; Walter, 1989; Dumas, 1987) are still pronounced differently, although recent studies maintain that these etymological lexical groups have been totally merged even in the vernacular dialect (Gendron, 1966; Santerre, 1974; Santerre and Millo, 1978; Dumas, 1981; Paradis, 1985). A comparable situation is discussed by Milroy (1980; Milroy and Harris, 1980) and Harris (1985, 1986), who present evidence that the purported merger of what they refer to as the meet/meat/mate\(^3\) classes in Hiberno English.

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\(^3\) Each word in this triplet is representative of the class of all words which are spelled similarly. In older English dialects, \(<ee>\), \(<ea>\), and \(<a-e>\) words were pronounced differently; when they went through the Great Vowel Shift, \(<ee>/<ea>\) merged in most dialects. Although \(<ee>\), \(<ea>\), and \(<a-e>\) words were all believed to have merged in Hiberno English dialects, Milroy and Harris (1980) show that they have not. The interested reader should see the cited literature.
[Irish English] never took place, since the lexical classes remain distinct today. Unmerged etymological groups such as these will be referred to here as etymological lexical classes. Evidence will be presented that such classes occur in the MFV realization of (e:).

In other cases, a split occurs in what was formerly a single lexical class when some words shift to a new vowel target, leaving other words behind: Words which either lead the shift, or remain behind when most other words have shifted, will be referred to here as lexical exceptions. (A theoretical discussion of lexical exceptions which occur in the (æh) raising rule can also be found in Kiparsky (1988) and Harris (1987, 1989).) Evidence will be presented that such lexical exceptions also occur in the MFV realization of (e:), and that etymological lexical classes and lexical exceptions do not follow the same patterns of linguistic change, at least for (e:) variation in this dialect.

Historical overview of (e:)-shifting in French

Labov et al. (1972) and Yaeger (1974) showed that, even in casual speech, the first two formant frequencies of the nuclei of stressed stable vowels always fall very close to a specific phonetic target for the vowel, while the first two formants of nuclei of unstable vowels not only spread out over a much larger acoustic ‘space’, but reveal a rule-governed pattern to the dispersion. By definition, any changing sound is ‘unstable’ within the phonological system. It has been pointed out in earlier studies that an unstable short vowel will tend not to reach its target in phonological space, but will collapse into a more neutral centralized vowel position (Labov et al., 1972; Delattre, 1969); such a vowel can be regarded as having an underlying [−peripheral] feature. In contrast, an unstable long vowel can be regarded as phonologically [+peripheral], since it will not only reach its target on the periphery of the vowel space, but will overshoot that target, and rise along the periphery of the vowel space (Donegan, 1978; Labov et al., 1972). As a vowel reaches the upper edge of the vowel space, [i] or [u], it is possible that it will then fall to a very low position, [a] or [o]. Until it restabilizes in a new position, such a vowel can be regarded as ‘unstable’ and will have its phonetic realizations spread across a broad phonetic space, which permits systematic variation across different phonological contexts.

Thurot (1881–83), in his historical review of French grammars, found that, as far back as the mid-17th century, lengthened (e:) would rise to [e:], whereas shortened (e) – primarily in the same syllable with an r-cluster – would centralize and fall slightly. (See also Lehiste, 1970, where shortening of vowels in this context is discussed.) Thus, while Thurot found that père ‘father’ would be pronounced [peʁe] or [peʁe], perte

4 Readers may be more accustomed to discussions of ‘tense’ vs. ‘lax’ vowels in English; however, since the primary phonetic correlates of the distinction are relative peripherality and a durational distinction, most sociolinguistic analyses either point out the significance of ‘tensing’ (Harris, 1989), or refer to the relevant feature as ‘peripherality’ (Labov et al., 1972). Recent theoretical treatments have also rejected the ‘tense’/‘lax’ terminology in favor of one attributing the distinction to ‘advanced tongue root’, or [+ATR] (Archangeli and Pulleyblank, 1989).
'loss' would be pronounced [pɔʁt], and prêt 'ready' would be pronounced [prɔʁt]. This pattern is consistent with expectations based on Labov et al. (1972).

MFV is a dialect within the larger Quebec French dialect region. Consequently, evidence from earlier analyses of Quebec French can be adduced to give some historical depth to the analysis of MFV. In the late 19th century, Geddes (1894) reported that the Quebec pronunciation of (e:) appeared to be stable [e:i], and that in a syllable with a consonant cluster, the vowel nucleus still centralized and fell.

In the present century shortened (e) (as in perte or prêt), and non-lengthened (e) (as in dette 'debt' or mettre 'put'), have not changed position in the Quebec dialects (Gendron, 1966, p. 67), but lengthened (e:) — in père, and similar words — has gone through a major shift. The ways in which the lengthened (e:) have shifted and the social influences on its shifting pattern will be discussed in detail below.

(e:) vs. (ê). Historically, (e) before preconsonantal fricatives or liquids was lengthened when the consonant cluster was simplified, triggering compensatory lengthening of the preceding vowel. This compensatory lengthening is generally realized in the orthography by either a geminate-s, or by a circumflex accent. For example, baisse 'lower' follows this pattern, as does même 'same' from *mesm-, and maître 'master' from *maistr- (Thurot, 1881–83; Dumas, 1987). Shortly after the compensatory lengthening had created this group of words, which we will refer to as the (ê) words, lengthening was also phonologized for another set of (e) words.

It is well known to French historical linguists (Thurot, 1881–83; Yaeger-Dror, 1987, 1990) as well as phoneticians and phonologists (Delattre, 1966; Klatt, 1975; Keating, 1988; Lehiste, 1970) that vowels followed by sonorous consonants are longer than vowels followed by less sonorous consonants; this phonetic distinction was phonologized in French for the mid and low vowels. For example, first the minimal pair mettre, /mestr/ 'put', and maître, /məstr/ 'master' could be distinguished by the vowel-length distinction alone. Then (e) was lengthened before word final voiced non-preconsonantal fricatives and r. It appeared to phonologists as if (e) followed by voiced fricatives 'joined' (ê), forming a more inclusive phonological unit (e:) which would be contrasted with (e). It has been suggested that the phonologization of the length distinction for (e) before r and voiced fricatives was only made possible because there was already a phonological precedent set by the compensatory lengthening of mid-low vowels when clusters and geminates had been simplified, forming the distinction between (e) and (ê) (Dumas, 1987). Dumas also maintains that (e:) followed by z (as in pèse, 'weigh') shifted earlier than (e:) before other voiced fricatives, perhaps as early as (ê).

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5 In fact, mid-low rounded vowels lengthened before z (as in rose /ʁoz/ 'rose', or creuse /krɔz/ 'dig'), or before a simplified cluster (as in côte < *côsta /kɔt/ 'rib', or jeûne < *jeûsn- /ʒɔn/ 'fast'), merged phonologically with the mid-high rounded vowels [which, like the compensatorily lengthened vowels, are long redundantly] (Yaeger-Dror, 1987; Dumas, 1987); the mid-low rounded vowels before other voiced fricatives were lengthened later and did not merge with the mid-high vowels. In contrast with the rounded mid-low vowels, (ê) and (e:) followed by z did not merge with the stable /e/.
### Table 1

Examples of (ə) (eː) (ɛ) words in MFV

<table>
<thead>
<tr>
<th>Word Class</th>
<th>Sample Word</th>
<th>Gloss</th>
<th>Possible Phonetic Realizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ə)</td>
<td>mène, mettre</td>
<td>‘lead’ ‘put’</td>
<td>mɛn, mɛt(r)</td>
</tr>
<tr>
<td>(eːC)</td>
<td>perte, prêt</td>
<td>‘loss’</td>
<td>pert, prêt − part, prat</td>
</tr>
<tr>
<td>(eː)</td>
<td>pèse</td>
<td>‘weigh’</td>
<td>pe:(i)z − pa:(i)z</td>
</tr>
<tr>
<td>(eː)</td>
<td>père, beige</td>
<td>‘father’ ‘beige’</td>
<td>pe:(i)r be:(i)z − pa:(i)r, ba:(i)z</td>
</tr>
<tr>
<td>(ɛ)</td>
<td>maître, baisse, bête, même</td>
<td>‘master’, ‘lower’ ‘beast’ ‘same’</td>
<td>me:(i)t(r), be:(i)s − ma:(i)t(r), ba:(i)s, be:(i)t, me:(i)m − ba:(i)t, ma:(i)m</td>
</tr>
</tbody>
</table>

Earlier researchers have assumed that even in the most conservative French dialects, including MFV, (eː) lengthened by following sonorous consonants merged with (ɛ) (Gendron, 1966; Santerre, 1974; Santerre and Millo, 1978; Dumas, 1981). Researchers have assumed that both (eː) and (ɛ) are phonetically identical long mid front vowels and cannot be distinguished from each other synchronically, although they are different from unlengthened (ə). Results presented below, however, will demonstrate that in MFV (eː) and (ɛ) are consistently pronounced differently from each other, as well as from (ə). So it seems necessary to maintain that in MFV the vowels cannot be considered as merged and there are three separate mid-low front vowels, which will be referred to here as (ɛ), (eː), and (ə).

(eː) vs. (ə). Martinet (1969) states that while (ɛ), and later (eː) followed by voiced fricatives and r, were lengthened and phonologically distinct from (ə) until the early 20th century, the length and color distinctions between (eː), (ɛ) and (ə), (eː) and (ə), or (aː) and (a), have disappeared from all but a few conservative dialects (Dagenais, 1990; Martinet, 1969; Martinet and Walter, 1973; Mettas, 1979; Morin 1989, 1991a; Morin and Dagenais, 1988; OShaughnessy, 1982; Walter 1977, 1982, 1989; however, see also Lennig, 1978, who analyzed the Parisian French vernacular). Gottfried and Beddor (1988) found that listeners whose native dialect is a relatively ‘standard’ dialect from France do not even use durational evidence to distinguish these lexical classes. Given that we will present evidence that the lexical classes were not merged in MFV, in the present study it will be necessary to distinguish (eː), (ɛ), and (ə). Table 1 gives some examples of members of these etymological classes.

(eː), ɛ vs. (ə). Both (eː) and (ɛ) are long and peripheral. As already mentioned, Thurot (1881–83) and Geddes (1894) found the apparently merged group (eː), ɛ) to be stable as a long high-mid vowel, [eː], variably diphthongized to [eː1]. There is no significant difference in formant positions between the nucleus of (eː), ɛ) and /e/6 for most older

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6 The stable phonological unit /e/, like (ɛ), is redundantly classed as long (Gendron, 1966; Santerre, 1974; Yaeger, 1979; Paradis, 1985), but is generally monophthongal.
TABLE 2

Variable Phonetic Realizations of MFV (e:)

<table>
<thead>
<tr>
<th>monophthong</th>
<th>diphthong</th>
</tr>
</thead>
<tbody>
<tr>
<td>raised</td>
<td>e:</td>
</tr>
<tr>
<td></td>
<td>e:</td>
</tr>
<tr>
<td></td>
<td>ð:</td>
</tr>
<tr>
<td>lowered</td>
<td>a:</td>
</tr>
</tbody>
</table>

speakers of Montreal French (Yaeger, 1979), but (e:, ð) can be distinguished from /e/ by the variable diphthongization of (e:, ð).

Initial perceptual classification of (e:) in Montreal French

Table 2 shows the extent of dispersion for phonetic realizations of (e:, ð). It is clear from the table that there are two parameters:

1. **vowel height**, ranging from [e:] to [a:], and
2. **potential diphthongization** across this range.

Each of these parameters will be examined separately. It is known that the duration of a diphthong, the phonetic space over which it glides, and its endpoint are all related to prosodic factors; therefore, only presence or absence of diphthongization will be discussed here. Both vowel height and potential diphthongization are correlated with phonological and lexical conditions that will be discussed below.

Techniques for the analysis of vowel variation and change

There are two methods for the analysis of vowel variation which have become generally accepted within the sociolinguistic community:

1. The first uses trained phoneticians' perceptions of vowel color to divide relevant phonetic distinctions for the phonological unit under analysis into a significant number of vowel heights (3–4), while simultaneously coding these perceptions relative to other linguistic and social variables in the classification. Table 2 presents such a perceptual grid for the analysis of MFV (e:, ð) tokens. (Some other studies cited here which follow this procedure are Chambers and Trudgill, 1980; Labov, 1966; Milroy, 1980; Milroy and Harris, 1980; Tousignant and Sankoff, 1989; Sarfkoff, Cedergren, Kemp, Thibault, and Vincent, 1989; and Trudgill, 1986.)
The second technique relies on acoustical analysis of the vowel tokens, measuring the first two (or more) formants of vowel nuclei for all vowel classes considered relevant, and placing the variable tokens within a given speaker's vowel space as determined by measurements of stressed tokens for all the vowels in an individual's vowel system. (Studies which follow this procedure include DiPaolo and Faber, 1990; Labov \textit{et al.}, 1972; Lennig, 1978; and Yaeger-Dror, 1989a.)

Each method has its advantages and disadvantages: The primary advantage of the perceptual method is that all tokens of a variable can be categorized in less time than a few tokens of the variable can be analyzed acoustically. In addition, to analyze perceptually, one only needs to categorize tokens of the variable under analysis, in this case (\varepsilon; \varepsilon); even if vowel normalization is not attempted, an acoustic analysis requires measurement of tokens of many different vowels to determine the limits of the phonological space, in order to permit judgments of 'raising' and 'lowering' relative to the other vowels in the speaker's system. Since raising and lowering cannot be judged in absolute terms acoustically, one needs to refer to the relative formant frequency distances in the vowel space, specified by the frequencies of neighboring vowels and of marginal but stable vowels. (For example, in the dialect under analysis, an acoustic analysis must measure not only tokens of (\varepsilon; \varepsilon; \varepsilon) and neighboring vowels, but also tokens of at least /i#/, /e#/, /o#/, and /aC#/, the only stable marginal vowels.) It is obvious than an acoustic analysis of vowel raising and lowering would be considerably more complex and resource-consuming than a perceptual analysis.

The disadvantage of the perceptual method is that perception, even by trained phoneticians, is not uniformly reliable for sensitive dialect variables, especially for variation which corresponds to the front-back (F\textsubscript{2}) dimension (Labov, 1981). Consequently, if preliminary study shows fine phonologically conditioned distinctions of F\textsubscript{2},\textsuperscript{7} acoustic techniques are often preferable. In addition, earlier studies have shown that where variation is conditioned by the degree to which the manner of the following consonant permits lengthening and shifting, often the differences between one subset of vowels and the next are small but consistent; this patterned variation is of great theoretical interest, but is likely to be missed or lost as 'measurement error' in a perceptual study.

On the other hand, in the present case, the two parameters to be categorized — vowel height (F\textsubscript{1}) and diphthongization — can both be reliably categorized perceptually (Labov, 1981). Moreover, it appeared that while there is no fine phonetic conditioning triggered by the following consonant, several lexical classes are relevant to the analysis,\textsuperscript{8} as well

\textsuperscript{7} For example, Labov \textit{et al.} (1972) found that the manner of the following consonant determines the relative F\textsubscript{2} for a given (\textipa{æh}) token in American English dialects; more recent studies show similar conditioning of (\textipa{a}) (as in got or not) and other vowels.

\textsuperscript{8} Some of these lexical classes occur rarely in interviews, much less in radio broadcasts. See further discussion of techniques for the analysis of rare lexical classes in Kemp and Yaeger-Dror (1991).
as phonological environment, so exhaustive analysis of all the tokens of \(\text{e}\.\text{e}\) was necessary to clarify what the lexical classes are, and how (or if) they are changing. The sheer number of tokens to be analyzed militated for a word-by-word perceptual analysis of the data.

**METHODS**

**The corpus**

Almost all recent sociolinguistic studies have taken advantage of the understanding that phonological change within a given community can be analyzed by comparing the speech of individuals of various ages at a given time. Older individuals speak quite differently from their juniors, and this difference is assumed to reflect a shift from an older form of the dialect (spoken by these older individuals) toward the newer form of the dialect (spoken by younger speakers). This is referred to as the analysis of ‘change in apparent time’ (Chambers and Trudgill, 1980). The present study follows this conventional approach to the study of sound change by analyzing the speech of a representative cross-section of older and younger speakers from the 1971 Sankoff-Cedergren (SC) corpus of Montreal French speech (Sankoff and Sankoff, 1973; Thibault and Vincent, 1990), supplemented by additional older speakers from William Kemp’s (KL) 1978 expansion of that corpus (Kemp and Yaeger-Dror, 1991). In addition, some data were collected from broadcast French speeches and interviews in the Radio Canada (RC) archives.\(^9\) The radio tapes were included to provide data for older speakers who were no longer alive in 1971, thereby increasing the ‘apparent time depth’ of the study.

The appendix shows relevant demographic information for the speakers who were chosen for the present analysis. From the three larger corpora discussed above, a judgment sample of speakers\(^{10}\) was chosen from each of the demographic groups described below. The number of speakers in each subgroup is shown in Table 3.

**Sex.** Both men and women of contrasting social groups were included.

**Socio-economic groups.** The socio-economic groups are defined by a criterion used for many studies of this corpus. The concept of the linguistic marketplace, or marché linguistique (generally referred to as ML), was proposed to clarify the weakness of a class-oriented approach to language variation. Sankoff and Laberge (1978) showed that a speaker’s need for the ‘legitimated’ (standard) language during work hours often

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\(^9\) We would like to thank Mme. Charlotte Ferand of Radio Canada for having authorized us to make use of materials from these Archives, and Mme. Claudine Gay for having greatly facilitated our access to this material.

\(^{10}\) A judgment sample is composed of those speakers who the analyst judges meet certain specified criteria for analysis, and can be contrasted with a random sample. Discussion of the problems involved in sample choice can be found in Sankoff (1988) and in Milroy (1988).
TABLE 3

Number of speakers, classified by age, sex, and social class

<table>
<thead>
<tr>
<th></th>
<th>Middle Class</th>
<th></th>
<th>Working Class</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>(a) Interview</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extra Old</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Old</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>“Middle”</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Young</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(b) Radio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extra Old</td>
<td>6</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

influences speech more than the speaker’s years of education and family income. Consequently, for example, a secretary may have greater need for the legitimated language than the owner of a large trucking firm, although the secretary may have a low income and no schooling after high school, while the owner has an MBA and a high income. Speakers for this study were categorized by their ML ratings as determined by Sankoff and Laberge (1978); as often as possible we have tried to choose speakers with a ML rating above 0.8 or below 0.2, that is, at two extremes of the socio-professional scale, as defined for the study of other sociolinguistic variables.\(^{11}\) For simplicity, the speakers with higher ML ratings will be referred to here as ‘middle class’ (MC). These speakers are mostly doctors, lawyers, and academics, as is indicated under ‘Background Information’ in the appendix. Conversely, speakers with low ML ratings will be referred to as ‘working class’ (WC). Most of these speakers have blue-collar jobs. Most speakers were chosen from the extreme ends of the scale, both because it was assumed that clear delineation of the outer edges of change would become apparent, and because these two groups are considered least likely to self-consciously alter their speech (Labov, 1966, 1972).

\(^{11}\) The study was also constrained by the need for a sufficiently large amount of speech to provide tokens of the potentially variable lexical classes and exceptions; consequently, the Appendix indicates that it was not always possible to limit the study to speakers from these two extremes.
Age/time. Previous studies based on this corpus and others suggest that dialects change most rapidly at times when a society is also changing rapidly (Kemp, 1981; Sankoff et al., 1989). Just as men returned from World War II to New York City with a new 'r-ful' prestige target pronunciation (cf. Labov, 1966), major changes in the Montreal French-speaking community's language use appear to be related to social changes which occurred in the community between the wars.

The years culminating in World War I brought rapid urbanization of the primarily rural population, and the end of the war brought returning veterans with radically changed expectations as well as a large new influx of immigrants to Montreal from rural Quebec. Although no specific dialectal shifts have yet been shown to have occurred during or right after World War I, the demographic indicators make it a reasonable hypothetical point for dialect shift to occur.

On the other hand, nonlinguistic evidence suggests that the radical shift for Upper Middle Class Montrealers may well have occurred even earlier. The generation born around 1905 is much more culturally oriented and much more nationalistic than the generation born before. This was the generation which came under the influence of the great Quebec Nationalist Lionel Groulx, and founded numerous political, cultural and nationalist groups during the 1930s (Bourhis, 1984; Kemp, 1981; Kemp and Yaeger-Dror, 1991; Levine, 1990). Somewhat arbitrarily, 1900 and 1920 have been chosen here as hypothetical frontiers of dialect change.

The end of the Second World War brought further increased immigration into Montreal, triggered partly by a major increase in industrialization, rising salaries and expectations, and by changes in the structure of the work force, more white collar jobs, with a lower relative percentage of simple manual jobs. In fact, both phonetic (Montreal (r): Tousignant and Sankoff, 1989), and morphosyntactic ([kɔs]: Kemp, 1979, 1981) patterns have already been found to shift during or right after World War II.12 Consequently, 'old' speakers born before 1920 can be contrasted with 'young' speakers born after World War II: where sufficient data permits the comparison, these 'old' speakers are separated into 'extra old' speakers, born before 1900, and 'old' speakers, born between 1900 and 1920. Analysis of the data also revealed that those WC men who were born just prior to the post-war baby boom are consistently different from those who are 'boomers'. For some variables, all pre-boomers are different from their near age mates. Consequently, the 'young' speakers who are baby boomers are separated from the 'middle' speakers, who were born just prior to the baby boom, and are in some ways much more like the preceding generation than like their own. Unfortunately, since the distinction between 'boomers' and 'pre-boomers' was determined quite late in the analysis, only one or two 'middle' age speakers can be found in a given cell.

12 Tousignant and Sankoff (1989) found that the older Montreal French Vernacular [r] is being replaced by velar and uvular variants. Kemp (1979, 1981) found that the older Montreal French Vernacular interrogation and relative quoi'st-ce que, ('which, that') heard as [kɔs], and qu'est-ce que, are stigmatised, and are being replaced by ce que.
Speech style and register. Most phonetic studies rely on data from read lists, sentences, or passages. Unfortunately, 'word list style' and 'reading style' are generally considered to be too 'self-conscious' or 'controlled' to permit researchers to accurately trace changes progressing in a dialect. Consequently, this study is based on data collected in sociolinguistic interviews. Although the sociolinguistic interviews were made by several different interviewers, the style was as casual, or 'spontaneous' as possible. In the interviews a short reading passage was included to reveal possible style variation, but only the interview style data will be discussed in detail below.

The corpus of radio broadcast speeches and interviews with public figures clearly provides a different style from the casual sociolinguistic interviews, and a whole range of styles within the corpus itself. Most of the (male) politicians were taped in a fairly stylized declamatory style, quite different from the casual interactional style of the interviews. The women in the Radio Canada corpus were generally interviewed to 'push' their favorite charities. While this radio broadcast style is clearly more careful than sociolinguistic interview style, it is much more casual than the pre-election oratorical style used by the men in the Radio broadcast speeches available to us. This unavoidable non-overlap between the styles labeled as 'Radio' for men and women should be borne in mind when evaluating the results.

In addition, the data reveal that the radio broadcast material from before 1960 was markedly different from the broadcasting style acceptable afterward. Since the term 'style' has been used to delineate differences in attention paid to speech, and we can assume that a radio announcer did not pay more (or less) attention to his articulation after 1960, it seems necessary to introduce the additional term 'register'. We will use the term 'register' to define variation caused by the acceptable linguistic norms for a given social situation, and the distinction between the Radio and Interview classifications will be referred to as a distinction in Register. See also Biber and Finegan's (1989) discussion of this variable. In the present study, to limit the number of variables which are needed for the analysis, only radio broadcasts from before 1960 will be discussed in detail, but the differences in style and register which separate these recordings from the Interview data, and from other radio interviews, should be remembered.

Analytical methodology

Data collection. For every interviewed speaker listed in the appendix, at least the first 30 minutes of the interview tape were analyzed, although the data from the reading passages will not be included below. On the average 135 tokens were analyzed for each of the interviewed men but only 96 for each of the interviewed women. Speaker #2 provided the most tokens (343), and Speaker #25 provided the fewest (72) among the men. Women on the whole spoke less: Speaker #10 provided the most tokens (185), while Speaker #119 only yielded 21.

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13 See Yaeger (1974) or Labov (1989) for discussion of the distinction between 'spontaneous' and 'controlled' speech styles, and for evidence that 'controlled' styles cannot accurately reflect dialect shift.
Unfortunately, under the best of circumstances the Radio corpus yields very few extended interviews, but whatever was available was copied from the Canada National Library archive’s tapes and analyzed.

**Lexical groups.** Given that initially it was unclear which words should be classed separately, each morpheme (e.g., `-aire` ‘one who’, `-aise` ‘member of group’), or word (e.g., `père` ‘father’, `paire` ‘pair’), was analyzed separately. Each lexical token was categorized by the first author for both vowel height and diphthongization (as shown in Table 2 above) for each speaker separately.

**Stress levels.** Since as a rule only word final syllables ‘carry’ stress in French, only word-final syllable vowels were considered in this analysis. In French, prepausal, ‘sentence-final’ words are considered ‘stressed’, and the final syllable vowels are almost invariably the longest in the sentence (Yaeger, 1979). Initially five distinct stress groups were categorized, but these were later reduced to three. The final syllables of words at the end of exclamations or questions were categorized separately from the final syllables of unmarked declarative statements. Ultimately, these groups were combined because no significant differences could be found for results from these two acoustically very ‘different’ stress groups; thereafter, both these groups of sentence final, or breath group final, vowels were defined as ‘stressed’. Emphatically or semantically accented sentence internal words (Benguere, 1970; Yaeger, 1979) were initially categorized separately from words at the end of sentence internal syntactic units, which were referred to as carrying ‘secondary stress’ (Selkirk, 1984; Yaeger, 1979), but these groups were combined when it was found that they were not being consistently distinguished by the two judges. The two ‘intermediate’ groups are left unmerged in Table 4. The last stress level considered was unstressed (but still in a word-final syllable). So, ultimately the data were divided into three distinct stress levels: Unstressed tokens were differentiated from fully and internally (emphatically or secondarily) stressed tokens as defined here. Table 4 presents examples of tokens from the present corpus, with their stress categorization.

**Reliability.** In the perceptual analysis, there was a high degree of inter-analyst agreement for vowel color, diphthongization, and stress determination. The primary analysis was done by the first author, and periodic checks were made by the second author. A formal check of 50 tokens for two different ‘difficult’ speakers showed 95% agreement for vowel height, 97% agreement for diphthongization, and 89% agreement for the three stress levels.

**Procedure.** For the 1971 interviews, listening was generally done on a Uher (with footpedal) or Sony 110 tape recorder, with Sennheiser earphones, and a computer printout of the transcript in hand, whenever possible. (Transcripts are only available for the SC corpus.) The analyst listened carefully to the first 5–10 minutes without coding, both to become comfortable with the speaker’s voice and to permit the first (often non-casual) minutes of the interview to pass (cf. Labov, 1966). On approximately

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14 Both authors are trained phoneticians, native speakers of English, and fluent in French.
Examples of (e:)/(ë) in Different Prosodic Contexts

<table>
<thead>
<tr>
<th>(ë:) full stress</th>
<th>'6 pieds s' <strong>terre</strong>!'</th>
<th>'six feet under the <strong>earth</strong>!'</th>
</tr>
</thead>
<tbody>
<tr>
<td>(#23, 11.6)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ë), full stress</td>
<td>'battre à coups de <strong>chaînes</strong>!'</td>
<td>'Beat up with <strong>chains</strong>!'</td>
</tr>
<tr>
<td>(#23, 17.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e:), emphatic stress</td>
<td>'J'ai mon <strong>frère qui</strong> .</td>
<td>'I have my <strong>brother</strong> who . .</td>
</tr>
<tr>
<td>(24, 2.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ë), emphatic stress</td>
<td>'N'empêche que .</td>
<td>'That doesn't <strong>prevent</strong> that</td>
</tr>
<tr>
<td>(23, 11.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e:), secondary stress</td>
<td>'douze, <strong>treize</strong>, ans'</td>
<td>'12, 13, years'</td>
</tr>
<tr>
<td>(24, 20.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ë:), secondary stress</td>
<td>'parti plus à l'aïse, des.</td>
<td>'the best off, of the . .</td>
</tr>
<tr>
<td>(73, 14.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e:), unstressed</td>
<td>'mon <strong>père</strong> disait . . '</td>
<td>'my <strong>father</strong> said . .</td>
</tr>
<tr>
<td>(23, 13.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ë), unstressed</td>
<td>'J'aimerais ben mieux . . ëtre dans l'ancien temps.'</td>
<td>'I would much rather be [live] in the (good) old days.'</td>
</tr>
<tr>
<td>(23, 17.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The numbers cited here are from the Sankoff-Cedergren Corpus, with the first number indicating the speaker, and the rest indicating spectrogram numbers from the series taken for this corpus and discussed more fully in Yaeger (1979).
RESULTS

Vowel shift

The raised vowel. Figure 1 shows the pooled percentages of [e:] or [eː] realization for stressed (e:, ə) separately for men and women. Only the two 'stressed' levels (full and intermediate) are considered, because there was no clear relationship between stress and vowel color evident from either the speaker-by-speaker or pooled results. Since of necessity only the older age groups were represented in the radio data, let us consider the interview data first.

These data were subjected to an ANOVA with the factors Gender, Age, and Class. A number of significant effects emerged. As can be readily seen from the figure, men were much more prone to vowel raising than women [F (1, 34) = 67.3, p < 0.0001]. This difference was pronounced for the older age groups, but absent for the younger speakers, who showed almost no evidence of vowel raising, regardless of gender. This was reflected in a significant Age × Gender interaction [F (3, 34) = 5.5, p < 0.003]. Older speakers were much more likely to show vowel raising than Young speakers [F (3, 34) = 21.1, p < 0.0001], but again, this main effect was more pronounced for men than for women, hence the Age × Gender interaction.

In separate ANOVAs on the two gender groups, the effect of Age was shown to be significant for men [F (3, 17) = 21.4, p < 0.0001] and almost significant for women [F (3, 17) = 3.1, p < 0.056].

Furthermore, working class speakers used the raised allophone more consistently [F (1, 34) = 9.6, p < 0.004], although in the separate ANOVAs this was true for men only: WC men were more prone to vowel raising than MC men [F (1, 17) = 14.0, p < 0.0016], while the same did not hold true for women [F (1, 17) = 0.16]. This difference was reflected in a significant Gender × Class interaction in the overall ANOVA [F (1, 34) = 12.9, p < 0.001]. The large class difference for the middle age men should be noted: The two WC men in that age group showed percentages of raising comparable to the older WC men, while the MC man resembled the younger speakers. Both MC and WC middle-age women resembled the younger women in showing no vowel raising. This exceptional behavior of the middle-age WC men is consistent with the hypothesis that WC men are the last to shift away from an older language norm, at least for peripheral vowel shifts.16

15 In addition, eight of these speakers' interviews have been measured acoustically. Stepwise regressions of the acoustic data (reported elsewhere, Yaeger-Dror 1989a) reveal that the factor Stress Level does not have a significant influence on vowel color. There is also a theoretical reason: Totally unstressed tokens are shorter, less prominent, and less peripheral, and therefore, are not only less differentiated from each other, but in a perceptual analysis are more likely to be marred by measurement error, which would distort the results. We chose to avoid this possible source of error by omitting unstressed tokens.

16 It has been suggested (Guy, p.c.) that WC women are in the vanguard for shifting of peripheral vowels (like the shift discussed here, or the raising of (əh) in many dialects of English), while men are on the vanguard of centralizing changes (like the centralization of the (ay) nucleus in Philadelphia English, or of (e) in Northern Cities English).
These data fit the classic pattern for sound change ‘from below’: The older generation of women leads the sound change, while the older men lag behind. As the change moves toward completion, gender and class differences disappear.

However, the Radio data, which are also displayed in Figure 1, reveal a more conscious component to the change being analyzed. The Radio data were subjected to a separate ANOVA with Gender and Age as factors. The pattern of the results was quite different from that for the Interview data for speakers of the same generation.

While the Interview data show men to be more conservative than women, the opposite is true of the Radio data. Women were more prone to vowel raising than men \[F(1, 11) = 4.9, p < 0.05\]. In fact, Figure 1 shows that older MC women were much more prone to vowel raising in Radio register than in interviews, whereas older MC men showed the opposite tendency, at least in the old age category.

Second, while there was no real difference between the Extra-old and Old Interview speakers (as can be seen from Figure 1), the Radio data revealed a substantial decrease in vowel raising percentages between Extra-old and Old speakers \[F(1, 11) = 14.8, p < 0.003\]. This decrease was similar for men and women, so the interaction of Gender and Age was nonsignificant \[F(1, 11) = 0.02\].

The reader will remember that Radio speakers represent not one but two quite different registers: The men were taped in a bombastic style of political oratory, while the women were taped in a relatively casual interview style. Consequently, the significant Gender effect noted above can be at least partly attributed to the differences between the registers used by men and women in these recordings.

Figure 1 also permits us to contrast the bombastic political orators with a group matched for Gender, Age, and Class: The raised vowels were stigmatized in the radio broadcast political oratory of speakers born after 1900 – our ‘old’ speakers, but not in casual sociolinguistic interviews.\(^{17}\) This difference also apparently reflects an effect of the difference in register.

While both the difference between the men’s and women’s Radio data, and the difference between men’s Radio and Interview data can be explained primarily on the basis of the large register difference, the apparent register difference for women cannot be explained in this way, since for women the two registers are actually quite similar. We hypothesize that the primary difference between the two groups of women is not register but time: We have already observed that all groups lower the percentages of the raised allophones across age groups, and that this is indicative of a change in apparent time. Figure 1 demonstrates that the women interviewed between 1949 and 1958 used the raised allophone more than the group (matched for Class, Age, and Gender) which

\(^{17}\) Preliminary findings from political interviews with Drapeau and Lévesque after 1960 show that \([e]\) for \((\epsilon; \&)\) nuclei occurs more frequently for these speakers after 1970; however, the data are so sparse as to preclude a statistical analysis, and further data would have to be collected from more recent radio interviews to determine the reliability of these conclusions. In addition, the politicians’ speech archived after 1970 (political debates and qu’estion-answer formatted interviews) is not comparable in register to the pre-1960 tapes.
Fig. 1. Pooled percentages of raised [e:] vowel nuclei for (a) men (top panel) and (b) women (bottom panel) as a function of age group. Middle class (MC) speakers are distinguished from working class (WC) speakers, and interviewed (I) from radio broadcast (R) speakers.

was interviewed after 1970. We interpret these results as being due to the linguistic change in 'real time' which occurred between the 1950s and 1970s. This hypothesis is also supported by the steep decline in raised allophones between the two older age groups of Radio speakers which was documented above.

The evidence from the archival recordings is critically informative: Apparently, raising became stigmatized in formal registers (like the political oratory used by most men in the archived data) before 1960, although [e:] was still in current use among old MC men as late as the 1970s. Since the raised pronunciation was still quite acceptable for use by old MC women until at least 1960, we conclude that [e:] was not heavily stigmatized
in even fairly formal conversational speech, although it was in political oratory. Older women only began to alter their pronunciation in a casual Interview style after 1960, and by 1971 even in casual interviews it was used very little by any women.

The lowered vowel. In MFV, the (εː, ɨ), which had risen to mid high position in the last century, did not continue to rise toward [iː]. Theoretically, it could have continued to rise along the peripheral track, and, in fact, some older rural speakers in the Kemp corpus (not included in the present sample) sporadically raise the (εː, ɨ) nucleus to [iː]. However, (i) is not stable in Quebec French (and, therefore, is a variable), while /œ/ is quite stable (and therefore is not a variable); there is also a much greater functional load on the (εː) vs. (iː) distinction than on the (εː) vs. /œ/ distinction. In fact, for historical reasons, there are no minimal pairs with (εː) and (εː). In contrast, there are many minimal pairs for (εː) vs. (iː). This might be one reason why the 'preferred' route for sound change (Labov et al., 1972) was not followed. Instead, the pattern reversed, initiating a lowering trend.

Figure 2 documents the lowering of the (εː) nucleus, showing pooled percentages of [æː; aː] or [ɑː] nuclei for stressed (εː, ɨ) separately for men and women. As already mentioned, initially [æː], [aː], and [ɑː] tokens were counted separately, under the assumption that more extreme lowering and backing would be correlated with social or phonological parameters, but they were later recombined when neither phonological, generational, nor class-based criteria seemed to be consistently correlated with the degree of lowering and backing. The combined realizations are referred to below as [æː], since that is the most frequent category.

No lowered nuclei occur in radio broadcasts before 1960, so these data have not been included in Figure 2. The Interview data were subjected to an ANOVA with the factors Gender, Age, and Class. A number of significant effects emerged.

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18 Unfortunately the Radio Canada sample did not include political oratory by women, so it is unclear whether all of the vowel raising evident in the radio interviews of women can be attributed to dialect change (as we suggest) or whether some is due to style variation, and differing expectations for men and women before 1960 and after 1970.

19 This paper will not deal with the problem these data pose for Labov's (1982) and Trudgill's (1986) theory that dialect is 'hard-wired' into the brain by adolescence, but it is clear that a change took place for the older women after 1960. See Yaeger-Dror (1989a).

20 Unstable lengthened vowels like (εː, ɨ) tend to rise until they hit the 'corner' of the available phonetic space; then, they descend to the bottom peripheral corner (Labov et al., 1972). Based on the historical evidence from English and other Germanic languages, most theories propose that there are intermediate non-peripheral stages (e.g., the Great English Vowel Shift, as discussed in Wolfe, 1969; Donegan, 1978; and Nunberg, 1980). However, spectrographic evidence demonstrates that MFV (εː, ɨ) vowel positions are consistently peripheral relative to other vowels in the system (Yaeger, 1979; Paradis, 1985).
Fig. 2. Pooled percentages of lowered [æː; aː; aː] nuclei in stressed syllables as a function of age group for interviewed speakers.

As can be seen from the Figure, younger speakers lowered the vowel more consistently than their elders \(F(3, 34) = 9.7, p < 0.0001\). In separate ANOVAs on the two gender groups the effect of Age was found to be significant for both men \(F(3, 17) = 19.9, p < 0.0001\) and women \(F(3, 17) = 3.8, p < 0.03\). This is clear evidence of the change in progress.

Women were the first to lower the vowel \(F(1, 34) = 43.1, p < 0.0001\), and WC speakers lower the vowel significantly more than MC speakers \(F(1, 34) = 71.4, p < 0.0001\), which confirms the impression that this change is ‘from below’. However, there was a highly significant Gender \(\times\) Class interaction \(F(1, 34) = 50.4, p < 0.0001\). The effect of Class was present for women only: WC women lower the vowel much more consistently than MC women \(F(1, 17) = 72.0, p < 0.0001\), but this is not reliably the case for men \(F(1, 17) = 0.96\).

It appears that as in other classic changes from below, the women spearheaded both the shift away from the older variant [eː:] (in Fig. 1), and the shift toward the newer variant [æː:] (in Fig. 2), but the men adopted the newer variant while phasing out the older variant more slowly. The change away from the older variant began among the women, and had almost reached completion when the men first began to change. The WC men are the last to begin to avoid the older variant, as is witnessed by the fact that the ‘middle’ aged WC men have barely begun the shift when all other social groups have almost completely omitted [eː:].

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21 Sociolinguists regard any conclusions based on two speakers in a group as purely guess work; however, it is clear that these speakers are consistently more conservative than their near age-mates in all the syntactic and phonological studies which have been done on this corpus (e.g., Kemp, 1979, 1981; Sankoff et al., 1989; Thibault, 1983; Thibault and Vincent, 1990), as well as in the present study.
The shift to the newer variant began with the WC women, and even in the 1970s the WC women were much more advanced than speakers of any other social group. However, unlike the shift from the older [e:] variant, the shift towards the 'newer' [æ:] advances systematically for all social groups. (See also Yaeger-Dror, 1989a.) As a result the two processes are not symmetrical, since the MC women were ready to leave the older [e:] before they were ready to adopt the newer [æ:], while the 'middle' aged WC men were ready to adopt the new [æ:] while still retaining conservative [e:] until later than any other group.

**Potential conditioning factors.** Labov (1981, p. 277) proposed that the following conditions had to be met if the primary influence on sound change is Neogrammatical; that is, if the change is phonologically conditioned:

1. The change must appear to be gradual.
2. There are likely to be detailed phonetic conditions for the rule to apply.
3. There is no indication of grammatical constraints.
4. Every word in a given historical class must be affected.

Condition 1: The evidence presented in the figures demonstrates that while in 1971 the change appears to have been incipient for older men and completed for older women, looking at the entire community, the change does, in fact, appear to be gradual. Thus, Condition 1 applies.

Condition 2: Labov's second point is based on his extensive analysis of many English dialects: In English there is often fine phonetic conditioning of the unstable vowel's articulatory position, based on the relative sonority of the following consonant. However, because of the etymological limitations on the (e:, ɛ) classes shown in Table 1, in MFV the vowel position does not appear to be conditioned by the sonority of the following consonant. In fact, statistical tests have shown that sonority of the consonant, or other phonetic (as vs. phonological) determination of class, cannot be considered as a factor in the analysis of the vowel shift (Yaeger-Dror, 1989a). Since there do not appear to be any detailed phonetic conditions on the vowel shift, Condition 2 does not apply.

Condition 3: Since there do not appear to be grammatical constraints as such, Condition 3 does appear to hold for these data.

Condition 4: However, in the sections which follow, evidence will be presented that not every word in a given etymological lexical class is equally sensitive to the vowel shift tendency, so Condition 4 does not apply; we will show that the rule for (e:) shift is clearly complicated by a lexical component.

**Lexical conditioning of vowel color:** *Conservative exceptional lexical classes of (e:).* As discussed in the Methods section, for this analysis each lexical item was coded separately, and words which had a much higher incidence of conservative (that is, raised [e:]) articulations were tentatively marked as conservative. This designation turned out to be doubly apt: Not only is [e:] the more conservative realization of (e:, ɛ), but many of the lexical items may have conservative connotations as well, as we hope to show.

The left hand column in Table 5 presents members of the conservative class, while the right hand column presents homonyms and other words in the same etymological
Table 5

Conservative (e:) words compared with etymologically similar words.
Percentages of raised vowels are pooled for older interviewed men and women.

<table>
<thead>
<tr>
<th>Conservative Words</th>
<th>Gloss</th>
<th>% (N)</th>
<th>(e)</th>
<th>(N)</th>
<th>Other Words</th>
<th>Gloss</th>
<th>% (N)</th>
<th>(e)</th>
<th>(N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e:re)guerre</td>
<td>‘war’</td>
<td>61 (44)</td>
<td>33 (24)</td>
<td></td>
<td>(e:re)terre</td>
<td>‘land’</td>
<td>28 (42)</td>
<td>0 (30)</td>
<td></td>
</tr>
<tr>
<td>(je:re)glacière</td>
<td>‘ice box’</td>
<td>80 (5)</td>
<td>83 (6)</td>
<td></td>
<td>(je:re)infirmière</td>
<td>‘nurse’</td>
<td>13 (8)</td>
<td>0 (3)</td>
<td></td>
</tr>
<tr>
<td>(e:re)père</td>
<td>‘father’</td>
<td>71 (327)</td>
<td>30 (213)</td>
<td></td>
<td>(e:re)paire</td>
<td>‘pair’</td>
<td>36 (3147)</td>
<td>9 (1941)</td>
<td></td>
</tr>
<tr>
<td>(e:re)mère</td>
<td>‘mother’</td>
<td></td>
<td></td>
<td></td>
<td>(e:re)mairie</td>
<td>‘mayor’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e:re)frère</td>
<td>‘brother’</td>
<td></td>
<td></td>
<td></td>
<td>(e:re)plaire</td>
<td>‘to please’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e:ge)collège</td>
<td>‘high school’</td>
<td>100 (25:WC)</td>
<td>33 (3)</td>
<td></td>
<td>(e:ge)neige</td>
<td>‘snow’</td>
<td>25 (32)</td>
<td>0 (10)</td>
<td></td>
</tr>
<tr>
<td>(e:re)hiver</td>
<td>‘winter’</td>
<td>78 (23)</td>
<td>50 (12)</td>
<td></td>
<td>(e:re)fer</td>
<td>‘iron’</td>
<td>7 (27)</td>
<td>8 (25)</td>
<td></td>
</tr>
</tbody>
</table>

Total | 65 (473) | 33 (258) |      |     | Total | 36 (3256) | 9 (2009) |      |     |
class of -r: e.g., mère 'mother' vs. mer 'ocean'; père 'father' vs. paire 'pair'. The bulk of the words in this class either refer to family members or are semantically related to church or school themes. In Table 5 we have contrasted the words in the conservative class with words which do not belong to that class although they belong to the same etymological class, or are semantically related, or are merely (apparently) homophonous.

The numbers and percentages presented in Table 5 represent only the number for those interviewed speakers with 10 or more [e:] tokens, and the percentage of those tokens which were produced with the raised allophone. Note that this disregards the pronunciation of the Radio broadcast speakers, as well as all younger speakers, and most older women. Consequently, the number of tokens is much lower than the total number of tokens of words in this class which were gathered, and the percentages are only meaningful for these older, more conservative speakers. While the older Radio broadcast speakers did use the more conservative pronunciation consistently, the lexical items which were classed as conservative rarely occur in the Radio broadcast interviews, so no statistical analysis of lexical diffusion was possible for the Radio broadcast speakers. The effective statistical sample was thus limited to 27 of the Interview speakers.

Of the conservative words, only the words which are presented are counted; for the \{mère–père–frère\} group the number and percentages for all three are pooled. Wherever possible, in the right hand column all nonconservative words in the same etymological class are pooled, and the number and percentage of raised tokens for all these words are included. For example, we will soon describe how fer and hiver are in the same etymological class. Here fer represents all members of the etymological class which Santerre (1974) and Dumas (1981) have categorized as the (er) etymological class [except hiver]. Similarly, guerre and terre are in the same etymological class. Here terre represents all the other members of the e:<erre> etymological class [except guerre]. Only old WC men (who appear to have been greatly influenced by their time in the First World War) place guerre in the conservative class.\(^{22}\) Inermière represents all <ière> words which include an offglide (which might provide an articulatory influence to retard lowering) [except glacière] and the number for all words in this class are pooled.

In some cases, the words in the right hand column are theoretically homophonous with the conservative words, but do not belong to the same class. For example, opposite the mère–père–frère group are listed the words which are actually homophonous with these words, and which belong to the same etymological class as these homophonous words; in addition, mer could be regarded as potentially homophonous, although it belongs to the class which both Santerre (1974) and Dumas (1981, 1987) show to be etymologically distinct.

Table 5 also provides a comparison with semantically related terms, when semantically related terms with (e:) occur in French; when the relationship is semantic, only the listed terms are counted. For example, glacière 'ice box' (used as a synonym for refrigerator by older speakers) may be contrasted with frigidaire 'refrigerator' (which

\(^{22}\) Readers of Lennig (1978) may wonder if the preceding g might be raising the vowel, as it does in Parisian Vernacular, but Parisian guerre [gye:R] ≠ Old MFV [ge:(1)r], so guerre remains in the same etymological class with the other <erre> words.
only occurs with an [æ:] nucleus. Only in one other case is the semantic comparison possible: the contrast between hiver ‘winter’ and neige ‘snow’. While neige ‘snow’ is conservative only for some older speakers,\(^{23}\) hiver ‘winter’ is invariably conservative for all.

Note that no exact etymological equivalent, nor homophonous term, could be found in the data for collège (‘high school’), and the only term within the relevant semantic universe — universitaire (‘university-related’) — only appears in interviews with MC speakers, so it would not have provided a reliable semantic comparison. As a result, the slot opposite collège is filled by its nearest etymological match, neige. Chi squares comparing the ratio of raised to unraised tokens for collège with that for the overall unmarked group, however, shows the difference between collège and other words to be significant for the old WC men.

In virtually all cases, chi square tests showed that vowel raising was significantly more frequent for conservative words than for their etymological or semantic equivalents.

Our discussion of these exceptional classes is based on conclusions drawn after several other possible explanations for the exceptional lexical distinction had been discounted. We considered three alternative classifications:

(a) Etymology as a possible factor.\(^{24}\) Historical evidence shows that (e:) in words ending in rre rose before those ending in r or re (Thurot, 1881–83), and that, in one subset of words ending in r, (e) was not lengthened (Santerre, 1974); so historically there were three etymological classes of words ending in an r sound: e:rr e words, e:r words, and e:r words. It is interesting that although hiver ‘winter’ belongs to the subclass of words which were not lengthened (Santerre, 1974), in Quebec the words in this etymological subclass merged with the (e:) class long enough ago so that hiver has its own idiosyncratic place in the lexical conditioning, being a member of the conservative class, while other members of this etymological class — like fer ‘iron’ for example — are not conservative. Just as hiver is the only member of the e:r class to be conservative, guerre is the only member of the e:rr class which is conservative for any of the speakers in this corpus. In fact, no etymological relationship unites the words in the conservative class. In light of the historical evidence, those words which have been classed here as conservative come from different etymological classes, some of which had begun to shift to [e:] first (like the e:rr words), and others (like hiver) which were presumed to have stable, non-lengthened (and unraised [e]) vowels. Since no etymological relationship between the conservative class and any of these three etymological classes can be found, the conservative class must be an exceptional (rather than etymological) lexical class (Yaeger-Dror, 1989a).

As discussed earlier, (e) — along with (e:z) — was lengthened and raised before other

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\(^{23}\) Two old MC men (#81, #115) used [e:] categorically for neige, but no other men used the raised pronunciation, so neige is placed opposite hiver to provide the semantic comparison.

\(^{24}\) This discussion is simplified and limited to present concerns.
(e:) vowels (Morin and Dagenais, 1988; Yaeger-Dror, 1987). Thus, (ē, e:z) words can be considered etymologically distinct from (e:). While (ē, e:z) words are somewhat more resistant to lowering toward [æ:] than words from the (e:) class, the distinction between (ē, e:z) and other (e:) vowels is preserved more consistently by diphthongization than by vowel color, and will be discussed in detail below.

(b) Word frequency as a possible factor. As already mentioned, Schuchardt (1885) first pointed out that lexical conditioning can be directly related to word frequency. Phillips (1984) also presents evidence that more common words are most likely to shift first, if the change is ‘from below’ and least likely to shift first if the change is ‘from above’.

Given that older working class women are the first to shift toward [æ:], the change appears to be ‘from below’. Even in the younger generation, the WC women clearly have a more advanced pronunciation than their MC age mates, as can be seen on Figures 1 and 2; the significance of both Age and Class in both raising and lowering confirms this.

Since Phillips (1984) proposed that most frequent words would shift first in a change from below, the frequent words like {mère, père, frère} should have shifted first. Church-related vocabulary is probably used more frequently in Quebec French culture than in the Continental culture for which frequency dictionaries are available. However, even if appropriate frequency dictionaries for Quebec French were available, it is unlikely that word frequency is directly responsible for the shift from (or retention of) [e:], as Phillips (1984) proposed. (A more thorough discussion of the possibility that word frequency is involved in the lexical conditioning can be found in Yaeger-Dror, 1991.)

Given that more frequent words ‘should’ shift first when the change is from below, the degree to which the more conservative pronunciation can be directly correlated with word frequency would imply that the change to [æ:] comes from above; this implication is contradicted by the fact that it is the older working class women who appear to be introducing the new pronunciation, while older doctors, judges and college professors retain the older pronunciation.

Some church related lexicon also appears to follow the pattern, while occurring too infrequently to permit us to even include them in the analysis: e.g., presbitaire ‘presbytary’ (two occurrences, both [æ:]), and brevière ‘breviary’ (three occurrences, all [æ:]).

In short, in the present corpus no consistent pattern relating word frequency to the shifting pattern of (e:) can be found. Both very frequent terms (like the family related lexical items) and less frequent terms (like church related lexical items) appear to be included in the conservative exceptional class.25

25 Just as the [e:(i)] for the (e:, ū) has shifted to [a:(i)], the former [o:(u)] for the (o:) is now realized variably as [a:(u)]. Yaeger-Dror (1989b) compares the different speakers’ shifting patterns for (e:, ū) and (o:), and shows that just as {mère, père, frère} shift last, more frequent (o:) words shift last, and less common words shift first, despite the fact that all the class and age evidence shows these changes to be classical changes from below.
(c) **Semantic network as a possible influencing factor.** Word frequency and etymology are the two factors which generally are proposed to generate lexical classes; however, neither seems to be a unifying factor for the conservative words. The only common ground discovered among these words was that they were often related to conservative topics, which appear to have connotations of the 'old days' ('les bons vieux temps'). Guerre 'war' is conservative, especially among those whose lives, according to their stories, were greatly influenced by World War I (the war commonly discussed in the interviews with older speakers). Hiver 'winter' collège 'high school', glacières 'ice boxes', and mère–père–frère family members (or members of the church) are all related to these 'good old days' for the older speakers. Further analysis may show other influences to be operative, but it seems that whatever the reason(s) for the distinction between the conservative words and nonconservative words, it is based on lexico-semantic rather than phonological or etymological considerations.

The simplest linguistic explanation would state that conservative words — like père, mère, guerre ('father, mother, war'), etc. — are on the tag end of the shift from [e:] to [æ:]. As the 'wave' of change nears completion, these conservative words shift, and the 'lexical conditioning' is resolved among the younger speakers. The data demonstrate that older speakers' (ε:) includes exceptional lexical distinctions which are (apparently) based on semantic class affiliation rather than on phonological environment, etymology, or word frequency; vowel color distinctions are most salient at the beginning of the shift under consideration, but the lexical groups remerge as the (ε:) shift reaches completion. Thus, although we certainly could not discuss the shift of (ε:) nuclei from [e:] without reference to regular phonological conditioning, lexical conditioning occurs as well.

To show the effect of social class and age, Figure 3 presents the pooled percentages of [e:] or [e:1] realizations for stressed (ε:), separated by semantic class. Only those words listed in Table 5 were included as conservative words in Figure 3.

Except for older MC men, all speakers who retain [e:] use it more often in

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26 Abd-el-Jawad (n.d.) claims that a similar lexico-sentimantal distinction occurs in Modern Arabic (at least in word list style) speech, with 'learned' words occurring categorically with standard consonant realizations, while 'unmarked' words variably occur with local colloquial realizations for the consonants.

27 It is possible that the semantic groups themselves have become so altered in the last generation(s) that the semantic network which ties together home-church-school and 'the Big War' as [+conservative] by speakers raised in a church-oriented society is no longer operative in the modern secular culture of the younger generation, and many of the older professionals; such a loss of semantic network might speed the reintegration of the exceptional class. In that case, the loss of the lexical distinction may be independent of the completion of the vowel shift. This hypothesis could be easily researched, using the Sankoff-Cedergren corpus, since one of the prominent modules of the interview questionnaire concerns the relative church-centeredness of the interviewees' homes. This would not be a necessary but a reinforcing influence on the reintegration of the exceptional class with (ε:).
Fig. 3. Pooled percentages of raised [e:] nuclei in stressed syllables. Two lexical classes are distinguished.

Conservative words. Note that the younger WC men have greatly reduced their apparent reliance on an [e:] nucleus for (e:) when the [+conservative] class is separated from other (e:) words. However, the distinction between the two lexical sets is ultimately lost as vowel lowering goes to completion. As Figure 3 shows, WC speakers were found to separate the groups more than MC men and the younger MC women. (No statistical analysis was conducted on these data.)

The shift from [e:] is complicated by exceptional lexical classes, despite the fact that Labov's (1981) hypothesis would project that lexical diffusion is least likely to arise in the case of a simple vowel shift which is a change from below. Given that Labov's (1981) assessment was that such a simple vowel shift would provide the weakest opportunity for lexical conditioning, the vowel shift documented here strengthens the case that phonologically regular sound change can be complicated by lexical conditioning. The behavior of this lexical diffusion is consistent with that proposed by Wang and his students: The two vowel classes shift separately toward the new target, but when the change has reached completion the lexical split appears to be resolved.28

In the next section, we will look at the monophthongization of diphthongs, which Labov (1981) projected would be more likely to permit lexical diffusion, both because

28 In the present case, the perceptual results are confirmed by acoustic results: Statistical analysis of the formant frequencies for the two classes show no significant differences between classes for the younger speakers (Yaeger-Dror, 1989a).
the change is phonologically more complex and because (as both the literature and the present study show) it is a change from above.

**Diphthongization**

All discussions of diphthongization in Canadian French agree that it has been an important distinguishing characteristic of the Canadian French speaker since at least the late eighteenth century (Beauchemain, 1977; Poulin, 1973; Demharter, 1980). Earlier studies have maintained either that diphthongization is so strongly stigmatized that no middle class speaker would use it (Santerre, 1974), that it is so weakly stigmatized that only the youngest upper middle class speakers show a reliable tendency to avoid its use in conversation (Gendron, 1966; Santerre and Millo, 1978), or that diphthongization is categorical (or nearly so) despite the stigma (Dumas, 1974, 1981; Demharter, 1980). While earlier researchers do not agree among themselves, we conclude from their testimony that register, style, age, and social class are all probably relevant to the use of diphthongization, and that monophthongization can in all likelihood be regarded as a change from above.

**Diphthongization and stress.** Since diphthongization is stigmatized, we should also be able to assume that, all other things being equal, the greater the degree of attention paid to speech, the less diphthongization will occur in a given position. However, all other things are not equal: Universal articulatory evidence shows that longer, more heavily stressed vowels (which presumably have more attention paid to them) are more likely to overshoot their target and diphthongize.

It is well known that vowel peripherality and diphthongization are directly related to vowel lengthening, which (in turn) is conditioned by a number of syntactic, semantic and pragmatic factors (cf. Benguerel, 1970; Klatt, 1975; Yaeger, 1979). Understandably, diphthongization is strongly constrained by the relative stress or accent placed on the vowel: The stronger the stress placed on a word, the longer its vowels are, the more likely vowels are to diphthongize, and the further the glide toward [y] or [w] (Lehiste, 1970; Delattre, 1969; Feagin, 1987).

All other things being equal, semantically stressed words have longer vowels than immediately stressed or unstressed words, but shorter vowels than sentence final words (Lehiste, 1970; Benguerel, 1970). Durational measurements for several speakers from the present corpus confirm that this is true for the present database (Yaeger, 1979).

Thus, theoretically, two conflicting factors influence diphthongization. Longer ('stressed') vowels are universally more likely to diphthongize, but if diphthongization is socially stigmatized, this articulatory tendency may be at least partly neutralized by

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29 Gendron (1966), for example, maintains that while open vowels are unacceptable as diphthongs, even well educated speakers will diphthongize more closed vowels: *L’existence de ces diphtongues (aè and ay) est toutefois liée à la prononciation vulgaire et il y a peu de chance de les trouver dans la bonne société, tandis que la diphtongue èy plus discrète peut se rencontrer même dans milieux cultivés sans qu’on y prête trop d’attention* (p. 61). As mentioned earlier, he himself used [e̞] in classroom lectures.
a conflicting tendency to correct diphthongization more consistently in stressed words, where cognitive 'focus' is on the word. In MFV diphthongization occurs almost exclusively on word final syllables of phrase final words, so we can assume that the universal influence of articulatory overshoot is stronger than the contradictory influence of the social stigma attached to diphthongization in MFV.

Acoustic measurements of duration could theoretically be directly correlated with vowel diphthongization. However, analysis of the durational and formant information for 10 speakers from the corpus have shown that all speakers have a statistically reliable tendency to lengthen ante/penultimate words in a sentence, but no concomitant tendency to diphthongize (ε:) vowels which are lengthened by their ((ante)penultimate) sentential position (Yaeger, 1979). Yaeger-Dror (1989a) reported results of regression analyses on the acoustic results for these speakers.30

Regressions of vowel color and diphthongization revealed that vowel durations entered the regressions for only two of the speakers, accounting for a small amount of the variance, while sentential position or stress (as defined above) entered the regression early for most of the speakers, and accounted for a consistently high percentage of the variance for all speakers.

Diphthongization occurs more frequently in stressed syllables than in unstressed syllables, and more consistently in stressed syllables than in syllables whose vowel length is measured without accounting for the degree to which that length is dependent on the word’s importance in the sentence; so whatever inhibitory influence might accrue from a speaker’s added attention to ‘stressed’ syllables, it is clearly counterbalanced. Fully stressed sentence final (ε:, έ) are most likely to diphthongize, the intermediate group of phrase final and contrastively stressed vowels are less likely to diphthongize, while unstressed vowels are least likely to be diphthongized. For that reason, the unstressed tokens were not included in the analyses.

**Lexical classes and age.** As Table 1 and the discussion of it showed, (ε:) and (έ) are different etymological classes. Given the ample evidence that the etymological classes are quite different with respect to diphthongization, ANOVAs were run separately for (ε:) and (έ). These data were subject to an ANOVA with the factors Gender, Class and Age. Figure 4 presents these two lexical classes, showing the pooled percentages of diphthongized tokens for stressed (ε:) and (έ) separately for men and women. Since of necessity only the older age groups were represented in the Radio data, let us consider the Interview data first.

A number of significant effects emerged, despite the fact that the ‘middle’ age group consists of only one or two speakers for each Class and Gender group, and despite the evidence that – as Labov (1966, 1972) has often shown – changes from above are much less regular than changes from below.

For diphthongization of (ε:) – Figures 4b and 4d – Age, Class and Gender all had

30 Multiple ridge regressions were run on both the formant data, and on the first principal component of the F1–F2 data. Detailed discussion can be found in Yaeger-Dror (1989a).
Fig. 4. Percentages of (\textipa{\textael}) vs. (\textipa{\textael}) diphthongization in fully stressed syllables, for men (top panels) and women (bottom panels).

A significant effect. As we would expect for a change from above, WC speakers diphthongize more consistently \([F(1, 33) = 30.6, p < 0.0001]\); the variation connected with age is complicated by social factors, but age is apparently significant nonetheless \([F(3, 33) = 3.5, p < 0.027]\).

Despite often heard claims that women are more 'careful' speakers than men, the difference between men and women does not reach significance \([F(1, 33) = 3.8, p < 0.06]\). All interactions (Age $\times$ Gender, Class $\times$ Gender, Age $\times$ Class, and Age $\times$ Class $\times$ Gender) are nonsignificant. Overall these results are consistent with Santerre and Millo's (1978) claims: For these speakers, monophthongization is a change from above, which is advancing among younger MC speakers. Figure 4 would limit that claim to younger MC women.

The (\textipa{\textael}) – in Figures 4a and 4c – is generally diphthongized more consistently than (\textipa{\textael}). ANOVAs for (\textipa{\textael}) show that (again) Class is a significant factor: WC speakers
diphthongize more consistently than MC speakers \[F (1, 33) = 12.4, p < 0.001\]. In fact, when we looked at the speaker by speaker results, we found that there are MC speakers who monophthongize almost categorically – those who combine high ML ratings with a certain degree of social unease\(^{31}\) and those who are speaking in a very stylized speech register, like the Radio broadcast speakers.

On the other hand, there is no significant effect for Age or Gender. While there are no two way interactions (the Age \(\times\) Gender and Class \(\times\) Gender interactions are non-significant), the triple interaction (Age \(\times\) Gender \(\times\) Class) is significant \[F (3, 33) = 4.1, p < 0.014\]. While diphthongization is clearly stigmatized (as is witnessed by the Class effect), there is no evidence that there is any change in progress for this lexical group.

**Diphthongization in Radio register.** Figure 4 also shows the percentages of diphthongized tokens for the Radio speakers. Given that the change is 'from above', register should be an important influence on diphthongization: The Radio broadcast speakers should 'correct' more consistently than the interviewed speakers. The Radio data were subjected to separate ANOVAs, one with Gender and Age (of the Radio speakers) included as variables, and the other also including the older MC interviewed speakers, with Gender, Age, and Register as factors.

The Radio broadcast speakers born after 1900 monophthongize almost categorically. Gender is not significant for either (\(\varepsilon\)) \[F (1, 11) = 2.16, p < 0.17\] or (\(\varepsilon:\)) \[F (1, 11) = 2.64, p < 0.13\], while it was for both changes from below which we analyzed. We conclude again that women generally initiate changes from below, they do not initiate changes from above in North America (as Chambers and Trudgill (1980) found they do in England).

Clearly, there is more diphthongization for the Interview speakers than for any Radio broadcast speakers. This effect of register is significant for (\(\varepsilon:\)) \[F (1, 24) = 11.32, p < 0.0026\].

**Statistical speaker by speaker results.** The difference between the two etymological groups is consistently maintained by speakers of both genders, both classes, and both registers. Chi square analysis of each speaker's diphthongization percentages for the two etymological groups showed that (\(\varepsilon\)) is diphthongized significantly more often than (\(\varepsilon:\)) for 24 of 27 women, and 27 of 37 men (Yaeger-Dror, 1989a), as well as for some speakers whose results are not included here.

**Potential conditioning factors.** Monophthongization shows the following characteristics:

1. The monophthongization appears to be gradual.
2. There are detailed phonetic (in this case prosodic) conditions (which we have referred to as 'stress' related).
3. There are no obvious grammatical constraints.\(^{32}\)

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\(^{31}\) This characterization is greatly oversimplified. The interested reader should see Yaeger-Dror (1989b) and Thibault and Vincent (1990).

\(^{32}\) This assumes, of course, that the real constraints are superficial prosodic constraints, and not grammatical ones.
However,

(4) Lexical (sub)classes do exist.

The existence of two residual etymological classes reveals that the monophthongizing trend is both phonologically and lexically conditioned.

It is clear that if we were to interpret monophthongization as a possibly advancing sound change, the distinction between the two etymological classes becomes greater, with \((e:\) leading the change. The fact that the younger MC women are also beginning to correct \((\varepsilon:\) may signify that eventually the two classes will merge, or it may merely be an artifact of the younger MC women’s self-conscious attempt to remove all stigmatized diphthongs in their careful speech.

**GENERAL DISCUSSION**

*Change from above vs. change from below*

Two changes are occurring in the MFV realization of \((e:\, \varepsilon:\)\). One is a change from above, and the other a change from below.

**Change from below.** The change from below shown on Figures 1 and 2 is shifting the \((e:\, \varepsilon:\) nucleus from \([e:\) to \([\varepsilon:]\) along the periphery of the vowel system. **Lowering** of \((e:\, \varepsilon:\) to \([\varepsilon:]\) was perhaps initiated by the MC politicians in formal registers, but the lowering to \([\varepsilon:]\) was clearly initiated by older working class women, and has been adopted by almost all of the younger speakers in the corpus.

We see that this vowel shift conforms to the pattern of change described in Labov’s classic studies, and is rapidly coming to ‘completion’.

**Change from above.** The change from above portrayed on Figure 4 monophthongizes the diphthongal realization of \((e:\, \varepsilon:\)\). **Diphthongization** is first reduced in the more controlled Radio broadcast register, and in Interviews of self-conscious older middle class men and women. The diphthongal realization appears to have been socially stigmatized by all younger middle class speakers in the early 1970s, but the results may be complicated by the fact that a ‘change from below’ advances fairly systematically, while a ‘change from above’ should be more easily influenced by a number of socio-psychological factors.

It is interesting to compare the results for \((e:\, \varepsilon:\) shifting with the sociolinguistic patterns discussed in Kemp (1979, 1981). Laberge and Chiasson-Lavoie (1971) found that the syntax and lexicon of the standard are much nearer the surface of consciousness than phonology, as is the difference between a monophthongal (standard) and diphthongal (nonstandard) realization of \((e:\, \varepsilon:\)\). Kemp documented that the older working class men maintain the use of many traditional, nonstandard, morphosyntactic forms, while older middle class women show a much greater tendency to use standard variants, without attaining a consistent norm. The younger speakers also avoid the more traditional nonstandard forms, but not consistently.

Since the morphosyntactic examples Kemp documents involve change from above,
it is not surprising that diphthongization presents roughly the same sociolinguistic pattern as occurs with these variables: it is the middle class which appears to initiate the change. The linguistically interesting difference which results from the comparison is that while even the younger working class speakers shift away from stigmatized morphosyntactic locutions, only the younger middle class appears to stigmatize the phonology, and very few speakers can categorically avoid the stigmatized variable; reasonably enough, in a change from above, phonology is apparently even harder to stigmatize than morphosyntax.

If, or when, (ε:) and (ë) will merge is beyond the scope of this study, since it has been claimed that dialect has been semiotically converted into a symbol of Quebec nationalist aspirations.

*Language change and language attitudes*

It is beyond the ability of any researcher to project the vagaries of 'style' much less changes in ethnolinguistic vitality (Giles and Johnson, 1987; Giles, Bourhis, and Taylor, 1977; Bourhis, 1984). We know that it is possible for a local prestige or ethnic pride norm to be liberated into existence from some stigmatized limbo by a changing political climate (Ryan, 1979, pp. 148f.; Baugh, 1988; Yaeger-Dror, 1988; Yaeger-Dror, in press). It is possible that in the changing political climate of the Province of Quebec, use of diphthongization is acquiring a new social significance.

Sociologists report that MFV speakers have become increasingly separatist since the 'Quiet Revolution' (Levine, 1990). Quebec linguists and nonlinguists alike testify that as politically separatist feelings became stronger in Quebec, 'national' figures diphthongized more consistently in the 1980s than they had 10 or 15 years before. This is true for both political figures of the nationalist movement and media personalities like Duguay, Piché, Plume, or Sol (Yaeger-Dror, 1991).

In fact, several sociolinguistic researchers who work elsewhere have found results which would be consistent with such a claim. Labov (1972) found that people who chose to remain on the island of Martha's Vineyard (in Massachusetts) advanced their pronunciation of 'Islander' phonology, while those who expected to leave the island retracted toward a more 'standard' pronunciation. Similarly, Eckert (1988) showed that suburban Detroit teenagers who expected to remain in the Detroit area had advanced Northern Cities' vowel shifts, while those who expected to leave the area shifted instead toward their concept of a 'standard' vowel phonology.

Ryan (1979, p. 155) found that those who have the least tendency to correct their local 'ethnic' dialect during the period of transition from a lower (even covert) prestige to a higher prestige will be those who are too old to wish to be 'moving up' and those who have been most influenced by what Ryan refers to as the 'ethnic is beautiful' movement. Similarly, as the 'ethnic is beautiful' movement got underway, both American and Israeli ethnics shifted toward ethnically 'marked', formerly stigmatized pronunciations (Baugh, 1988; Yaeger-Dror, 1988). Given these precedents, the reported re-emergence of diphthongization in politicians' and performers' formal registers is not surprising.

On the other hand, when we combine Ryan's insight with information gleaned from
papers by Lambert and his associates (W. Lambert, 1979; S. Lambert, 1973; Bourhis, 1984), we see that even in the early seventies (when the ‘casual’ interviews were taped), teachers and their pupils in the Montreal system were still downgrading themselves relative to both the English Canadians and speakers of what they considered to be ‘standard’ French. Thibault (1983) also pointed out that until speakers enter the work force they are members of a separate ‘youth culture’ which has linguistic needs which are independent from the needs of those in the work force, and those with a clear political agenda. The limited information that we have shows that the speakers who have finished their schooling (#87, #117, and #70) show less tendency to correct than the other middle aged and young MC speakers whose results are presented in Figure 4. Even with this in mind, there is no evidence in this corpus for the purported conversion of diphthongization from a stigmatized to a politically ‘chic’ variable.

The young MC, which is said to be the most highly politicized group in the population (Levine, 1990), may reverse the MC drift toward a ‘standard’ monophthongal realization for (È, ë:) and use the variable as a prestigious ‘indicator’ of Quebec nationalism. Further studies should focus more on slightly older, and therefore more politicized MC speakers, rather than the high school and CEGEP (junior college) students who comprise most of the younger middle class corpus here, and further studies concerned with changes from above within the changing political climate, should take advantage of the 1984 re-interviews of the speakers in this corpus (Thibault and Vincent, 1990).

Note that to some degree the results reported here are not consistent with expectations based on the sociological background information presented in the early part of the paper, nor with projections based on the rise in separatism or changes in the speech of media stars. Earlier, we reported that the generation born after 1905 should be more nationalistic than the one immediately preceding it, that the generation born after 1940 should be more nationalistic than the generation born before 1920, and the ‘boomers’ should be the most nationalistic group of all.

If, as claimed, diphthongization had become a marker of Québécois status in the 1970s, MC speakers born after 1900 should diphthongize more than those born before, and those born after 1946 should diphthongize most frequently. This was clearly not the case in 1971. On the whole, the evidence for monophthongization shown on Figure 4 is quite inconclusive. As Labov (1966, 1972) demonstrated, it is the unconscious change which reveals its rule governed nature, while the conscious change is produced much more erratically.

Whether or not MFV loses one of its most salient distinguishing characteristics, it is clear that, as the change has progressed, lexical diffusion is strongly in evidence. It would be premature to speculate as to whether the lexical diffusion between more-likely-to-diphthongize (È) and less-likely-to-diphthongize (ë:)) will be retained, and whether monophthongization will be halted before it goes any further, or whether the change will go to completion, eliminating diphthongization from the dialect.

Likelihood of lexical conditioning in different phonological changes

The claim has been made that many phonologically conditioned changes are complicated by lexical conditioning. Evidence has been presented here which supports
this claim: It is impossible to study a sound change while ignoring lexically conditioned diffusion patterns. Two very distinct sorts of lexical conditioning have been found in these data. There is, first of all, lexical conditioning which arises from some etymological distinction in the language, like the (e:)/(ə) distinction discussed here, or the meet/mate/meat distinction discussed by Milroy (1980) for Hiberno English. There is also exceptional lexical conditioning which may perhaps be related to word frequency, but which in this case appears to be related to membership in some sort of semantic network.33

Exceptional lexical conditioning may prove more ephemeral as is the case for (e:) conservative vs. (ə:) nonconservative words. In other cases, exceptional lexical conditioning can be rigidly maintained among the native speakers, as has been documented for the {mad, bad, glad} class in the Philadelphia Vernacular (Labov, 1981). Payne (1980) suggests that in some cases exceptional lexical conditioning maintained stably among native speakers — like Philadelphia mad, bad, glad — may be easier for dialect learners to adopt than fine-grained phonetic conditioning — like that common for East Coast (æ/æh) conditioning (Labov et al., 1972).

The claim has also been made that phonologically complex changes from above are most likely to be lexically conditioned, while phonologically simple changes from below are the least likely to be lexically conditioned. That hypothesis is not substantiated by these data, since the simple change from below — vowel lowering — has quite elaborate exceptional lexical conditioning, while the complex change from above — monophthongization — has merely retained etymological classes, which have been a component of variability from the inception of the change, and may well be retained after the shift has stabilized. Contrary to Labov’s (1981) expectations, it is the ‘classical’ phonological change within one system (within the long vowels) which developed exceptional lexical conditioning.

Only by studying language variation and change in many different language groups will we be able to learn what the rules are which govern language change; hopefully, this study has been able to highlight some of the questions, and even to provide some answers which will help determine how those rules might be formulated.

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33 It is even possible for an etymologically motivated lexical conditioning to become complicated by a semantically motivated distinction. For example, in English some French loans were retained with /ʒ/ for orthographic ge: ‘rouge, beige’. The fact that garage is no longer a member of this class for many speakers may be indicative of the shift from an etymologically-based distinction [those words which were adopted from French] to some ‘semantic’ ‘Frenchy’ class (Nunberg, 1980, p. 250). Nunberg maintains that garage has joined the ‘native’ lexicon, while such words as rouge, beige are still categorized as ‘Frenchy’
REFERENCES


## OLDER SPEAKERS
(learned to speak before World War I)

<table>
<thead>
<tr>
<th>Speaker No.</th>
<th>Birth Date</th>
<th>Interview Date</th>
<th>MLa</th>
<th>Background Information</th>
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<th>Code\textsuperscript{d}</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. Bourassa</td>
<td>1868</td>
<td>1942, 44</td>
<td></td>
<td>Lawyer, major political figure</td>
<td>96</td>
<td>XRU15</td>
</tr>
<tr>
<td>E. Lapointe</td>
<td>1873</td>
<td>1936, 39</td>
<td></td>
<td>Lawyer, major political figure</td>
<td>127</td>
<td>XRU15</td>
</tr>
<tr>
<td>L. Groulx</td>
<td>1876</td>
<td>1956</td>
<td></td>
<td>Lawyer, major political figure</td>
<td>74</td>
<td>XRU15</td>
</tr>
<tr>
<td>A. David</td>
<td>1882</td>
<td>1944, 59</td>
<td></td>
<td>Lawyer, major political figure</td>
<td>95</td>
<td>XRU15</td>
</tr>
<tr>
<td>M. Duplessis</td>
<td>1889</td>
<td>1946, 49</td>
<td></td>
<td>Lawyer, major political figure; Prime Minister 1936-39, 1944-59</td>
<td>72</td>
<td>XRU15</td>
</tr>
<tr>
<td>G. Albert</td>
<td>1890</td>
<td>1960</td>
<td></td>
<td>Lawyer, political figure</td>
<td>17</td>
<td>XRU15</td>
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<tr>
<td>J. Drapeau</td>
<td>1916</td>
<td>1942, 54</td>
<td></td>
<td>Lawyer, mayor 1954-56; 1960-80s</td>
<td>57</td>
<td>ORU15</td>
</tr>
<tr>
<td>P. Dozois\textsuperscript{b}</td>
<td>1908</td>
<td>1958</td>
<td></td>
<td>Tobacconist, turned politician</td>
<td>14</td>
<td>-----</td>
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<tr>
<td>R. Lévesque</td>
<td>1922</td>
<td>1942</td>
<td></td>
<td>Political journalist; Prime Minister 1976-1980s</td>
<td>20</td>
<td>ORU15</td>
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<td>S. Fournier\textsuperscript{b}</td>
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<td>1960</td>
<td></td>
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<td>24</td>
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<td>J.L. Dorais\textsuperscript{b}</td>
<td>1908</td>
<td>1960</td>
<td></td>
<td>Lawyer, political figure</td>
<td>14</td>
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<td>P. David\textsuperscript{b}</td>
<td>1919</td>
<td>1960, 70</td>
<td></td>
<td>Cardiologist; son of major political figure</td>
<td>55</td>
<td>-----</td>
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<td>J. Drapeau\textsuperscript{b}</td>
<td>1916</td>
<td>1960, 81</td>
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<td>Lawyer, mayor 1954-56; 1960-80s</td>
<td>57</td>
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<td>Political journalist; Prime Minister 1976-1980s</td>
<td>77</td>
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<td>KL# 17</td>
<td>1894</td>
<td>1978</td>
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<td></td>
<td>1902</td>
<td>1978</td>
<td>.6</td>
<td>Retired buyer for hat company; wife, KL#22</td>
<td>111</td>
<td>XIU17</td>
</tr>
<tr>
<td>KL# 30</td>
<td>1900</td>
<td>1978</td>
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<td>Retired draftsman and surveyor</td>
<td>116</td>
<td>OIU17</td>
</tr>
<tr>
<td></td>
<td>1901</td>
<td>1978</td>
<td>.6</td>
<td>Retired manual laborer</td>
<td>91</td>
<td>XIU17</td>
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<tr>
<td>KL# 33\textsuperscript{t}</td>
<td>1902</td>
<td>1978</td>
<td>.00</td>
<td>Farmer</td>
<td>86</td>
<td>OIL17</td>
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<tr>
<td></td>
<td>1902</td>
<td>1978</td>
<td>.04</td>
<td>Retired factory worker</td>
<td>211</td>
<td>OIL17</td>
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<tr>
<td>KL# 50</td>
<td>1909</td>
<td>1978</td>
<td>.05</td>
<td>Plumber</td>
<td>179</td>
<td>OIL17</td>
</tr>
<tr>
<td>KL# 24</td>
<td>1910</td>
<td>1978</td>
<td>.40</td>
<td>Retired salesman, railway worker</td>
<td>135</td>
<td>OIL17</td>
</tr>
</tbody>
</table>

### Men (Working Class)

<p>| KL# 4       | 1899       | 1978            | .08 | Retired trucker; wife, KL#4 | 159| XIL17 |
| KL# 4       | 1899       | 1971            | .00 | Retired manual laborer | 91 | XIL17 |
| KL# 33\textsuperscript{t} | 1902 | 1978            | .00 | Farmer | 86 | OIL17 |
| KL# 24      | 1902       | 1971            | .04 | Retired factory worker | 211| OIL17 |
| KL# 50      | 1909       | 1978            | .05 | Plumber | 179| OIL17 |
| KL# 24      | 1910       | 1978            | .40 | Retired salesman, railway worker | 135| OIL17 |</p>
<table>
<thead>
<tr>
<th>Speaker No.</th>
<th>Birth Date</th>
<th>Interview Date</th>
<th>MLa</th>
<th>Background Information</th>
<th>Nc</th>
<th>CodeId</th>
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<tr>
<td># 37</td>
<td>1910</td>
<td>1971</td>
<td>.08</td>
<td>Taxi driver</td>
<td>112</td>
<td>OIL17</td>
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<tr>
<td># 17b</td>
<td>1930</td>
<td>1971</td>
<td>.18</td>
<td>Foreman of mechanics</td>
<td>80</td>
<td>------</td>
</tr>
<tr>
<td>Mme. L. Beaubien</td>
<td>1877</td>
<td>1951, 58</td>
<td></td>
<td>Founder of Montreal charitable hospital for children</td>
<td>26</td>
<td>XRU25</td>
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<tr>
<td>T. Casgrain</td>
<td>1896</td>
<td>1949, 57</td>
<td></td>
<td>Political figure and feminist</td>
<td>68</td>
<td>XRU25</td>
</tr>
<tr>
<td>Mme. Parizeau</td>
<td>1903</td>
<td>1951, 54</td>
<td></td>
<td>Philanthropist of charitable hospital</td>
<td>13</td>
<td>ORU25</td>
</tr>
<tr>
<td>M. Barthes</td>
<td>1900</td>
<td>1955</td>
<td></td>
<td>One of earliest announcers at Radio Canada</td>
<td>8</td>
<td>------</td>
</tr>
<tr>
<td>J. Beaubien</td>
<td>1910</td>
<td>1949</td>
<td></td>
<td>Old bourgeois family member</td>
<td>4</td>
<td>ORU25</td>
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<td>S. Barrière</td>
<td>1923</td>
<td>1949, 50</td>
<td></td>
<td>Lawyer</td>
<td>29</td>
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<td>KL # 22</td>
<td>1897</td>
<td>1978</td>
<td>.7</td>
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<td>XIU27</td>
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<td>KL # 10</td>
<td>1899</td>
<td>1978</td>
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<td>Old bourgeois family member</td>
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<tr>
<td>KL # 12</td>
<td>1903</td>
<td>1978</td>
<td>.65</td>
<td>Housewife, store owner; husband engineer</td>
<td>189</td>
<td>OIU27</td>
</tr>
<tr>
<td># 79</td>
<td>1911</td>
<td>1971</td>
<td>.67</td>
<td>Housewife; husband, architect</td>
<td>146</td>
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<td># 31</td>
<td>1911</td>
<td>1971</td>
<td>.91</td>
<td>Housewife; husband, actuary and professor</td>
<td>100</td>
<td>OIU27</td>
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<tr>
<td>KL # 8</td>
<td>1901</td>
<td>1978</td>
<td>.8</td>
<td>Housewife; ex-teacher</td>
<td>95</td>
<td>OIU27</td>
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<tr>
<td>KL # 46</td>
<td>1894</td>
<td>1978</td>
<td>.0</td>
<td>Cleaning, sales &amp; seamstress; father, gardener</td>
<td>154</td>
<td>XIL27</td>
</tr>
<tr>
<td>KL # 4</td>
<td>1898</td>
<td>1978</td>
<td>.0</td>
<td>Housewife, former factory worker; husband, KL #4</td>
<td>68</td>
<td>XIL27</td>
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<tr>
<td>#101</td>
<td>1900</td>
<td>1971</td>
<td>.11</td>
<td>Unemployed; father, craftsman</td>
<td>105</td>
<td>OIL27</td>
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<tr>
<td>KL # 48</td>
<td>1903</td>
<td>1978</td>
<td>.4</td>
<td>Retired receptionist and switchboard operator for railway</td>
<td>135</td>
<td>OIL27</td>
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<tr>
<td>KL # 2b</td>
<td>1903</td>
<td>1978</td>
<td>.3</td>
<td>Housewife and retired store salesperson</td>
<td>33</td>
<td>------</td>
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<tr>
<td># 35</td>
<td>1907</td>
<td>1971</td>
<td>.03</td>
<td>Housewife and retired factory worker</td>
<td>87</td>
<td>OIL27</td>
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<tr>
<td>#107</td>
<td>1906</td>
<td>1971</td>
<td>.03</td>
<td>Housewife; husband, retired factory worker</td>
<td>87</td>
<td>OIL27</td>
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<tr>
<td>KL # 26</td>
<td>1908</td>
<td>1978</td>
<td>.4</td>
<td>Housewife; father, construction; husband, accountant</td>
<td>82</td>
<td>OIL27</td>
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<tr>
<td># 48</td>
<td>1912</td>
<td>1971</td>
<td>.04</td>
<td>Housewife and retired factory worker; husband, mechanic</td>
<td>131</td>
<td>OIL27</td>
</tr>
<tr>
<td>#108</td>
<td>1913</td>
<td>1971</td>
<td>.11</td>
<td>Housewife and retired maid; husband, machinist</td>
<td>87</td>
<td>OIL27</td>
</tr>
<tr>
<td># 10</td>
<td>1909</td>
<td>1971</td>
<td>.03</td>
<td>Housewife and retired hat maker</td>
<td>185</td>
<td>OIL27</td>
</tr>
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</table>

Women (Middle Class)

Women (working class)
<table>
<thead>
<tr>
<th>Speaker No.</th>
<th>Birth Date</th>
<th>Interview Date</th>
<th>ML</th>
<th>Background Information</th>
<th>Men (Middle Class)</th>
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<th>Code</th>
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</thead>
<tbody>
<tr>
<td># 25</td>
<td>1944</td>
<td>1971</td>
<td>.84</td>
<td>Pediatric resident; father, construction foreman</td>
<td></td>
<td>72</td>
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<tr>
<td>#117</td>
<td>1949</td>
<td>1971</td>
<td>1.</td>
<td>Lawyer; father, MD</td>
<td></td>
<td>172</td>
<td>YIU17</td>
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<tr>
<td># 13</td>
<td>1951</td>
<td>1971</td>
<td>.67</td>
<td>Junior college student; father, sales representative</td>
<td></td>
<td>85</td>
<td>YIU17</td>
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<tr>
<td># 88</td>
<td>1952</td>
<td>1971</td>
<td>.53</td>
<td>Engineering student; father, mechanic</td>
<td></td>
<td>132</td>
<td>YIU17</td>
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<tr>
<td># 87</td>
<td>1953</td>
<td>1971</td>
<td>.85</td>
<td>Med student; father, company owner</td>
<td></td>
<td>246</td>
<td>YIU17</td>
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<tr>
<td># 92</td>
<td>1955</td>
<td>1971</td>
<td>.84</td>
<td>Junior college student; father, University professor</td>
<td></td>
<td>78</td>
<td>YIU17</td>
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<table>
<thead>
<tr>
<th>Men (Working Class)</th>
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<tr>
<td># 96</td>
</tr>
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<td># 2</td>
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<table>
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<td># 43</td>
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<td># 53</td>
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<td>#112</td>
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<td># 85b</td>
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<td># 54</td>
</tr>
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<tr>
<td># 9</td>
</tr>
<tr>
<td># 7</td>
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<td># 1</td>
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</tbody>
</table>

*a 'Marché linguistique' or 'linguistic marketplace'. See Sankoff and Laberge (1978) for complete discussion.
Results for these speakers were not pooled and plotted with group results, either because the speakers did not conform to the class (Dozois), the age (#73, 17), or the conversational style (KL Ct, #85) being discussed, or because the interview was not made between the appropriate dates.

N = total number of tokens of (e.; ê) for each speaker.

Code includes age (X = extra-old [i.e., born before 1900]; O = old [born before 1920]; M = 'middle' aged speakers [born during, or right after World War II]; Y = young [born after 1946]); register (R = Radio Canada recording; I = casual interview); class (Upper, Lower); gender (1 = men; 2 = women); and date of recording (5 = before 1960; 7 = after 1970).