

Accentual Patterns in the spoken French of the early 20th century

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Abstract

Three of the earliest recordings of spoken French were analysed prosodically to determine whether they showed evidence of accents early in APs, such as are found in current French, or rather an absence of such accents as suggested by contemporary early-20th century accounts. A considerable proportion of APs had marked pitch rises forming early accents, although their f₀ contours were not always akin to those reported in current forms of the language.

Emphasize F0

1. Introduction

It is almost 40 years since French was labelled a ‘langue sans accent?’ (Rossi, 1979). As noted recently by Astésano and Bertrand (2016), Rossi’s study in fact asks a more subtle question and gives a much more nuanced answer than the above sentence suggests. Nonetheless, his paper has been seen (Astésano 2001) as the culmination and most extreme expression of a traditional view of French prosody, oft-repeated in textbook accounts of the language (Armstrong, 1932, Tranel, 1987). This view limits accentuation patterns in the language to two phenomena: group stress, which places an accent on the last syllable of an accentual phrase, and which likely developed in French in the medieval period (Rainsford 2011) and an optional ‘accent d’insistance’ which may be used pragmatically to highlight a syllable in a communicatively salient word (Grammont, 1963). Rossi’s innovation was to propose that even the group stress should be seen as an intonational, rather than accentual phenomenon; hence French could be seen a stress-free language. There is no doubt that French is a language lacking contrastive word-stress. Indeed, a number of experiments have suggested that French native speakers are particularly prone to ‘stress deafness,’ that is they are unable to recognise stress-based differences in nonsense words, even when they have been

exposed to other languages later in life (Dupoux et al. 1997, Dupoux et al. 2008).

Since Rossi's paper appeared, the majority of studies of French prosody have provided an analysis of the language that appears diametrically opposed to Rossi's. These suggest that French has not only primary accents in the group-final position, but also frequent secondary accents on non-final lexical items, often, but not uniquely, in word-initial position (Fónagy, 1979, 1989; Jun and Fougeron, 2000, Astésano et al., 1995, Post, 2000, Gussenhoven, 2004). According to Post (2000), French has accents every 1.74 syllables (see also Gussenhoven, 2004). There may even be accentuation of lexical words in post-focal positions (Di Cristo and Jankowski, 1999).

Many of the more recent studies, predominantly carried out in the Autosegmental-Metrical framework (Ladd 2008) are solidly underpinned by laboratory studies employing acoustic analysis. With the proviso that (as their authors indicate) there may be stylistic limitations to the applicability of their findings (see, e.g. Lucci, 1983, Astésano 2000), there are no empirical grounds to challenge them. There is thus a significant disparity between, on the one hand, current analyses, and the evidence on which they are based, and on the other hand, the traditional account.. Further recent evidence (Astésano et al., 2012) suggests that the alleged stress-deafness of French speakers is

not total. French subjects were able to adjudicate between different levels of accentuation in an offline experiment and not showed sensitivity to the presence vs. absence of typically observed accentuation patterns in an ERP study, but also showed sensitivity to the difference between initial and final accents.

One possible explanation for the apparent disparity is that there may have been a significant recent change in the prosodic structure of French (Fónagy, 1979¹, 1989; di Cristo 1999), with the introduction of secondary accents where none had been in earlier stages of modern French. Fónagy's pioneering studies (1979, 1989) showed that such secondary accents were both present in his data, notably on the first syllables of polysyllabic words, and increasing in prevalence across the twentieth century.

The present study reports on a study designed to examine this diachronic explanation using earlier recordings than were available to Fónagy and modern acoustic techniques. In the last fifteen years, numerous recordings of spoken French from the period 1911-1920 have been made available either commercially or through electronic publication by the Bibliothèque Nationale de France. Analyses of extracts from three of these

¹ Fonagy's study is variously cited as appearing in 1979 and 1980. WorldCat shows its copyright date as 1979, which is followed here.

recordings are presented here. These are used to test the null hypothesis that secondary accentual marking early in rhythmic groups was not a regular feature of the spoken French of the early 20th century and that hence a diachronic change has occurred. However, two other factors must be taken account of alongside the evidence of diachronic change. The first is technical; what is meant by ‘accent’ is variable across phonological approaches and in this study the focus will be on the pitch information that is at the heart of most recent prosodic models. The second is sociolinguistic; the two accounts may be describing different varieties of French. In sections two and three, two dominant types of accentual/intonational model are presented to clarify these essential definitions.

2. The traditional view of French accentuation

2.1 Origins and main features

Reference to *a* traditional approach to French prosody necessarily involves an amalgam of analyses ranging across the 20th century which are not totally identical. Nonetheless, since Fónagy’s study (1979) it has become accepted practice in the literature (cf. Astésano et al., 1995; di Cristo, 1999; Astésano 2000) to conflate views which share the attribution to French prosody of four essential features:

(i) all words have an oxytonic (final syllable accented) rhythm when spoken in isolation or when the accent is realised in continuous speech (Grammont, 1913, 1963; Dauzat and Fouché, 1935);

(ii) in continuous speech, most words lose their accent, leaving the only accent in the intonation phrase on the *phrase*-final syllable (Pulgram 1965, 1967);

(iii) the most consistent acoustic marker of this phrase-final accent is duration, as phrase-final syllables are often low in intensity and may not be clearly pitch prominent (Delattre, 1966a);

(iv) special emphasis may also be marked by a distinct ‘accent d’insistance’ which is applied to the first or second syllable of a word carrying special emotional importance (Grammont 1913).

On this view, (iv) is the only exception to the oxytonic pattern and its use is rare, especially compared to that of analogous procedures in other languages; this infrequency is emphasised in a number of papers (Grammont, 1913; Marouzeau, 1924).

2.2 Prosodic structure

From the four features listed above, a fifth follows logically: (v) there is only one type of unit in French prosody, variously called the breath group, tone unit, or sense group; here, for purposes of clarity, I shall risk anachronism and adopt the current term ‘Intonational Phrase’ (IP). French

prosody is thus distinct from language with a richer accentual structure, such as English or German. In these, there may be several accented syllables in each IP, and sub-sets of these accented syllables may be grouped with their unaccented counterparts to form smaller units such as the foot or the accentual phrase. The traditional view sees no reason to hypothesize such units in French, as they would in effect be coextensive with the IP (cf. di Cristo, 1999).

2.3 *The definition of French*

This traditional view is derived from articles by leading French phoneticians of the first half of the 20th century. Such articles rarely cite any data and they inevitably adduce no instrumental evidence. Few define ‘French’ with any sociolinguistic or stylistic details, the implication being that there is a single coherent code denoted by this term. Others are explicitly normative, indicating that they are describing ‘*français correct*’ (Fouché, 1933, 1936), a form which is more easily identified by what it is not than by any positive properties. Fouché (1936) contrasts ‘le français correct’ with all of the following:

the language of peasants;

the language of the provinces (everything except Paris);

the language of the people (“peuple”) of Paris (as opposed to some sections of the Bourgeoisie);

the language of that section of the Paris Bourgeoisie which has moved to Paris from the provinces.

Less negatively, the object language is found, he claims, in particular Parisian families; ‘des familles où depuis trois generations au moins, il n’y a pas eu d’alliances provinciales’ (given that these are not families of the ‘people’). Should this seem too restrictive, he also adds that children who move to Paris may learn to speak like such families; ‘*l’enfant qui y arrive [sc. “à Paris] à la condition qu’il fréquente une école.*’ (“The child who arrives there [Paris] provided he attends school.”).

The definition of ‘French’ as being associated with a (relatively small) group of people is further limited in Fouché’s earlier (1933) article, in which he specifies, with explicit reference to prosody, that his descriptions apply only to spontaneous conversation, not to a higher, more careful register. This is a surprising limitation as it suggests that the educated bourgeoisie are more likely to use a low-status feature of speech in a higher than a lower register (see further discussion in section 4). Fouché seems here to hark back to Vaugelas’ 17th century admonition that good French should be sought in the speech of a selected section of the court ‘la plus saine partie de la cour,’ with one circumscribed in-group, the erstwhile courtiers, replaced by another, namely approved 20th century bourgeois families.

2.4 The notion of accent

The notion of accent in the traditional account of French is a broad one: accent is said to involve the perceptual prominence of a syllable which may in theory be marked by any of the three acoustic features (length, intensity, pitch prominence) which are commonly found cross-linguistically (Lehiste, 1970). In practice, the (predictable) phrase-final accent and the accent *d'insistance* differ in their commonly observed main correlates (Delattre, 1966a). The former is marked above all by phrase-final lengthening. It may also be marked by pitch prominence, but this is not criterial, and it is often markedly *lower* in intensity than surrounding syllables. The *accent d'insistance* is marked by pitch prominence and intensity, although it may also be associated with increased duration. As French lacks both vowel reduction and distinctions in vowel length, it follows that syllables which are neither given an *accent d'insistance* nor are in phrase-final position should be of approximately equal duration.

2.5 Predictions of the traditional approach

The predictions of the traditional approach may thus be summarized as follows:

- (i) only phrase-final syllables will normally be accented
- (ii) other syllables will normally be of approximately equal length
- (iii) those other syllables will not be prominent in terms of their pitch or intensity

- (iv) there will be occasional emphatic marking of non-final syllables (the *accent d'insistance*)
- (v) this marking will involve intensity and pitch excursions, possibly with increased duration
- (vi) there is only one level of prosodic structure in the language.

3. The modern approach

3.1 Main features

Research on French prosody in the last 30 years has produced a number of competing models. Although their assumptions and analyses are too different to allow for conflation, all make use of an autosegmental-metrical approach (see Ladd, 2008), and share sufficient features distinguishing them from the traditional approach for it to be legitimate, for the purposes of this study, to treat them together. The main features of modern approaches may be summarized in four points modelled on and contrasting with those in section 2.1:

- (i) words are oxytonic when phrase-final, but not necessarily elsewhere in continuous speech; accents may be earlier in the word, notably on the first syllable;

(ii) most content words, and under some circumstances even clitics (***), bear at least one accent in continuous speech; words of three or more syllables may bear more than one accent (Post, 2000);

(iii) phrase-final accents are marked by duration but are also generally pitch-prominent; other accents are marked by pitch (although probably also with some lengthening: see below);

(iv) special emphasis may also be marked by an ‘*accent d’insistance*’; this occurs in the same position as non-emphatic early accents, typically on the first syllable of the relevant word. Autosegmental-metrical models have not generally treated this *accent d’insistance* as phonologically distinct from other initial accents. However, it has been claimed that the f₀ peak associated with it has a sufficiently different shape from that of other initial accents to warrant such a separate treatment (Astésano et al., 1995; Jankowski et al., 1999). On this view, the *accent d’insistance* is marked by a particularly sharp rise and following fall, other initial accents having a gentler rise and being followed by a less pronounced dip.

3.2 Prosodic structure

It follows from the above that in this approach there are considerably more accents in continuous speech than there are Intonation Phrases. This allows for the possibility, *contra* the traditional account, that French might have more than one level of prosodic phrasing, as within an IP there may be

several sub-groupings of an accented syllable with unaccented syllables. Different autosegmental accounts differ as to how many levels they recognise; in particular some recognise a level equivalent to the foot in English (e.g. Di Cristo, 2000; Gussenhoven, 2004), while others (Verluyten, 1984; Jun and Fougeron, 2000) do not. All, however, make a distinction between the overall IP and at least one smaller unit, variously called the Accentual Phrase, Tonal Unit, Prosodic Phrase. In what follows, the term Accentual Phrase (AP) will be retained for this purpose.

IPs are thus composed of one or more APs. Both IP and AP are marked by final lengthening, this being greater at the end of the former than the latter. Fundamental frequency patterns are also associated with the boundaries of prosodic phrases, notably the beginning of the AP. A typical pattern involves an early low tone followed immediately by a rise, often reaching a peak on the first syllable of the first content word in the AP. Although there are variants to this sequence, it can often be used as a criterion, along with final lengthening, for establishing the boundaries between APs (Jun and Fougeron, 2000).

3.3 The view of French

The experimental evidence underpinning the modern approach has predominantly come from highly controlled read speech. There has been little overt control for the social background of speakers, although subjects have

generally been drawn from educated populations of university or advanced school students.. Compared to the target group of the traditional approach, therefore, social cohesion has been replaced by a degree of educational consistency. Attention has also been paid to stylistic variation, in that comparisons have been made between read speech, retellings of stories, interviews, lectures and conversations (Lucci, 1983; Post, 2000). Overall, the main finding of these studies has been one of variability in the usage of non-final accents. These are most prevalent in ‘didactic’ speech and least common in conversation. They are nonetheless attested across the range of styles examined and are generally treated as a central part of French prosody (Astésano, 1995; di Cristo, 2000; Post, 2000; Jun and Fougeron, 2000; Gussenhoven, 2004), all styles taken together. The notion of ‘French’ prevalent in the modern approach is thus less exclusive but less precise than that found in the writings of the earlier generation, reflecting a move away from the ideal of a single ‘correct’ form of the language with a social elite.

3.4 The notion of accent

The definition of accent in autosegmental accounts has varied from model to model, but all emphasise the role of f_0 as an accentual marker. This reflects the central interest of many authors in developing overall compositional models of *intonation* based on the concatenation of f_0 movements associated with accented syllables (*pitch accents*, in the standard

autosegmental terminology introduced by Pierrehumbert, 1980, and derived from Bolinger, 1958; see Ladd, 2008, for discussion). Duration is also seen as a criterial marker of primary, phrase-final accent, the degree of lengthening being greater at the end of an IP than of an AP. A smaller effect of lengthening is also associated with secondary non-emphatic accents (Astésano et al., 1995). With different degrees of lengthening for accents in different positions, the modern approach thus predicts that there will be considerably more variability in syllable duration within an IP than the traditional approach.

Apart from the phrase final accent, further accents are typically (but not obligatorily) found on early syllables in lexical words, e.g. *ˌinterˈdit*, *ˌrenouˈveau*, *ˌimpréviˈsible*. The theoretical status of these early accents varies across different models; in what follows, for terminological simplicity, the term ‘nucleus’ will be borrowed from the British tradition of intonation analysis (Cruttenden, 1997) to denote the phrase final accent in both APs and IPs, while the term ‘secondary accent’ or ‘early accent’ will be used to denote others.

A principle of *stress clash* prevents the attribution of accents to adjacent syllables within an AP, except, rarely, in the case of emphatic accents. Thus a two-syllable word in phrase-final position, which must receive the primary accent on its second syllable cannot normally receive an earlier accent:

C'est un gar'çon

*C'est un ˌgar'çon

Two-syllable words earlier in a prosodic phrase may be accented on either (but not both) of their syllables. Longer lexical words most frequently receive a secondary accent on their 1st syllable, but in those of 4 or more syllables (a small fraction of the French lexicon, see di Cristo, 1999), a secondary accent may occur on the first or on a later syllable, typically the second (Verluten, 1982; Gussenhoven, 2004). Clitics and form words in general are not usually accented, although in spontaneous speech this limitation is far from always observed. With the exception of the prohibition on stress clash, the principles governing the distribution of non-final accents allow for considerable stylistic and individual variability. However, one pattern, identified by Fónagy (1980) has been observed repeatedly in a range of studies. Christened by Fónagy the ‘*arc accentuel*’ (accentual arc), it involves the gathering together of a semantically important and coherent group of words so that the first syllable of the first content word and the last syllable of the last content word are accented:

Le ,professeur de lingui'stique

Le ,Président de la Ru'ssie.

3.5 Predictions derived from the modern approach

The modern approach suggests that:

- (i) within an Intonational Phrase there may be a number of accents;

(ii) most lexical words, and in certain circumstances, clitics, bear at least one accent; polysyllabic words may have more than one (but see [v], below);

(iii) prosody is organized hierarchically. An intonation phrase may consist of several smaller accentual phrases. Each of these will be marked by a degree of lengthening of the phrase-final syllable, the lengthening of the last syllable of the whole IP being greater than that of the internal APs;

(iv) there will always be an accent on the phrase-final syllable in APs and IPs;

(v) stress clashes (accents on successive syllables) are avoided within APs;

(vi) otherwise accent placement is not limited to final syllables;

(vii) there is a tendency to place an accent early in a phrase, most often on the first syllable of the first content word;

(viii) there is considerable variability as to when/how frequently non-final accents are realised;

(ix) some of this variability is related to stylistic variation, but

(x) there is a tendency for semantically important groups of words to be gathered together rhythmically such that they are contained in an 'accentual arch' formed by accents on the first syllable of the first content word of the group and on the last syllable of the last such word, there being no other intervening accents;

(xi) there is, as in the traditional account, the possibility of the ‘accent d’insistance’. Modern accounts vary as to whether this should be considered a phonologically separate entity from the much more frequent normal initial accent.

4. The development of early accentuation

4.1 The picture emerging from the literature

Fónagy’s (1979, 1989) identification of the role of an early accent in French APs was based on his analysis of radio broadcasts from the 1940s. The observed frequency of the phenomenon disqualifies it from being dismissed as the (allegedly rare) ‘accent d’insistance’. His subsequent investigations suggested that the tendency to early accentuation varied according to speaking style, and that his initial observations based on news reports had probably caused him to overestimate it. Nonetheless, he judged that the tendency was probably spreading to other styles of the language, a claim that is now generally accepted (cf. di Cristo, 1998). Based both on contemporary comments and on its early detection by foreign scholars (Schuchardt, 1880; Meyer-Lübke, 1890; Scherk, 1912), Fónagy proposed that the origin of the phenomenon probably lay in the latter half of the 19th century, but that its generalization gained pace through the 20th century.

Other studies pose problems for this proposal and tend to suggest both an earlier origin and a possible earlier spreading of the phenomenon. An origin at least as early as the 18th century is proposed by Carton (1971; see also di Cristo, 1999) who quotes remarks to this effect by Voltaire and Rousseau. However, studies of French poetry suggest a still earlier date. The classical French alexandrine, with twelve syllables divided into two hemistiches of six syllables allowing accents only at the end of each hemistich appears to correspond ideally with the traditional, phrase-final accentuation described by the traditional account of French rhythm. Yet as early as 1912, a study by Lote demonstrated that this metrical pattern was already being disrupted in the mid- (and perhaps the early-) 17th century by the incursion of further accents into the 12 syllable line. Later work by Pensom (1993, 1998) traces the distribution of accents implied by metrical patterns back from the 20th century, through classical 17th century practice to the medieval period, and suggests that there may never have been a period in which early accents were totally absent from the language.

On this view, then, rather than disappearing from the language for several centuries then being re-introduced (Lyche and Girard, 1995), early accents may have been a constant feature of French, albeit one that was for a period stylistically marked. Exactly who did and did not use this feature, in which styles and when, remains unclear. As noted above, a greater usage was observed in 'didactic' styles, notably news-reporting and lecturing, than in

conversation at various points in the mid- and late 20th century (Fónagy 1979, 1989; Lucci, 1983). We have seen (section 2.3) that French phoneticians of the 1930s denied the presence of early accents (which for them could only be the *accent d'insistance*) in what they defined as standard French, while recognising that it was found in the speech of provincials, the lower classes and even the bourgeoisie when speaking in higher registers.

Even this claim has to be treated with some suspicion, however. Various foreign observers of the 1920s and 1930s refer to early accents as being a notable feature of Parisian speech, without any suggestion of a limitation to particular social groups (Schwartz, 1930; Gill, 1936). This suggestion, fiercely rebuffed by Dauzat (1936) in a comment directly following Gill's paper was, in contrast, accepted by some phoneticians both of his time and earlier. It is mentioned by Passy in 1890. In 1930, Schwartz reports learning in courses given at the Institut de Phonétique at the Sorbonne under its then director, Hubert Pernot, that 'due to the mere effort of beginning to speak, some stress may be noticed at the beginning of a phrase: "*très souvent, au commencement d'une phrase*"'² Pernot describes this initial accent in his own work on prosody (Pernot, 1929-30) and states explicitly that it is found in a range of registers: 'ce phénomène est sensible dans la conversation; il

² Schwartz' paragraph concludes: 'Naturally this stress tends to displace or attract the normal musical accent.' The notion that initial accents were tending to displace or dominate, rather than just supplement the traditionally recognized phrase-final accent is one found intermittently in the literature. Its assessment would demand a separate study, and it will not be further addressed here.

l'est beaucoup plus encore dans la lecture, la diction ou quand on parle en public. On pourra s'en assurer en écoutant le premier conférencier venu' ('This phenomenon is audible in conversation; it is much more so in reading, elocution, or public speaking. To convince oneself of this, one needs only to listen to the first lecturer who comes along.'). Two aspects of this claim call seriously into question the assertions of other contemporary phoneticians that early accents were not a feature of the conversational French of this era. One is its timing, six years before Dauzat's (1936) claim that early accentuation was shocking to French ears. The second is the observation by Schwartz (1930) that Pernot urged his students to pay particular attention to the speech of *young* Parisians; we may thus assume that the speech of this group influenced Pernot's own descriptions heavily. If this group was indeed producing early accentuation regularly in conversation, then Dauzat's claim that 'any child coming to Paris ... who attends school' would learn 'français correct' as he defined it, without such initial accents, loses much of its force.

There is thus no coherent and generally accepted history of the development of early accents in French prosodic units. On the one hand are studies that offer some evidence of diachronic development and of the style-shifting often associated with it (Fónagy, 1979; Lucci, 1983). On the other hand, the case for diachronic change is partly built on traditional descriptions of accentuation which the weight of evidence warns us not to accept uncritically as an accurate representation of the spoken French of their time.

4.2 Analysis of early recordings

As part of his 1979 study, Fónagy compared the accentual properties of three political speeches made in 1914-15 to three dating from 1974. Fónagy concludes that the comparison lends weight to claims of a diachronic increase in the frequency of early accents. Nonetheless, both Fónagy's experimental method and the precise questions he asks make his findings difficult to assess in the terms of the present study. Fónagy's methodology involves perceptual judgements of degree of accentuation, made by 10 native French speakers, unsupported by the sort of acoustic analyses that are now the common currency of prosodic studies. There is no doubt that for a language in which the position of accent is controversial, native speaker judgements form a valuable source of information. On the other hand, judgements made about a prior state of the language when the purpose of the enquiry is precisely to see if the language has changed in the meantime raise the problem that the participants cannot be assumed to be native speakers of the relevant (perhaps now defunct) variety. The present study therefore focuses on the objectively definable acoustic criterion of fundamental frequency patterning.

Furthermore, Fónagy's focus is on accentual patterns only as realised in individual words, rather than looking within an AP or IP. His two important statistically significant findings concern (i) the proportion of words having a more marked accent on their first than on their last syllable and (ii) the number

of clitics receiving an accent (both greater in recordings from 1974 than in those from 1914-15). These findings thus offer evidence for an overall increase in the use of early accent at the word level. In 1914-15, 27% of words had such an accent, as opposed to 36% in 1974 (Fónagy 1979, table 68). Some caution is indicated however. The result may in part be due to a greater proportion in the 1974 recordings of trisyllabic words (allowing initial and final accents) as opposed to disyllabic words (10% in 1914-15, 18% in 1974). Furthermore, the same raw figures reveal that the proportion of words with an accent both on the final syllable and earlier in the word was *greater* in 1915/15 than in 1974 (26% vs. 22%).

As with the literature survey in 4.1, Fónagy's study of the three early political speeches leaves a suggestive but unclear picture of the true nature of the usage of early accent in the first decades of the 20th century. The project presented whose first results are presented here aims to develop this picture both methodologically, by appealing to modern instrumental phonetic techniques and by adding to the number of genres and to the number of early recordings analysed.

5. The recordings

From sections 2 and 3 above, it will be clear that it would be most valuable to have recordings from the early 20th century of spontaneous

conversations, preferably between members of those Parisian bourgeois groups alleged by the traditional account not to use early accents. Such recordings do not exist. The '*Archives de la Parole*', founded by Ferdinand Brunot, was highly active in the relevant period in collecting examples of regional forms of speech (*patois*) but preserved what was seen as standard French exclusively in the speech of famous men uttering largely pre-prepared texts. Three of these have been chosen for partial analysis for the current paper. They offer slight differences in style:

1) Alfred Dreyfus reads, not always quite accurately, a section from his memoirs (1912);

2) Ferdinand Brunot's speech (1911) at the opening of the '*Archives de la Parole*' was captured live. Although pre-scripted, his production of it is animated with a degree of theatricality. A recent stylistic study of the recording by Freyermuth and Bonnot (2007) described it as '*jouissant à la fois de la spontanéité de l'oral et de la rigueur d'un écrit très travaillé et construit.*' ('enjoying both the spontaneity of the spoken word and the rigour of carefully constructed written text');

3) Emile Durkheim delivers part of a lecture (1913). Again recorded live, this is the text which probably most closely approximates spontaneous speech.

Although these recordings contain formal, rather than conversational speech, they offer a wider range of styles than the political speeches analysed

by Fónagy (1980). They offer the possibility of assessing how far early accent was a general feature of public speaking in this period. For each text, a section from the beginning lasting from just under two to two and a half minutes, was chosen, to form a coherent sub-section of the overall recording (actual lengths: Durkheim 1' 54"; Brunot 2' 30"; Dreyfus 1' 56").

6. Method

6.1 Parameters

Although durational information probably plays a role in early accent (Astésano et al., 1995), the main parameter has been shown by numerous studies to be f_0 movement (see di Cristo, 1999 for an overview), there being an f_0 peak followed by a fall on the accented syllable. For the purposes of this study, only f_0 patterns have been investigated.

6.2 Prosodic phrasing

Each recording was analysed into syllables, words, Accentual Phrases and Intonational Phrases, using auditory information along with waveforms, spectrograms, pitch traces and intensity traces produced using the PRAAT program (Boersma, 2001). Much of the time, the prosodic phrasing follows syntactic structure quite clearly (recall that these were pre-prepared texts).

Alongside the syntax, a number of prosodic phenomena indicated boundaries, above all the presence of pauses and phrase-final lengthening. Tonal information was also sometimes used, notably the presence of an AP-initial low tone.

6.3 *f0 peaks*

Each AP was then examined for the presence of *f0* peaks on early syllables. By ‘early syllable’ is meant a syllable at least two syllables before the final accented syllable in the AP. Peaks on the final or pre-final syllable were ignored as these typically form part of the phrase-final pitch movement [REF??]. These early peaks were recorded, along with the lexical nature of the word in which they occurred and the syllable on which they appeared in the case of a polysyllabic word. From this information, the following were worked out: (i) the number of such peaks, expressed as a proportion of all APs; (ii) the number of peaks appearing on lexical words vs. clitics; (iii) on which syllables of polysyllabic words the peaks tend to occur. The question arises as to whether an attempt should be made to distinguish initial emphatic accents (*accents d’insistance*) from others. It will be recalled that according to the traditional view, all pre-final accents are *accents d’insistance*, whereas according to the modern approach the majority are not and it is not clear that a phonological distinction can be made between the two cases. It was therefore decided to note all early *f0* peaks together at this stage of the project,

leaving the shape of the peaks, should these be found to be prevalent, to be analysed at a later stage

6.4 Rapid rises

Initial analysis of f₀ patterns revealed that a number of APs contained an early rapid rise in f₀ which rather than leading to an f₀ peak, was followed by a fairly flat f₀ pattern before the phrase-final accent. In the majority of these cases, at least half of the overall pitch rise in the AP was concentrated on a single syllable, which therefore had a much steeper f₀ slope than either the AP as a whole or any other syllable. Nonetheless, the actual highest frequency in the AP (prior to the final accent) was on a later syllable than that with the steep slope, generally a syllable which itself had a relatively flat f₀ pattern and carried no other evidence of being accented (see example in Figure 1). In a small subset of examples, the rapid rise spanned two very short syllables, these consisting of clitics which cannot normally be accented.

This pattern matches neither the steady rise typically referred to by the traditional analysis nor the ‘accent d’insistance’ pattern, nor the peak-dip-peak pattern reported in many modern studies. However, it is in complementary distribution with the last of these and resembles it more closely than it does the steady rise; it could therefore be an alternative realisation of, or a precursor to the early peak-f₀. Cases of the rapid rise without associated peak (henceforth ‘rapid rise’) were therefore recorded and

analysed. The analysis involved determining, as for the early peak measurements (section 5.3, above): the proportion of APs with a rapid rise; the number of rapid rises appearing on lexical words vs. clitics; which syllables of polysyllabic words were marked by the rapid rise. There was also a supplementary statistical analysis (paired *t*-tests) to establish whether the slope of the rapid rise section was significantly different from that from the entire AP, excluding the phrase final accent; the slope was calculated as f_0 rise over time for each of these units.

6.5 Even rises

The traditional account suggests that within a rhythmic group, pitch typically rises evenly from the beginning of that group till the nucleus. The number of APs in which this pattern was observed in the three recordings was noted. The AP, rather than the IP, was chosen, because it is the minimal accentual unit examined here and thus corresponds closely to the rhythmic group in the traditional approach. The lexical structure of APs with even rises was examined, to establish whether they contained lexical patterns that, according to the modern approach, would allow for accents other than that on the final syllable. An AP consisting of a single mono- or disyllabic lexical word preceded by clitics would not allow for such accents; clitics cannot usually be accented (although exceptions to this have been observed, cf. di Cristo 1999) and the proscription of stress clashes prevents the first syllable

of the disyllable from being accented, given that this syllable carries the obligatory phrase-final stress.

7. Results

7.1 Prosodic structure

The numbers of IPs and APs in each text are summarized in Table 1.

A small proportion of these APs and IPs are entirely falling in pitch, or consist solely of a vocative or short exclamation and are thus uninformative for the present study. Only those showing one of the target patterns are discussed below.

7.2 Early f₀ peaks

The number of early f₀ peaks observed is given in table 2, both as a raw figure and as a percentage of APs seen to contain one; none of the APs in the sample had more than one peak before the final accent. The percentages are low; overall only 12.1% of APs have the early f₀ peak that is considered typical of modern French.

The difference between the read text (Dreyfus) and those spoken with a degree of spontaneity is marked, but the proportion of APs with an early peak is very low across all three texts.

7.3 Early Rapid Rises

The figures for these are tabulated in table 3. It will be noted that in contrast to the early peaks, this feature does not differentiate Dreyfus from the others. Rather, Durkheim, the most spontaneous sounding of the speakers, stands out from the others as having a greater number of rapid rises.

Statistical tests were carried out to establish whether the slope of the rapid rise section was significantly different for that from the entire pre-nuclear AP; slopes were calculated for the relevant syllable and the overall pre-nuclear AP. These were then compared using paired *t*-tests. For all three recordings, these were highly significant (see table 4). The rapid rise is thus shown to be acoustically distinct from the remainder of the AP containing it.

The rapid rise and the early peak-f₀ were by definition mutually exclusive in the APs observed in this study; recall that rapid rises involve the absence of a following pitch fall, the latter being a criterion for the early peak-f₀. In other respects, the two features resemble each other. It was hypothesized in section 5.4 that the rapid rise might thus be an alternative form of, or historical precursor to, the early peak-f₀. Further work is needed to corroborate this hypothesis, but it is worth noting that if it is correct, then the combined percentage of APs with these features, while low compared to modern norms (see table 5), is large enough to make it difficult for advocates of the traditional account to explain it away by appealing to the notion of

'*accent d'insistance*'. In any case, the rapid rise pattern, which forms the majority of the cases in table 5 does not resemble at all that for the *accent d'insistance*.

7.4 Even rises

The numbers of even rises observed for each recording are listed in table 6. For none of the recordings do more than about a quarter of the APs have this pattern, the number being considerably less for the Brunot recording (which may point to that recording representing a more theatrical style of speech than the others).

Table 6 also shows, in parenthesis, the number of APs with even accent that could in principle have received an additional early accent, and therefore on which a pitch peak or early rapid rise could have occurred but did not. These are APs containing more than one lexical word, or a single lexical word with at least three syllables, so that a secondary accent could occur without producing a stress clash. For the Durkheim and Brunot texts, the percentage of such APs is in single figures; even for Dreyfus, it is less than one fifth of the total.

8. Discussion

The findings show a clear difference between early 20th and early 21st century French with respect to the presence of early accents. There is not a predominant tendency in these readings to have an early f₀ peak, corresponding to a pre-nuclear accent, as described in current analyses of modern French. Neither the early f₀-peak feature nor the early rapid rise, proposed here as an alternative or precursor form of that peak is found in more than approximately 25% of the APs examined here, and even when combined, these two features are found in considerably fewer than half of the APs. In the current language, in contrast, the presence of a pre-nuclear accent is treated as being the default case.

However, the alternative description, offered by the traditional account and still being proposed more than twenty years after these recordings were made, corresponds still less well to the data. That account predicts a general pattern devoid of pre-nuclear accents of any sort and specifically a slow even increase in pitch until the nucleus. Only a minority of APs showed this pattern and nearly half of these APs involved combinations of lexical items that do not allow for an early accent.

What these recordings seem to suggest is thus a form of French that is prosodically between the extremes of the modern and traditional descriptions. This form already has the f₀ patterns that underlie descriptions of French accentuation today (and thus is *phonologically* similar to today's variety) but

also has a majority of APs without an early rise or f0 peak, and is thus *statistically* different from that suggested by modern descriptions.

This is not to suggest that the early 20th century French described here literally stands *diachronically* at some mid-point between forms of the language corresponding to the traditional and modern accounts. The present research leaves open the possibility that early accents have always been a part of the prosodic phonology of the language (cf. Pensom 1998 and section 4.1, above) but have become more common across the 20th century. It also remains possible that when other acoustic parameters are included in the investigation, notably duration, evidence for a greater number of early accents will be found. Indeed, this was, impressionistically, the judgement of the author when performing the f0 analyses. Future research should examine this possibility, in recordings across the decades of the 20th century.

Thus, as suggested by Fónagy (1979), following Passy (1890), Pernot (1929-30), Schwartz, (1930); Gill, (1936) and Carton (1971), the traditional account of French accentuation does not seem an adequate description of the formal use of the language even at the beginning of the 20th century. However, some of this inadequacy might be explicable through the difference in the definition of ‘French’ used to support the traditional account and that used in contemporary research in that the recordings examined in this paper could not exactly match that traditional definition.

9. Summary and Conclusions

This study demonstrates that highly educated French speakers of the early 20th century produced spoken French whose prosodic patterns do not match those suggested by traditional accounts of French prosody, accounts which were being advocated by phoneticians throughout the early decades of the 20th century. The French produced by Brunot, Durkheim and, to a lesser extent, Dreyfus, has few examples of the typical even pitch rise described by the traditional account and rather makes use of f₀ patterns associated with an early accent in modern French. Nonetheless, such f₀ patterns occur only in a minority of APs; statistically, at least, there is thus a difference between the French of the early 20th and 21st centuries.

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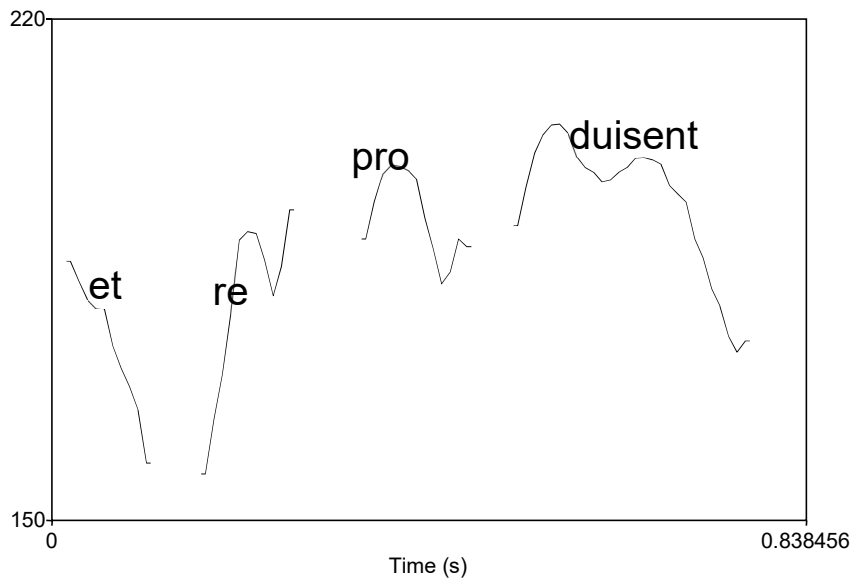
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Figure 1: f0 trace for AP ‘et reproduisent’, showing rapid rise on ‘re’**Table 1. Number of IPs and APs per speaker**

| Speaker | IPs | APs |
|----------|-----|-----|
| Durkheim | 51 | 115 |
| Brunot | 65 | 163 |
| Dreyfus | 47 | 124 |

Table 2: Number of early f0 peaks

| Speaker | No. of f0 peaks | No. of Aps | % of APs with early peak |
|----------|-----------------|------------|--------------------------|
| Durkheim | 19 | 115 | 16.5 |
| Brunot | 23 | 163 | 14.1 |
| Dreyfus | 9 | 124 | 7.25 |

Table 3: Number of early rapid rises

| Speaker | No. of early rapid rises | No. of Aps | % of APs with rapid rise |
|----------------|---|-----------------------|-------------------------------------|
| Durkheim | 32 | 115 | 27.8 |
| Brunot | 34 | 163 | 20.9 |
| Dreyfus | 27 | 124 | 21.8 |

Table 4: Paired *t*-tests for significance of rapid rise feature

| Speaker | <i>t</i> value | <i>df</i> | <i>p</i> < |
|----------------|-----------------------|------------------|----------------------|
| Durkheim | -6.082 | 31 | .001 |
| Brunot | -6.219 | 33 | .001 |
| Dreyfus | -8.88 | 26 | .001 |

Table 5: Number of early f0 peaks and rapid rises combined

| Speaker | No. of early peaks & rapid rises combined | No. of APs | % of APs with the two features combined |
|----------------|--|-----------------------|--|
| Durkheim | 51 | 115 | 44.3 |
| Brunot | 57 | 163 | 35 |
| Dreyfus | 36 | 124 | 29.0 |

Table 6: Number of even rises: number in parenthesis shows how many could in principle have received a secondary accent

| Speaker | No. of even rises | No. of APs | % of APs with even rises |
|----------------|------------------------------|-------------------|-------------------------------------|
| Durkheim | 30 (10) | 115 | 26.1 (8.7) |
| Brunot | 26 (13) | 163 | 16 (8) |
| Dreyfus | 33 (24) | 124 | 26.6 (19.4) |