

## Chapter 41. French speech acquisition

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### /H1/Overview

French is a member of the Romance language family, which itself is part of the larger Indo-European family. While numbers vary between sources, it is estimated that French is spoken by approximately 87 million people as a mother tongue and by over 190 million people if we include those who speak it as a second language in daily activities. French is an official language in 29 countries, and an official language of several international organizations including the European Union, the United Nations and the International Olympic Committee. There are several regional varieties of French spoken in various countries worldwide, which include the varieties spoken in, for example, France, Belgium, Canada, and several African countries (see Figure 41-1). Several distinctive dialects of French are also found in a number of these countries. In addition, French provided a basis for the formation of several Creole languages (e.g., Haitian, Mauritanian, Réunionese, and Seychellois creoles). An international project of description and analysis of French phonology *Phonologie du Français contemporain* is currently developed by Durand (ERSS, Toulouse), Lyche (Oslo University) and Laks (Modyco, Paris X) (Durand & Lyche, 2003, see Appendix 41-A). Many of the French dialects in France and worldwide (i.e. Canadian and Québec French) are under study. This chapter describes the most prominent characteristics of French phonology, with a special emphasis on the dialects spoken in France and Canada. In the next sections, we provide more information on each of these two dialects.

### /H1/Where French is spoken

### /H2/ Where France French is spoken

France French, as its name indicates, is spoken primarily in France as well as in its overseas territories, which include the *Départements d'outre-mer* (DOM; Guyane Française, Guadeloupe, Martinique, Réunion), the *Territoires d'outre mer* (TOM; e.g., Polynésie Française, Nouvelle Calédonie, Wallis et Futuna) and the *Collectivités territoriales* (Saint Pierre et Miquelon, Mayotte) (see Figure 41-1). It must be noted that each of these territories, despite having linguistic policies aligned with those of France, all have their own linguistic characteristics, which can be reflected either in pronunciations or in lexical items.

[Insert Figure 41-1]

The dialect of French that is generally considered to represent the international norm for the language originates from center of France, in the area around Paris, the country's capital. It shares its most prominent properties with the French dialects spoken in other areas of Northern France. Most of the normative material used in, for example, reference books and manuals of second language instruction, is aligned with this variety of French.

It is also noteworthy that within France there are several regional varieties. Some of this variation will be discussed below. In addition, the French spoken in European neighboring countries such as Belgium and Switzerland have their distinctive traits as well. For example, Belgian French is missing the high front rounded glide [ɥ] from its inventory (the bilabial glide [w] is used in places where we find [ɥ] in standard French). References to broad dialects such as European or Continental French must thus be considered as relatively vague. As such, these broad descriptions may or may not be accurate, depending on the situation, and should be used with circumspection.

## /H2/Where Canadian French is spoken

French is also one of the two official languages of Canada. Canadian French, which is spoken either as a dominant or as a minority language across the country's provinces and northern territories, must be broken down into several dialects. Among these dialects are Acadian French, spoken primarily in the Atlantic provinces of Canada (New Brunswick, which has the largest population of Acadian French speakers, Nova Scotia, Prince Edward Island and, to a lesser extent, Newfoundland and Labrador). Acadian French is also spoken in two separate rural areas of Québec (the southern part of the Gaspésie Peninsula and the lower north shore of the St. Lawrence River). Another important dialect of Canadian French is spoken in several areas of Ontario, especially in the more northern cities and communities of the province, as well as the regions bordering the province of Québec. West of Ontario are speakers of Manitoban and Métis French (spoken primarily in Manitoba) and of other, more isolated, French-speaking communities spanning from Manitoba through British Columbia and extending into the Canadian northern territories. Several of these communities also host French speakers hailing from Québec.

Despite this rich diversity of dialects of Canadian French, all of which have lexical, phonological and syntactic distinctive traits, the portions of this chapter devoted to Canadian French will focus on the dialect spoken by most of the French-speaking Canadians, Québec French. This focus is primarily motivated by the fact that most of the information available on Canadian French comes from the Québec dialect.

[Figures 41-1, 41-2 and 41-3 here]

**NOTE TO TYPESETTERS – IF POSSIBLE HAVE THE 3 MAPS SIDE BY SIDE**

## /H1/Components of France and Québec French

In this section, the phonological systems of France and Québec French are described in parallel, in order to highlight their main similarities and differences. Note that, as we alluded to above, the ‘France’ French denomination stands here for the dialects spoken for the most part in the northern part of the country (especially in and around the Parisian area). This dialect is in fact more closely-related to the Québec dialect than the regional varieties of France French spoken in the more southern parts of France. Some differences between the Québec and northern France dialects relative to southern dialects of France French will be highlighted below for clarification purposes. Whenever these dialects share similarities, we will generally refer to them as French without further specification.

## /H2/Consonants

French has, in its native phonetic inventory, 21 consonants, including three glides (see Table 41-1). However, the France and Québec dialects differ at the level of their phonotactics, as will be seen below. Note that we include the velar nasal [ŋ] in this inventory. While this consonant is typically not considered to be a native sound in the language, it is used in several English loanwords (e.g., ‘camping’, ‘marketing’) that have been well integrated and are commonly used in everyday speech in both dialects. Finally, the phonetic realization of the rhotic consonant varies considerably across dialects of French. While the voiced uvular trill [R] constitutes the norm in Parisian French, the voiced uvular fricative [ʁ] is most commonly found in Québec French; other variants such as the tap [r] and the flap [ɾ] are also attested in various dialects spoken in both France and Québec.

Table 41-1. Consonants produced in French

	Bilabial	Labio dental	Dental	Alveolar	Post alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d				k g			
Nasal	m			n			ɲ	ŋ			
Trill											
Tap or flap											
Fricative		f v		s z	ʃ ʒ						
Lateral fricative											
Approximant	w						j ɥ		ʀ/ʁ/ʀ̄/ʀ̄̄		
Lateral approximant				l							

Black = articulations judged impossible

Based on the International Phonetic Alphabet. Courtesy of the International Phonetic Association (c/o Department of Linguistics, University of Victoria, Victoria, British Columbia, Canada).

## /H2/Vowels and diphthongs

While France and Québec French share their consonantal inventories, their vocalic inventories differ significantly, the Québec variety being more conservative from a historical standpoint.

Among other details (noted in subsequent sections), the Québec dialect contains four nasal vowels (instead of three in most dialects of France French), and has maintained a phonemic length contrast between some vowels. This is reflected in Table 41-2 below through the presence

of the low back unrounded vowel [ɑ], a vowel that is generally not found in France French but that represents the contrastive, long counterpart of the low central vowel [a] in Québec French (e.g., *pâte* [pat] ‘pasta’ / *patte* [pat] ‘leg’). Other differences lie in the tense/lax allophonic distribution among high vowels that is pervasive in Québec French but absent from the France dialect (see more on this and other phonotactics below). Since the France French vowel inventory represents a subset of the more conservative Québec French inventory, we indicate the Québec French-specific vowels in the table and provide their France French equivalents. Note, finally, that mainly because of the rich regional variation that exists within France, discrepancies exist between descriptions of the French vowel inventory (e.g., with regard to the distinction between [a] and [ɑ]). We refer the interested reader to works by Walter (1977, 1982), Casagrande (1984), Walker (2001), Coveney (2001) and Durand and Lyche (2004).

French has between three and four nasal vowels /ɛ̃, (œ̃), **ɔ̃**, **ɑ̃**/. In most dialects of France French, the opposition between /ɛ̃/ ~ /**ɛ̃̃**/ has been neutralized to /ɛ̃/. Québec French however still displays the four vowels, at least in its most prominent dialects. In the southern dialects of France French, a nasal consonantal appendix is often produced after nasal vowels. This nasal resonance is in fact the historical residue of the post-vocalic nasal consonants that triggered a regressive assimilation of the preceding vowel. It is this nasal-assimilated vowel that became a full nasal vowel in later versions of northern dialects of the language. In the southern dialects it is variably nasalized and it could be an oral vowel. For example, the phrase *un grand tapis* [ɛ̃**gr**ɑ̃tapi] ‘a large rug’ in the northern and Québec dialects would be produced in southern French as [ɛ̃**gr**ɑ̃ntapi] and even [ɛ̃**gr**ɑ̃ntapi]. In phrase-final positions, by default, without any assimilation context, this nasal is

realized as a velar consonant *bon* [b<sup>o</sup>n] ‘good’ in the southern dialects and [b<sup>o</sup>] in the northern and Québec ones.

Table 41-2. Vowels produced in French compared to General American English

American English Location	American English Vowels Smit (2004)	American English examples	French Vowels	French examples
High-front	i	<i>b<u>e</u>at</i>	i	<i>R<u>i</u>z, s<u>i</u>, s<u>i</u>lence</i>
	ɪ	<i>b<u>i</u>t</i>	ɪ (Québec; [i] in France)	<i>R<u>i</u>te, s<u>i</u>te, c<u>i</u>l</i>
High-front rounded	-	-	y	<i>M<u>u</u>e, b<u>u</u>t, s<u>u</u>, v<u>u</u>e</i>
	-	-	ʏ (Québec; [y] in France)	<i>Fl<u>û</u>te, l<u>u</u>tte, f<u>u</u>té</i>
Mid-low front	e	<i>r<u>a</u>id</i>	e	<i>R<u>é</u>, bl<u>é</u>, F<u>é</u>e</i>
	ɛ	<i>b<u>e</u>d</i>	ɛ	<i>R<u>a</u>ie, s<u>a</u>is, m<u>e</u>t, t<u>ê</u>tu</i>
Mid-low front rounded	-	-	ɵ	<i>P<u>e</u>u, l<u>ieu</u>, m<u>ieu</u>x, <u>h</u>eu<u>re</u>ux</i>
	-	-	ʀ	<i>M<u>e</u>ule, g<u>ue</u>ule, s<u>eu</u>le</i>
Low-front	æ	<i>b<u>a</u>d</i>	-	

Low-central	-	-	a	<i>Ma, sa, place,</i>
High-back, rounded	u	<i>blue</i>	u	<i>R<u>ou</u>e, s<u>ou</u>s, p<u>ou</u>x, cou</i>
	ɔ	<i>bo<u>o</u>k</i>	ɔ (Québec; [u] in France)	<i>T<u>ou</u>te, s<u>ou</u>pe, co<u>û</u>te</i>
Mid-back, rounded	o	<i>bo<u>o</u>t</i>	o	<i>Be<u>au</u>, se<u>au</u>, clo<u>s</u>, fa<u>ux</u>, mo<u>t</u>, c<u>ô</u>te</i>
	ɔ	<i>fo<u>r</u>m</i>	ɔ	<i>Bo<u>tt</u>e, co<u>t</u>e, lo<u>qu</u>e</i>
Low back	ɑ	<i>dro<u>p</u></i>	ɑ (Québec; [a] in France)	<i>P<u>â</u>te, m<u>â</u>le, ch<u>â</u>le</i>
[r]-colored	ɜ̄		-	
	ɝ̄	<i>ne<u>ver</u>, co<u>lor</u></i>	-	
	ɪr		-	
	ɛr		-	
	ʊr		-	
	ø̄r		-	
	ar		-	
Central	ʌ	<i>ab<u>o</u>ut, o<u>cc</u>ur, u<u>p</u>on,</i>	ə	<i>P<u>e</u>t<u>i</u>t, l<u>e</u>, fa<u>i</u>sait, me<u>u</u>ble</i>
	ʌ		-	
Diphthongs	aɪ	<i>my, bi<u>k</u>e</i>	-	



	aʊ	<i>ou</i> , <i>mouse</i>	-	
	ɔi	<i>boy</i>	-	
Nasal	-		ã	<i>Paon</i> , <i>rang</i> , <i>ment</i>
	-		ẽ	<i>Pain</i> , <i>gain</i> , <i>faim</i>
	-		õ	<i>Bon</i> , <i>taon</i> , <i>rond</i>
	-		ǣ (Québec; [ɛ̃] in France)	<i>Un</i> , <i>aucun</i>

## /H2/Phonotactic restrictions in French

In this section, we discuss the most important phonotactic restrictions observed in French and compare, whenever appropriate, the restrictions that are specific to each of the two main dialects under consideration in this chapter.

Depending on a series of phonological contexts, a vowel corresponding to the grapheme <e> in written French may or may not be realized in spoken forms. Depending on the speakers, this lax vowel may be realized anywhere in the articulatory continuum that exists between [œ] and [ə].

The (non-)realization of this schwa depends on segmental and prosodic factors, which together form what it is traditionally called the *Règle des trois consonnes* (Delattre, 1966), a general phonotactic against the grouping of three consonants in the speech stream through schwa deletion (Dell, 1978 ; Tranel, 1987). For example, a phrase such as *je te le donne* /ʒətələdɔ̃n/ ‘I give it to

you' can be reduced to [ʒətəldɔ̃n] or [ʒtəldɔ̃n] or [ʒətɫəldɔ̃n] but not to \*[ʒtɫəldɔ̃n]<sup>1</sup>; the latter, unattested form contains an illicit sequence of three consonants. In the southern dialects of France French, we typically find much less instances of schwa reduction than in the northern or Québec dialects (Durand et al. 1987; Durand & Eychenne, 2004). Two other factors play a role in schwa deletion: speech rate and speech register (Tranel, 2003). The same distinction exists in word-final position. The northern France and Québec dialects tend to display a general undershooting or deletion of final schwas; as opposed to this, final schwas are typically phonetically realized in the southern dialects of France French.

French also displays a series of segmental alternations at the edge of words in connected speech. The first such phenomenon is that of liaison. This phonotactic is triggered in contexts where a hiatus would be formed at the boundary between two words. Liaison consists of the appearance of a latent consonant between the two words, which gets realized as the onset of the second word. For example, the phrase *un enfant* / $\tilde{\epsilon} + \tilde{a}.f\tilde{a}$ <sup>2</sup> is realized as [ $\tilde{\epsilon}.n\tilde{a}.f\tilde{a}$ ] 'a child'; similarly, *un petit ami* [ $\tilde{\epsilon} p\tilde{e}.ti a.mi$ ] 'the small friend' is realized as [ $\tilde{\epsilon}.p\tilde{e}.ti.ta.mi$ ] (Delattre 1947; Encrevé 1988; Tranel, 1995). Liaison is however not found in all contexts where a hiatus could appear between words. Its realization is also variable and subject to various socio-linguistic factors (e.g., speech style and register; Encrevé, 1988; Encrevé & Scheer, 2005). It is also subject to lexical and syntactic restrictions. For example, while liaison is obligatory between clitics and nouns or verbs and obligatory with a preposition, it is either optional (e.g., *des soldats anglais* [ $des\text{ɔ}ldaz\tilde{a}gl\tilde{\epsilon}$ ] / [ $des\text{ɔ}lda\tilde{a}gl\tilde{\epsilon}$ ] 'English soldiers' or clearly ungrammatical between certain words (e.g., *un soldat*

*anglais* [ɛ̃sɔldaŋglɛ] / \*[ɛ̃sɔldaŋglɛ]) and in specific syntactic contexts (e.g., at phrase boundaries, which are governed by prosodic considerations which we briefly explicit below).

Another phonotactic phenomenon which occurs at the edge of words is that of enchaînement.

In contrast to liaison, enchaînement is well-attested in languages other than French. It consists of the realization of a word-final consonant into the onset of the initial syllable of the following word. For example, in dialects where word-final schwa deletion is observed (e.g., northern France, Québec), the phrase *une petite orange* /yn pətit orãʒ/ ‘a small orange’ is syllabified with the word-final consonant of *petite* in the onset of orange [yn.pə.ti.to.rãʒ]. Note that as opposed to liaison, enchaînement does not trigger the appearance of a latent consonants; it affects the syllabification of lexical word-final consonants that are systematically produced, no matter the syntactic or phonological context (e.g., Encrevé, 1988, Encrevé & Scheer, 2005).

Another phenomenon taking place at word boundaries is that of elision, a process that consists of the deletion of the vowels of clitics when these clitics appear in front of vowel-initial words. For example, the phrase *le+éléphant* /le eɛləfã/ ‘the elephant’ is realized as *l’éléphant* [ləɛləfã], not as \*[ləeɛləfã]. Similarly, *il+la+observe* /il la ɔbsɛrv/ ‘he observes her’ is realized as *il l’observe* [ilɔbsɛrv], instead of as \*[illaɔbsɛrv].

Interestingly, some words apparently beginning with a vowel do not behave in a regular way: they block the processes of liaison and enchaînement (Delattre, 1966, Cornulier & Dell, 1978, Encrevé, 1988 ; Pagliano, 2003 ; Encrevé & Scheer, 2005). For example, words such as *hibou*

/ibu/ ‘owl’ and *onzième* /ɔ̃zjɛm/ ‘eleventh’ accept neither liaison nor enchaînement (e.g., *le+hibou* [lə.ʔibu], but not \*[li.bu] ‘the owl’; *les+hiboux* [le.ʔibu], but not \*[lezibu] ‘the owls’). These words are pronounced with a word-initial glottal stop which has, most of the time an orthographic correspondance. But, while most of these words are spelled with an initial *h* letter, traditionnally called “h-aspiré” some of them do not have initial consonants in written forms (like *onze* ‘eleven’ or *onzième* ‘eleventh’). Also, some *h*-initial words behave like vowel-initial words in that they allow for both liaison and enchaînement (e.g., *le+hippotame* /lə ipɔpɔtam/ is pronounced [lipɔpɔtam] ‘the hippopotamus (sing.)’ and *les+hippotames* /le ipɔpɔtam/ is pronounced [lezipɔpɔtam] ‘the hippopotamus (pl.)’. This ambiguity is probably one of the reasons why we observe some variation between speakers in the realization of certain words such as *haricot* ‘bean’, where the word-initial glottal stop is optionally pronounced. They can display both elision and enchaînement in some speakers and neither of these processes in other speakers.

Moving on to another set of restrictions that affect virtually all varieties of French (including Québec French), we first discuss the general *Loi de position*, a phonotactic that favors the appearance of tense vowels in open syllables and lax vowels in closed syllables. We can see manifestations of this rule in morphologically-related forms such as *céder* [sede] / *cède* [sɛd] ‘to give in / gives in’; *lépreux* [leprø] / *lèpre* [lɛpr] ‘leprous / leprosy’; *léger* [leʒe] / *légère* [leʒɛR] ‘light (adj. masc.) / light (adj. fem.)’; *fermier* [fɛRMje] / *fermière* [fɛRMjɛR] ‘farmer (masc.) / farmer (fem.)’. In all of these forms, we find the tense vowel [e] in open syllables (first forms) and its lax counterpart [ɛ] in closed syllables (second forms). Similarly, the forms *galop* [galo] /

*galope* [galøp] ‘gallop (noun) / gallops’, and *idiot* [idjo] / *idiote* [idjøt] ‘idiot (masc.) / idiot (fem.)’ display an [o]/[ø] alternation in open/closed syllables, and the same holds between [ø] and [œ] in front rounded mid vowels (e.g., *peut* [pø] / [pœv] *peuvent* ‘(he) can / (they) can’; *veut* [vø] / [vœl] *veulent* ‘(he) wants / (they) want’). As we can see from several of these examples, the [o]/[ø] and [ø]/[œ] distinctions are not clearly represented in written forms.

The *Loi de position* is however not found across every French dialect. Its realization depends on factors such as the geographical origins of the speakers (Durand & Lyche, 2004). For example, in the dialects spoken in southern France, the rule applies in a categorical fashion; phonologically mid vowels are realized in closed syllables as mid lax vowels (/e/ ⇒ [ɛ]; /ø/ ⇒ [œ]; /o/ ⇒ [ɔ]). In other dialects (e.g., in the northern dialects of France French and in Québec French), the rule is also governed by stress. For example, in accented open syllables, the distinction between /œ/ and /ø/ is neutralized; only the tense vowel /ø/ can appear in this position. However, in closed accented syllables, both tense and lax front rounded vowels can be found. The /œ/ ~ / ø / contrast is however maintained in a handful of minimal pairs only (e.g., *jeune* [ʒœn] / *jeûne* [ʒøn] ‘young / period of fasting’; *veulent* [vœl] / *veule* [vøl] ‘(they) want / weak’ (Tranel, 1987). The realization of the /œ/ ~ / ø / contrast is also governed by segmental factors. For example, in a syllable closed by the consonant /ʀ/, only lax /œ/ is attested (e.g., *peur* [pœʀ] ‘fear’), while tense /ø/ appears in a syllable closed by the consonant /z/ (e.g., *heureuse* [øʀøʒ] ‘happy (fem.)’). Finally, when fluctuation is observed in the realization of this vocalic contrast, we observe a tendency in favor of the lax counterpart. Closed syllables containing /œ/ are much more frequent

and the words containing /ø/ in closed syllables typically have lower lexical frequency.

The same patterning generally affects the /ɔ/ ~ /o/ contrast, whose realization is also influenced by factors such as stress and surrounding segmental. However, the number of minimal pairs opposing these vowels in closed accented syllables is much higher (e.g., *hotte* [ɔt] / *haute* [ot] ‘chimney hood / high’; *cotte* [kɔt] / *côte* [kot] ‘tunic coat / hill’; *pomme* [pɔm] / *paume* [pom] ‘apple / palm (of the hand)’; *sol* [sɔl] / *saule* [sol] ‘ground / willow’). Note here that the distinction is also generally represented in written forms.

The distribution of /e, ε/ is however substantially different. First, in open accented syllables, we observe a contrast between these two vowels (*the* [te] / *taie* [tɛ] ‘tea / pillowcase’; *éte* [ete] / *était* [etɛ] ‘summer / (he) was’). This distinction is also generally represented in written forms (Wioland, 1991). Note here that while this distinction in open accented syllables is generally maintained in Québec French, it has been disappearing from several dialects of France French. In closed accented syllables, however, we systematically find the lax vowel [ɛ] only (e.g., *mère* [mɛR] ‘mother’, *père* [pɛR] ‘father’, *mièl* [mjɛl] ‘honey’, *sèl* [sɛl] ‘salt’, *épaisse* [epɛs] ‘thick’). This holds true of Québec French as well (see below, however, for additional details on this dialect).

Finally, additional factors may play a role in the distributions discussed above. For example, faithfulness to morphological roots may prevent the *Loi de position* from applying in morphologically complex words. For example, in the morphologically-related words *coeur*

[kœR] / *écoeuré* [ekœRE] ‘heart / disgusted’, one would predict an [œ] / [ɔ̃] alternation. The vowel [œ] of the underived form *coeur* is however typically realized in *écoeuré*. Another factor which also intervenes in the realization of these phonotactics is a process of vowel harmony affecting the tense / lax phonological distinctions. For example, in the word pairs *bête* [bɛt] / *bêtise* [betiz] ‘stupid / stupidity’ and *aimer* [eme] / *aimable* [ɛmabl] ‘(to) love / lovable’, the penultimate vowels in the derived forms often trigger a harmony process whereby a final vowel assimilates the preceding one for tenseness (e.g., *bêtise* [betiz]) or laxness (e.g., *aimable* [ɛmabl]).

## /H2/Additional differences between France and Québec French

In addition to the details noted in the preceding section, France and Québec French primarily differ in assimilatory behaviors, in the surface realization of certain vowels, and the shape of word-final clusters. These differences will be discussed in turn.

The *Loi de position* also manifests itself in a peculiar fashion in Québec French high vowels. In addition to the details noted above, high vowels undergo laxing (but no lowering to mid vowels) in surface closed syllables and in word-final position when followed by a single consonant, except if this consonant is one of the four ‘lengthening’ consonants ([v], [z], [ʒ], and [R]); these consonants prevent the occurrence of laxing and instead trigger phonetic lengthening of the vowels. For example, while /i/ is tense in *paniquer* [panike] ‘(to) panic’, it is realized as lax in *panique* [panik] ‘panic’. However, /i/ remains tense in a word such as *cire* [siR] ‘wax’, where it is followed by a lengthening consonant. This process of vowel laxing is not found in the varieties of France French usually described in the literature (e.g., Casagrande, 1984).

In Québec French, the coronal stops ([t, d]) are affricated (realized as [tʃ, dʒ]) before high front vowels and glides ([i, ɪ, y, ʏ, j, ɥ]; e.g., *petit* /pəti/ ⇒ [pətʃi] ‘small’). This allophonic variation does not occur in the France dialects usually described in the literature (e.g., Casagrande, 1984) nor in the general reference works on French (e.g., *Petit Robert* dictionaries).

As described in detail (e.g., Charette, 1991; Dumas, 1981), Québec French vowels tend to be lengthened and, often, diphthongized when they appear in an open syllable, but never when they are followed by a tautosyllabic consonant. (Final consonants can be analyzed as extra-syllabic; see, for example, Charette, 1991 for details.) For example, vowel lengthening / diphthongization is possible in words like *rêve* [Rɛ̃ṽ] / [Rajv] ‘(a) dream’ and *rêver* [Rɛ̃ve] / [Rajve] ‘(to) dream’, but not in words like *perdu* [pɛrd̃ʒy] (\*[pɛrd̃ʒy] / \*[pajrd̃ʒy]) ‘lost’ or *perdre* [pɛrd] (\*[pɛrd] / \*[pajrd]) ‘(to) lose’. Notice from this last example that word-final obstruent-liquid clusters tend to be reduced to obstruents in Québec French ([pɛrd], \*[pɛrdʀ]). The word-final [R] deletion found in this context contrasts with France French, in which these clusters are typically fully realized ([pɛrdʀ]), especially in the more southern dialects.

Related to the above, and as noted in a preceding section, in southern dialects of France French, word-final consonants as well as falling and rising sonority clusters are regularly followed by schwa (e.g., *raquette* [Rakɛtə] ‘racket’; *ferme* [fɛrmə] ‘farm’; *perdre* [pɛrdʀə] ‘(to) lose’). Final schwa is generally not found in Québec French, apart from in exceptionally emphatic contexts, for example when each syllable of a word is pronounced in isolation, or when the



pronunciation of word-final schwa enables a smoother transition into the next word (e.g., *garde-fou* [gɑ̃døfu] ‘roadside rail’). This latter context can be related to the *Règle des trois consonnes* discussed above.

### /H3/Syllables

While the minimal syllable (and word) in French can contain a single, short vowel only (e.g., *eau* [o] ‘water’), French displays a relatively complex syllable surface structure, namely  $C_{(0-3)}VC_{(0-3)}$ . It can have as many as three consonants in pre-vocalic position. These clusters can consist of /s/ followed by an obstruent and a liquid (e.g., *splendide* [splãdid] ‘splendid’) or of an obstruent-liquid-glide sequence (e.g., *pluie* [plɥi] ‘rain’). However, hypothetical sequences consisting of four consonants (s+obstruent+liquid+glide) are not attested in word-initial positions. Such sequences can nonetheless be found word-medially, in words such as *construire* [kõstʁɥiʁ] ‘to construct’. However, in such cases, the /s/ is arguably syllabified at the end of the first syllable such that the tautosyllabic cluster contains no more than three consonant. The nucleus (peak) of the syllable consists of single vowels (e.g., *clé* [kle]), rising diphthongs (i.e. glide-vowel sequences; e.g., *puits* [pɥi] ‘(water) well’) and vowel+glide sequence (e.g., *paille* [paj] ‘straw’). Note that this vowel +glide sequence can be realized as a falling diphthong in Québec French but never in France French, in which [j] always behaves as a consonant (Klein, 1991). This is due to the diphthongization processes discussed above. Finally, in post-vocalic positions, French allows for up to three consonants (e.g., *arbre* [ɑʁbʁ] ‘tree’). However, as noted above, the final consonant of such clusters is generally not pronounced in everyday speech.

### /H3/Consonants and consonant clusters

In addition to the facts described in the preceding sections, Québec French also displays a devoicing process affecting approximants in tautosyllabic clusters (e.g., *trop* /tʁo/ ⇒ [tχo] ‘too much’) as well as a voicing agreement relation in obstruent clusters (e.g., *subconscient* /ʃəbkɔ̃sjɑ̃/ ⇒ [ʃypkɔ̃sjɑ̃] ‘subconscious’). These assimilatory processes are also attested in several languages, including English (e.g., Harris, 1994).

### /H2/Tones

France French and Québec French do not use tones to differentiate meaning.

### /H2/Stress and intonation

French differs from languages such as English that display contrastive stress at the lexical level. Instead, the realization of stress in French is related to the syntactic structure of the utterance (Dell, 1984; Di Cristo, 1999); only vowels that are realized in the last syllable of a phrase receive stress. Note that this is not the case for word-final schwa, a vowel that generally cannot receive stress, unless it is the only vowel in a monosyllabic, phrase-final word. Because of this, stress is located on the penultimate vowel of schwa-final words in the dialects where word-final schwas are pronounced (e.g., southern France French, as noted above).

Intonation is primarily used to convey syntactic information such as the distinction between a declarative and an interrogative sentence. Declarative sentences are characterized by final lowered intonation while interrogative sentences display a final rising intonation. Other uses of intonation relate to pragmatic purposes or emphasis on part or the entirety of an utterance. For

more details concerning prosody and intonation of French, we refer the interested reader to Delais, (1994); Di Cristo, (1998); Hirst et al. (2000); Lacheret-Dujour & Beaugendre (2002); and Bessade et al. (2004).

*/H1/*Writing system

The writing system used across all French dialects is the Roman alphabet. Vowels with accents (e.g., “é”, “è”, “ê”) represent different phonetic vowels. Some distinctions that these accents historically represented, which have generally disappeared from contemporary France French, are maintained in Québec French. For example, the difference between “è” and “ê”, which historically accounted for the difference between a short and a long /ɛ/, is maintained in Québec French, in which the long /ɛ/ is generally diphthongized, as mentioned above.

Table 41-3 below provides a (non-exhaustive) list of the most frequent sound-to-grapheme associations for consonants. It is followed by Table 41-4, which contains similar associations for vowels.<sup>3</sup> As we can see in both of these tables, there is not always a one-to-one correspondence between sounds and letters. In addition, some sounds can be represented in different ways in orthographic forms.

Table 41-3. Sound-grapheme associations for consonants

Consonant	Monographs	Digraphs	Examples
[p]	<p, pp>		<i>papa, appeler</i>

[b]	<b, bb>		<i>bébé, sabbat</i>
[t]	<t, tt>		<i>table, attendre</i>
[d]	<d, dd>		<i>dire, addition</i>
[k]	<k>, <c + a, o, u>, <c + L>	<ck>, <ch>, <qu>, <cqu>	<i>kilo, carotte, côté, cube, clé, craie, rock; orchestre, que, acquisition</i>
[g]	<g + a, o, u>, <g + L>, <gg>		<i>gare, golf, figure, glace, aggraver</i>
[f]	<f, ff>	<ph>	<i>fête, effort, éléphant</i>
[v]	<v>		<i>vie</i>
[s]	#<s>, <ss>, <ç>, <c + e, i, y>	<sc + e, i>	<i>sur, tasse, garçon, ciel, cent, cycle, science, scène</i>
[z]	<VsV>, <z>		<i>musique, zèbre</i>
[ʃ]		<ch>, <sh>, <sch>	<i>chaise, flash, schéma</i>
[ʒ]	<j>, <g + e, i, y>		<i>jambon, général, gilet, gym</i>
[l]	<l, ll>		<i>lit, belle</i>
[ʀ]	<r, rr>		<i>rue, arriver</i>
[m]	<m, mm>		<i>manger, homme</i>
[n]	<n, nn>		<i>neige, bonne</i>
[ɲ]		<gn>	<i>peigne</i>

[ŋ]		<ng>	loanwords: <i>meeting, parking</i>
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Table 41-4. Sound-grapheme associations for vowels

Vowel	Monographs	Digraphs	Examples
[i]	<i, î, î, y>		<i>lit, île, maïs, style</i>
[e]	<é>	<er, ez, es>#	<i>bébé, manger, nez, les, des, mes, tes, ses, ces</i>
[ɛ]	<è, ê>	<et>#, <ai> <b>en S.F.</b>	<i>père, tête, poulet, faire</i>
[a]	<a, à>		<i>ma, voilà</i>
[y]	<u, û>		<i>tu, dû</i>
[ɔ]		<eu, oeu> in open syllable	<i>bleu, voeux</i>
[œ]		<eu, oeu> in close syllable	<i>peur, soeur</i>
[ə]	<e>		<i>9 words: je, me, te, se, ce, le, de, ne, que</i>
[u]		<ou, où, où>	<i>roue, où, goût</i>
[o]	<ô>, <o>	<eau, au>	<i>côte, dos, beau, fausse</i>
[ɔ]	<o>		<i>porte</i>
[ɑ]	<â>		<i>gâteau</i>
[ɛ̃]		<in>#, <ain>#	<i>fin, pain</i>

[œ]		<un>#	brun
[ā]		<an>#	roman
[ɔ̃]		<on>#	ballon

### /H1/Varieties of Québec French

Apart from some remote regional varieties (spoken in, e.g., Abitibi, Beauce, Saguenay, Lac-St-Jean, or Gaspésie), Québec French is usually divided into two main dialect areas by a vertical isogloss between the city of Montréal and Québec City. For the sake of discussion, I will refer to these dialects as the western dialect and the eastern dialect, respectively. The distinction between the two dialects is noticeable in the realization of both vowels and consonants. Regarding vowel quality, lexical variation is found in words like *poteau* ‘post’ and *photo* ‘photograph’ which are pronounced as [poto] and [foto] in the western dialect but as [pɔto] and [fɔto] in the eastern dialect. This distinction is specific to some lexical items only, as other words such as *émotion* [emɔ̃jɔ̃] ‘emotion’ are pronounced with [ɔ̃] in both dialects. In addition, the [o/ɔ] contrast between the two dialects is not observed among in the front counterparts of these vowels ([e/ɛ]).

Another typical distinction between the western and eastern dialects regards diphthongization. As mentioned above, Québec French vowels tend to be lengthened/diphthongized in specific contexts. Diphthongization is more commonly found in the western dialect than in the eastern dialect (e.g., *arrête* ‘stop’ is pronounced [arajt] / [arajt] in the western dialect and usually as [arɛ̃t] in the eastern dialect).

Finally, the [R/ r] variation observed above with the example of *arrête* ‘stop’ in the western dialect constitutes the only distinction between the two dialects in the realization of consonants. While the rhotic is consistently realized as uvular ([R]) in the eastern dialect, it is often realized as apical ([r]) in the western dialect. Note, however, that the use of [R] versus [r] is not determined by geographical factors only; it is also conditioned by sociolinguistic factors such as age, gender and socio-economic status, the uvular realization generally enjoying a more prestigious status.

#### /H1/Typical acquisition of French

As alluded to above, and quite surprisingly, there do not exist many studies on the acquisition of French. Most of the observations noted in this section are extracted from research work by both authors of this chapter and also Vihman (2006). The work by Wauquier-Gravelines focuses essentially on northern varieties of France French, while the work by Rose concentrates on Québec French. Despite the differences in phonetic realizations discussed above, these dialects of French share a great deal of similarities. We have no a priori reason to think that the vast majority of findings in one of these dialects could not occur in others. However, we do not have data to provide from the southern varieties of France French which, given their peculiarities, could display additional phenomena related, for example, to the realization of nasal vowels or in the acquisition of schwa-related processes.

#### /H2/Acquired sounds

Because of the lack of availability of a normative baseline, no age-related figures will be provided for the acquisition of specific sounds in French. Instead, a general discussion of the acquisition of the various classes of sounds is provided below.

### /H3/Consonants

Stop consonants (either obstruent or nasal), no matter their places of articulation, are attested in early word productions. Labials appear to be the easiest consonants for children, while the acquisition of lingual contrasts, i.e. the distinction between alveolar and velar stops as well as the distinction between alveolar and alveopalatal fricatives, pose more difficulties. As it is the case in other languages, fricatives (especially coronal fricatives) are difficult to produce at early ages; they can be produced as stops or deleted altogether (e.g., Bernhardt & Stemberger, 1998). In addition, the phonetic contrast between alveolar [ʃ, ʒ] and their alveopalatal counterparts [ʃ̟, ʒ̟] is typically acquired later than any other distinction on the place dimension. Mastery of this contrast can occur as late as 4 to 6 years of age. Note in this regard that the problems related to the acquisition of lingual contrasts can be related to the physiological shape of the vocal tract of young children (e.g., Crelin, 1987; Inkelas & Rose, 2003).

Liquids also undergo several processes. While the lateral consonant /l/ is often produced as [j] by young children (with some children sometimes producing it as stop [d]), the uvular rhotic /ʀ/ appears as the most difficult consonant for most children. When it does not undergo deletion altogether, this consonant can be produced in several different forms, as a stop, a fricative, or an approximant (Wauquier-Gravelines, 2005), and at various places of articulation. The place substitutions, however, appear to be systematic and driven by the child's phonological system (Rose, 2000). This observation calls for the need of a global assessment of the phonology of the child's system before conclusions can be drawn on the nature of consonant harmony-related substitutions.



Because of a lack of large-scale studies on the acquisition of French, especially from a longitudinal perspective, it is however impossible to provide a normative baseline for the acquisition of the sound system. This gap clearly indicates a need for further studies in this area.

### /H3/Consonant clusters

Despite the lack of a large-scale empirical database for the development of the French sound system, it is possible to make preliminary observations on the acquisition of consonant clusters, again based on the evidence provided by Rose (2000). The most important finding in this study is that onset clusters appear to develop in a positionally-determined way: they were acquired by both children in (final) stressed syllables before being acquisition in (non-final) unstressed syllables. Note, however, that Kehoe and Hilaire-Debove, 2004, in their study of the development of France French, did not find such an effect; it is possible that the discrepancy between the two studies comes from the fact that the methodologies employed were different —the Kehoe and Hilaire-Debove study was based on cross-sectional, rather than longitudinal, data.

### /H3/Vowels and diphthongs

As it is the case in other languages (e.g., Dutch; see Fikkert, 1994), the vocalic system appears to take place before the consonantal system is acquired, if one bases observations on impressionistic phonetic transcriptions. This also seems to be the case in French, where most vowel contrasts appeared to be acquired in early word productions. However, this claim cannot be fully supported because of empirical and methodological issues. First, very few studies on the acquisition of vowels and diphthongs based on acoustic measurements are currently available, for any target languages, and no such study was found for the acquisition of French. Second, conducting such

studies is inherently challenging, primarily because of the physiological differences that exist between adult and child vocal tracts, which make the acoustic correlates of children's vocalic productions difficult to compare with those of adults. Consequently, building a reliable model of vocalic development remains a difficult task requiring further investigation.

#### /H2/Percent correct

Due to the lack of empirical evidence for speech development in French learners mentioned above, it would be premature to provide a normative baseline with percentages. This point is further reinforced by observations made by Rose (2000). Indeed, both children in that study displayed very similar developmental patterns, if considered from a phonological perspective only. However, if we consider age only, the children were approximately one year apart, even though they were both normally-developing on all counts. This observation alone provides clear evidence that tremendous variation can take place between children acquiring the same language/dialect. It also strongly suggests that normative baselines should be produced from very large sets of data only, and include standard deviation data, which could provide indications of what should be considered normal variation between language learners.

#### /H2/Phonological processes

Similar to the above, no exhaustive inventory of phonological processes can be made for children acquiring French. The Rose (2000) study provides evidence for processes such as the following: consonant cluster reduction, both pre-vocalically and post-vocalically; word-final vowel epenthesis after target final consonants; syllable truncation, which generally affects non-final (unstressed) syllables; syllable reduplication, stressed syllables being prime targets of reduplication; consonant harmony (found to be systematic in one of the two children's

productions); gliding of the target lateral approximant /l/; and several sound substitution processes also observed in other languages (see Bernhardt & Stemberger, 1998 for a cross-linguistic survey). While processes such as velar fronting (e.g., Brett, Chiat & Pilcher, 1987; Inkelas & Rose, 2003; Stoel-Gammon, 1996) and coronal backing (e.g., Morrisette, Dinnsen & Gierut, 2003) were not observed in the Rose study, these processes are to be expected in Québec French acquisition as well.

The issue of liaison has been recently documented in a series of works by Wauquier-Gravelines (2005a and for a review of all the data and analyses, 2005b) and Chevrot (2005). Two distinct stages have been identified by Wauquier-Gravelines. First, between the ages of two and four, most children make mistakes with latent consonants. For example, *les éléphants* [le<sup>z</sup>elefã] ⇒ \*[le<sup>ŋ</sup>elefã] ‘the elephants’ (Marie; 3); *Blanche-Neige et les sept nains* [blã<sup>ŋ</sup>zele<sup>f</sup>et<sup>ŋ</sup>ẽ] ⇒ \*[blã<sup>ŋ</sup>zele<sup>f</sup>etẽ] ‘Snow White and the seven dwarfs’ (Lélia, 3,5). The errors appear to be systematic in nominal contexts where liaison is obligatory. Children exhibit word segmentation difficulties, which manifest themselves through mistakes in determining whether the liaison consonant belongs to the first or the second word. Their most common mistake consists of associating the liaison consonant with the second word and using this consonant in an inappropriate context. For example, drawing on phrases such as *un éléphant* [ẽ<sup>ŋ</sup>elefã] ‘an elephant’, in which the [n] acts as the liaison consonant, they analyze *éléphant* as an [n]-initial word and produce target phrases such as *l’éléphant* [lele<sup>f</sup>ã] ‘the elephant’ as \*[lõ<sup>ŋ</sup>elefã]. Another, less frequent error pattern also occurs, according to which they end up analyzing an actual consonant as a liaison consonant, which yields a deletion of this consonant in contexts where liaison is not required. For example, in *Blanche-Neige et les sept nains* [blã<sup>ŋ</sup>zele<sup>f</sup>et<sup>ŋ</sup>ẽ]

‘Snow White and the seven dwarfs’, produced as \*[blãʃɲeʒeleʃetɛ], child wrongly analyzes the initial [n] as a liaison consonant and deletes it from the phrase, and realizes the final [t] of *sept* in lieu of the word-initial [n] of *nain*. These types of errors, which seem to occur most predominantly during the vocabulary burst, are typically not attested in the speech of adult speakers.

The second stage identified affects relatively older speakers who no longer have problems with obligatory liaison contexts but are still struggling with contexts in which liaison is optional. For example, the phrase *ce n’est pas à moi* /ʃə ɲe pa a mwa/ ‘it is not mine’ can optionally be realized with liaison as [ʃəɲepaʒamwa]. In such contexts, it is possible to find speakers who select the wrong liaison consonant (e.g., \*[ʃəɲepaʔamwa]). Such mistakes are also found among adult speakers.

These mistakes, both in young and older speakers, are also observed in French-based Creoles (Alain Kihm, personal communication; Tranel, 2003). The error patterns observed are generally related to the fact that several of the phenomena described in preceding sections (liaison, enchaînement, schwa deletion) make word boundaries more opaque at times, yielding a certain degree of abstractness which negatively affects word learning and production in connected speech.

Finally, anecdotal evidence suggests that the process of syllable reduplication, often observed in early speech, and reported for French adults in colloquial speech (Plénat, 1984, 1999), is more prominent in French than in languages such as English (Wauquier-Gravelines, 2003). While this

observation may be related to the status of French as syllable-timed, as opposed to English, a stress-timed language (Abercrombie, 1967; Dauer, 1983), more research is needed in this area to determine with more certainty the relative prominence of this pattern and its underlying causes. Lastly, Braud (2003) documented patterns of syllable truncation. She demonstrated that French-learning children tend to delete word-medial syllables while preserving initial and final syllables. For example, *un rhinoceros*, ‘a rhinoceros’ [ɛ̃riŋɔfɛrøʃ] ⇒ \*[ɛ̃riʃɛrøʃ]. The data also showed that the determiner is available at a very earlier stage for French children. Wauquier-Gravelines (2005) supports this assumption.

## /H2/Intelligibility

To date there is no study of intelligibility for children who speak French.

## /H2/Phonetic inventory

To date there is no study of phonetic inventories for children who speak French.

## /H2/Common mismatches

To date there is no study of common mismatches for children who speak French.

## /H2/Syllable structure

Very few studies are available for children who speak French. A comparative longitudinal study can be found in Rose (2000). Moreover, the acquisition of onsets (empty onsets and branching onsets) have been studied by Wauquier-Gravelines in a cross-linguistic project (Fikkert

et al. 2004), comparing romance languages (French and Portuguese) and Germanic languages (Dutch and English). From the earliest stage onsetless syllables are observed in French and European Portuguese child data while in English and Dutch onsetless syllables appear later, although still relatively early. Furthermore, syllables with codas are present early in Germanic languages, but appear later in French and Portuguese. To account for this pertinent difference between Romance and Germanic languages Fikkert et al. (2004) follow the proposal of Frota, Vigário and Freitas (2003) who suggest that rhythm helps the bootstrapping of syllable structure constraints. Germanic and Romance languages differ in basic rhythmic structure (Abercrombie, 1967; Dauer, 1983; Ramus et al., 1999). Germanic languages are stress timed, with often just one full vowel per word, and a complex syllable structure. Hence, consonants may play a more prominent role than vowels, also in acquisition. French and Portuguese are syllable-timed languages, with a relative simple syllable structure. Here, vowels are more prominent than in Germanic languages, also in acquisition.

#### /H2/Prosody

To date there is no study of prosody for children who speak French. Prosodic factors are however considered in several of the analyses proposed in Rose (2000). Following Vihman's proposals, Wauquier-Gravelines (2005) also argue in favor of a prosodic template which could be for French children the domain of phonological generalizations.

#### /H2/Phonological awareness

To date there is no study of phonological awareness for children who speak French.

#### /H1/Speech intervention in France

For the 2004-2005 year, approximately a quarter million speech-related interventions have taken place in France. The majority of these interventions (48%) concern written language impairment (e.g., dysorthography and dyslexia). 32% concern speech-language impairments (e.g., stuttering, speech delays, motor delays, mental delays, autism, deafness, genetic diseases). 10% of the interventions focus on speech and articulatory re-education, both for children and for adults affected by developmental or acquired speech disorders and 6% concern SLI children. These percentages were based on information declared to the public health insurance [www.ameli.fr](http://www.ameli.fr).

#### /H1/Speech assessment and speech reeducation in France

A very important number of published tests of oral and written language and speech impairment and related disorders are available and used by French speech pathologists. Some of them are available on the following website: <http://www.ecpa.fr> under the 'ECPA-ortho' reference, the main editor of such tests in France. All the tests commonly used in France are detailed in Belot and Tricot (2001). The most popular and frequently used by the speech pathologists can be divided into three main trends.

The first trend is based on a constructivist approach established during the 1960's following the Piagetian tradition. Borel-Maisonny, who initiated the development of speech therapy in France, developed a reading method for non-disordered children as well as assessment and reeducation methods in oral and written French for disordered children, which can be found in Borel-Maisonny (1985, 1986). Additional tests following the same method include *L'alouette* (Lefavrais, 1967) and the *Test de langage* (Sadek-Khalil, 1968).

The second trend follows a psycholinguistic approach based on a global conception of language competence and evaluating the children's performances for oral and written language and for different language components (e.g., phonology, morpho-syntax, pragmatics, and the lexicon) both in production and comprehension. This approach includes evaluations of general attention, working memory, information's treatment strategies that children are able to use for linguistic tasks in production, perception and comprehension. Tests based on this approach include, for example, EEL (1981), O52 (1987), LMC (1990), LMCR (1999), BEPL-A (1997), BEPL-B (1997), L2MA (1997), ELO (2001), N-EEL (2001), Lexique vivant (2004), BLI (2002) (see Appendix 41-A for more information on these tests).

The third trend is based on an approach evaluating neuropsychological disorders which have linguistic consequences but that could be reflected in other modalities and tasks. Very few tests designed under this approach concern children, except for NEPSY (2003).

While the descriptions of these approaches outlined above may suggest that they are mutually exclusive, this is definitely not the case. They all influence each other to some degree, and are all generally considered, to some degree, by speech-language pathologists working in France.

Diagnosis and intervention tools and methods deriving from these approaches are clearly set out on the website <http://www.orthoedition.com/>, which is connected to the main association of speech-language pathologists in France (FNO; see Appendix 41-A). Data are however not available to establish a detailed report of the proportion of the different intervention techniques used. In their practice, speech-language pathologists generally use personal combinations of the different tools available and, at times, also design their own tools and methods.



## /H1/Speech intervention in French

There are approximately 15,000 speech-language pathologists working in France and overseas territories, about 95% of whom are female, with a mean age of approximately 40 years old. Most of these professionals run their own private practice (about 80%). The remaining 20% work in public institutions, mainly in medico-social centers and education settings as well as in public general or psychiatric hospitals, schools and other health centers. Most of the interventions are performed on an individual basis, with a small proportion performed with groups, the latter being concentrated in educational settings. These data and more detailed information concerning interventions in France are available on the websites of the speech-pathology associations FOF and FNO (see below).

## /H2/Working in France

All advertised jobs require a four-year undergraduate degree provided by one of the 13 speech-language pathology schools (see list below) affiliated to the Health Faculties of French Universities. Admission to these schools is limited, with approximately 680 positions available every year. People hailing from other European countries in which they received training in SLP can get equivalences in France. People originating from non-European countries, even if they receive training in SLP, have to obtain a four-year undergraduate degree in one of the 13 French schools in order to obtain the right to practice in France. A visa issued by the French government is also needed. More detailed information is also available on the websites of FOF and FNO. Speech-Language Pathologists are grouped within two associations: the *Fédération Nationale des Orthophonistes* (FNO) and the *Fédération des Orthophonistes de France* (FOF) (see Appendix 41-A for more details). FNO is linked with UNADREO, a scientific society oriented towards research on speech disorders and neurolinguistics. Annual national and European congresses are

organized by these associations. Finally, three publications are available to Speech-Language Pathologists: *L'orthophoniste*, *Glossa*, and *Ortho magazine*.

#### /H1/Speech assessment for Québec French children

Speech and language assessments in Québec French is primarily based on translations of assessment tools initially developed for the English language. Other assessment tools have been adapted from materials developed in France, such as the *Échelle de communication verbale de Bordeaux* (Darrigrand & Mazaux, 2000). An important source of documentation on this topic can be found on the web site of the École d'orthophonie et d'audiologie at Université de Montréal: <http://132.204.140.194/accueilmthqueOrthov2.htm/>.

#### /H1/Speech intervention for Québec French children

No systematic information could be collected with regard to speech intervention in Québec French. However, as it is the case above for assessment techniques, most methods of intervention are based on the current theoretical and applied trends observed in North America and France.

#### /H1/Additional information

Additional information can be found by contacting the Ordre des Orthophonistes et Audiologistes du Québec (<http://www.ooaq.qc.ca/>), or each of the three schools in Speech and Language Pathology offering training in French. These schools are located at:

- ◆ Université Laval: <http://machaon.fmed.ulaval.ca/readaptation/default.asp>
- ◆ Université de Montréal: <http://www.eoa.umontreal.ca/>
- ◆ University of Ottawa: <http://www.health.uottawa.ca/sr/index.htm>

## /H2/Working in Québec

Since June 2003, all advertised positions in Québec require membership with the *Ordre des orthophonistes et audiologistes du Québec*. These professionals can work in schools, hospitals, readaptation centres, long-term housings or treatment centres, community health centres or private offices. They are also entitled to teach and conduct research activities. One interesting ramification of the legislation regulating these professions is the fact that speech and language pathologists cannot establish audiology diagnoses, nor can audiologists issue diagnoses that have scope over the specifics of speech and language pathology, even if the training required for both professions significantly overlaps.

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volume.

#### /H1/Footnotes

<sup>1</sup> The asterisk indicates a form that is unattested/impossible.

<sup>2</sup> The periods in transcribed forms represent syllable boundaries.

<sup>3</sup> Many thanks to Éliane Lebel for providing the compilations from which these two tables have been adapted

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/H1/Appendix 41-A. Resources about French

/H2/Books about France French

The linguistic properties of French are described in a number of works. A description of the relevant facts can be found in the following books

- ◆ Argod-Dutard, F. (1996), *Éléments de phonétique appliquée*, Armand Colin.
- ◆ Benveniste, C.B. (1997), *Le français parlé, études grammaticales*, Paris: CNRS éditions.
- ◆ Encrevé, P. (1988), *La liaison, avec et sans enchaînement*, Paris: Le Seuil.
- ◆ Lacheret-Dujour, A. & Beaugendre, F. (2002), *La prosodie du français*, Paris: CNRS éditions.
- ◆ Léon, P. (1992), *Phonétisme et prononciation du français*, Nathan Université
- ◆ Tranel, B. (1987). *The Sounds of French. An Introduction*. Cambridge: CUP.
- ◆ Yaguello, M. (2003), *Le grand livre de la langue française*, Paris: Seuil.

The phonetic and lexical peculiarities of French are also documented from a historical perspective, in the following books:

- ◆ Chaurand, J. (1999), *Nouvelle histoire de la langue française*, Paris: Le Seuil
- ◆ Picoche, J. & Marchello-Nizia, C. (1996), *Histoire de la langue française*, Nathan Université.

Resources in speech pathology and neurolinguistics in French

- ◆ Brin, F., Courrier, C., Lederlé, E., Masy, V. (1997), *Dictionnaire d'orthophonie*, Paris: Ortho édition.
- ◆ Chevrie-Muller C. & Narbona, J (1999), *Le langage de l'enfant, aspects normaux et pathologiques*, Masson.
- ◆ Mazeau M. (2005), *Neuropsychologie et troubles des apprentissages*, Masson.

- ◆ Nespoulous, J.L. (1994), *Le langage, Introduction. Linguistique, neurolinguistique et neuropsycholinguistique. Un parcours en quatre étapes...* In X. Séron & M. Jeannerod (eds), *Neuropsychologie humaine*. Bruxelles: Mardaga.
- ◆ Rondal, J.A, & Séron, X. (1999), *Troubles du Langage, bases théoriques et rééducation*. Bruxelles: Mardaga.

#### /H2/Books about Québec French

The linguistic properties of Québec French are described in a number of works. A description of the relevant facts can be found in the following two books. The first one provides a good description of the phonetic properties of Québec French. The second one discusses these properties in relation with the issue of linguistic norm:

- ◆ Dumas, D. (1987). *Nos façons de parler: les prononciations en français québécois*. Québec: Presses de l'Université du Québec.
- ◆ Ostiguy, Luc et Claude Tousignant (1993). *Le français québécois: normes et usages*. Montréal: Guérin.

More recently, a sociolinguistic study addressing the situation of the Québec French speaking community vis à vis factors such as the international norm (which is mostly influenced by Parisian French) and the English-dominant North American context was also published:

- ◆ Razafimandimbimanana, E. (2005). *FRANÇAIS, FRANGLAIS, QUÉBÉ-QUOI? Les jeunes Québécois et la langue française: enquête sociolinguistique*. Paris: L'Harmattan.

The phonetic and lexical peculiarities of Québec French are also documented from a historical

perspective, in the following two books:

- ◆ Mougeon, R. & Bényak, E. (1994), *Les origines du français québécois*. Québec: Presses de l'Université Laval.
- ◆ Leclerc, J. (1989), *Qu'est-ce que la langue?* (2nd ed). Laval: Mondia.

Finally, the issue of lexical frequency is documented in the following book:

- ◆ Beauchemin, N., Martel, P. & Théoret, T. (1992). *Dictionnaire de fréquence des mots du français parlé au Québec: fréquence, dispersion, usage, écart réduit*. New York: Peter Lang Publishing.

#### /H2/CD-ROMs about Québec French

While Québec French represents the norm in first language instruction, the teaching of French as a second language is typically done using materials that follow a more international norm centred on the Parisian dialect of French. For this reason, very few language teaching tools are based on the Québec variety. One exception to this is KitQC2, a Windows-only free software program, which can be downloaded through the following web link:

[http://www.alpha.cdeacf.ca/les\\_ressources/kitqc1/](http://www.alpha.cdeacf.ca/les_ressources/kitqc1/)

#### /H2/Journals about France French

While French and acquisition of French has been documented in virtually all major linguistic journals, these journals are of special interest because they publish special issues containing articles documenting linguistic aspects of French, from either theoretical or applied perspectives.

- ◆ *Corpus*: <http://revel.unice.fr/corpus/>

- ◆ *Glossa* [www.unadreo.org](http://www.unadreo.org)
- ◆ *L'orthophoniste*: [www.orthoedition.com](http://www.orthoedition.com)
- ◆ *Langages*: [http://www.editions-sedes.com/langages\\_larousse/langages.html](http://www.editions-sedes.com/langages_larousse/langages.html)
- ◆ *Langue française*: <http://www.editionssedes.com>
- ◆ *Lidil*: <http://fr.isbn.pl/A-LIDIL-revue-de-linguistique-et-de-didactique-des-langues-universit-Stendhal-de-Grenoble>
- ◆ *Marges linguistiques* <http://www.marges-linguistiques.com/>
- ◆ *Ortho-magazine* [www.info-presse.fr/fiches/ortho-magazine\\_2022\\_pro.htm](http://www.info-presse.fr/fiches/ortho-magazine_2022_pro.htm)
- ◆ *Recherches Linguistiques de Vincennes*: <http://rlv.revues.org>
- ◆ *Revue française de linguistique appliquée* <http://perso.wanadoo.fr/rfla/>

#### /H2/Journals about Québec French

While Québec French has been documented in virtually all major linguistic journals, these journals are of special interest because they contain several articles documenting linguistic aspects of Québec French, from either theoretical or applied perspectives:

- ◆ *Revue Québécoise de Linguistique*: <http://www.erudit.org/revue/rql/>
- ◆ *Langue et Linguistique*: <http://www.fl.ulaval.ca/li/>
- ◆ *La revue canadienne de linguistique / Canadian Journal of Linguistics*:  
<http://www.chass.utoronto.ca/~cla-acl/>
- ◆ *La revue canadienne de linguistique appliquée / Canadian Journal of Applied Linguistics*:  
<http://www.aclacaal.org/>

#### /H2/ Useful information on France French variation and dialects

◆ An international project of description and analysis of french dialects: *La phonologie du français contemporain: usages, variétés et structure* (PFC) is directed by J. Durand (ERSS, Toulouse), C Lyche (Universités d'Oslo et Tromso) et B. Laks (Modyco, Paris X),  
<http://www.projet-pfc.net/>

◆ Walter, H. (1982). *Enquête phonologique et variétés régionales du français*, Paris: PUF.

## /H2/Useful Websites about Québec French

Finally, a number of web sites contain interesting information about Québec French. Four such site are listed below:

◆ Le français québécois: <http://www.republiquelibre.org/cousture/FRANC2.HTM>

◆ Phonétique du français québécois: <http://www.ciral.ulaval.ca/phonetique/>

◆ Lexilogos: [http://www.lexilogos.com/quebecois\\_langue\\_dictionnaires.htm](http://www.lexilogos.com/quebecois_langue_dictionnaires.htm)

◆ Phono: <http://www.ciral.ulaval.ca/phonetique/phono/debutph.htm>

Additional information can be found on-line, using terms such as 'français québécois' or 'Québec French' with internet search engines.

## /H2/Professional associations relevant to speakers of France French

◆ Fédération Nationale des orthophonistes (FNO): [orthophonistes.fr](http://orthophonistes.fr)

◆ Fédération des orthophonistes de France (FOF): [perso.wanadoo.fr/f.o.f/](http://perso.wanadoo.fr/f.o.f/)

◆ Union Nationale pour le Développement de la Recherche et de l'Evaluation en Orthophonie (UNADREO): [www.unadreo.org](http://www.unadreo.org)

◆ Comité permanent des orthophonistes logopèdes de l'Union européenne: [www.cplol.org](http://www.cplol.org)

- ◆ Orthophonistes du monde which is a benevole care association connected with Médecins du Monde, Handicap International [www.orthophonistes.fr/Theme.php?NumTheme=99](http://www.orthophonistes.fr/Theme.php?NumTheme=99)

/H2/ Professional associations relevant to speakers of Québec French

The professional association of speech-language pathologists within Québec is Ordre des Orthophonistes et Audiologistes du Québec (<http://www.ooaq.qc.ca/>). This association works in close collaboration with its national counterpart, the Association canadienne des orthophonistes et audiologistes/Canadian Association of Speech-Language Pathologists and Audiologists: <http://www.caslpa.ca/>.

/H2/ Schools of speech pathology in France

- ◆ Ecole d'Orthophonie Service ORL Audio Phonologie Place St Jacques 25030 BESANCON Cedex 19 étudiant(e)s
- ◆ Faculté de Médecine Av. de la Forêt de la Haye BP 184 54505 VANDOEUVRE LES NANCY 41 étudiant(e)s
- ◆ Faculté de Médecine Avenue de Vallombrose 06034 NICE Cedex 27 étudiant(e)s
- ◆ UER de Médecine 1 rue Gaston Veil 44035 NANTES Cedex 01 39 étudiant(e)s
- ◆ UER de Médecine 2 bis Bd Tonnelé 37032 TOURS Cedex 39 étudiant(e)s
- ◆ UER de Médecine d'Aix Marseille II 27 Bd Jean Moulin 13385 MARSEILLE Cedex 5 27 étudiant(e)s
- ◆ UER de Médecine PARIS VI CHU Pitié Salpêtrière 47 Bd de l'Hôpital 75013 PARIS 100 étudiant(e)s
- ◆ UER Sciences Médicales 4 rue Kirschleger 67085 STRASBOURG CEDEX 21 étudiant(e)s

- ◆ UFR de Médecine 2 rue Ecole de Médecine 34060 MONTPELLIER Cedex 1 34 étudiant(e)s
- ◆ Université Claude Bernard Techniques de réadaptation 8 rue Rockefeller 69373 LYON Cedex 08 91 étudiant(e)s
- ◆ Université de Bordeaux II 146 rue Léo Saignat 33076 BORDEAUX Cedex 28 étudiant(e)s
- ◆ Université de Lille II 42 rue Paul Duez 59800 LILLE 107 étudiant(e)s
- ◆ Université Paul Sabatier Toulouse III Ens. Techniques de réadaptation CHU de Rangueil  
Chemin de Vallon Bat L2 31054 TOULOUSE Cedex 27 étudiant(e)s

/H2/ Tests which are commonly used in France

/H3/Oral Speech tests

- ◆ Borel-Maisonny, S. (1985, 8ème édition), *Langage oral et écrit, tome 1*, Delachaux & Niestlé, Neufchâtel, Paris
- ◆ Borel-Maisonny, S. (1986, 8ème édition), *Langage oral et écrit, tome 2*, Delachaux & Niestlé, Neufchâtel, Paris
- ◆ Chevrie-Muller, C. Simon, A.M., Fournier, S. (1981). L2MA: *Batterie Langage oral, Langage écrit, Mémoire, Attention*. Paris: ECPA.
- ◆ Chevrie-Muller, C., Simon, A.M., Le Normand, M.T., Fournier, S. (1988). BEPL-A: *Batterie d'évaluation psycholinguistique A*. Paris: ECPA.
- ◆ Chevrie-Muller, C., Simon, A.M., Le Normand, M.T., Fournier, S. (1988). BEPL-B: *Batterie d'évaluation psycholinguistique B*. Paris: ECPA.
- ◆ Chevrie-Muller, C., Simon, A. M., Le Normand, M. T., Fournier, S., (1981). EEL: *Epreuve pour l'Examen du Langage*. Paris: ECPA.
- ◆ Chevrie-Muller, M. Plaza, S. Fournier, (2001). N-EEL: *Nouvelles Epreuves pour l'Examen*



*du Langage*. Paris: ECPA.

- ◆ Khomsi A. & Bourg, E. (2004), *Lexique vivant*. Paris: ECPA.
- ◆ Khomsi, A. (1987), O52: *Evaluation des stratégies de compréhension en situation orale*. Paris: ECPA.
- ◆ Khomsi, A. (2001), ELO: *Evaluation du Langage Oral*. Paris: ECPA.
- ◆ P. Lecocq, (1996), E. CO.S.SE: *Epreuve de COmpréhension Syntaxico-Semantique*, Psychologie Cognitive, Presse Universitaire du Septentrion, Villeneuve d'Ascq
- ◆ Sadek-Khalil (1968). *Test de langage*: Delachaux et Niestlé, Paris/ Neufchâtel

/H3/Written language tests

- ◆ Khomsi, A. & Khomsi, J., (2002). BLI: *Bilan de Lecture Informatisé*. Paris: ECPA.
- ◆ Khomsi, A. (1999), LMC-R: *Lecture de Mots et Compréhension Révisé*, A. Paris: ECPA.
- ◆ Lefavrais, P. (1967), *L'alouette*. Paris: ECPA.
- ◆ P. Lecocq, (1996), E. CO.S.SE: *Epreuve de COmpréhension Syntaxico-Semantique*, Psychologie Cognitive, Presse Universitaire du Septentrion, Villeneuve d'Ascq

/H3/Neuropsychological tests

- ◆ Korkman, M., Kirk, U. & Kemp, S. (2003), NEPSY: *Bilan neuropsychologique de l'enfant*, . Paris: ECPA.

/H1/Appendix 41-B. Summary of studies of typical French speech acquisition

Authors	Year	Country	No. of children	Age of children	Information	Sample type	Data collection
Rose	2000	Canada	2	Child 1 (Clara):	Development of	Connected speech,	Longitudinal

				1;00.28- 2;07.19 Child 2 (Théo): 1;10.27- 4;00.00	syllable structure; Emergent processes	mostly spontaneo us; some imitated production s	
Wauquier- Gravelines	2003	France	1	Child 1 (Claire) 1;9 –2;3	Developm ent of syllables structure; Emergent processes Gliding Liaison	Connected speech, mostly spontaneo us; some imitated production s	Longitudin al
Wauquier- Gravelines	2004	France	4	1;3-1;8	Syllable onset	Repetition Directed speech	transversal
Wauquier- Gravelines	1997	France	23 23	2;6-3;6 4;00-5;00	Liaison	Picture naming	experiment al
Wauquier- Gravelines	1997	France	18 SLI children	3;00 to 16;00	Liaison	Picture naming	experiment al

Wauquier-Gravelines & Sauzet	1997	France	18 SLI children	3;00 to 16;00	Morphological derivation	Derivation test	experimental
Wauquier-Gravelines & Braud	1999	France	24	4;00-5;00	Morphological derivation	Derivation test speech	experimental

/H1/Appendix 41-C. Pronunciation of words relevant to speech assessment and intervention

Pronunciation of Québec French: [kebɛk fʁɛ̃ʃ]

Pronunciation of France French: [frɑ̃ʃ fʁɛ̃ʃ]

Word/Phrase	Formal usage	Pronunciation	Informal usage	Pronunciation
Tongue	<i>langue</i>	[lɑ̃g]	<i>langue</i>	[lɑ̃g]
Teeth	<i>dents</i>	[dɑ̃]	<i>dents</i>	[dɑ̃]
Lips	<i>lèvres</i>	[lɛvr]	<i>lèvres</i>	[lɛv]
Hard palate	<i>palais dur</i>	[palɛ dɔʁ]	<i>palais</i>	[palɛ]
Soft palate	<i>voile du palais</i>	[vwal dɔ pale]	<i>palais mou</i>	[palɛ mu]
Larynx	<i>larynx</i>	[larɛ̃ks]	<i>gorge</i>	[gɔʁʒ]
Lungs	<i>poumons</i>	[pumɔ̃]	<i>poumons</i>	[pumɔ̃]

Nose	<i>nez</i>	[ne]	<i>nez</i>	[ne]
Sound	<i>son</i>	[sɔ̃]	<i>son</i>	[sɔ̃]
Word	<i>mot</i>	[mo]	<i>mot</i>	[mo]
Sentence	<i>phrase</i>	[fʁaz]	<i>phrase</i>	[fʁaz]
Paragraph	<i>paragraphe</i>	[paʁagraf]	<i>paragraphe</i>	[paʁagraf]

*Note.* These words are transcribed according to France French pronunciations; see above for Québec French derivatives.