THE FRENCH SOUND SYSTEM: 
ITS PHONOLOGY AND ORTHOGRAPHY 

by 
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A thesis 
submitted in partial 
fulfillment of the requirements for the degree of 
Master of Arts in the School of Arts & Sciences 
Fresno State College 

June, 1968
The purpose of this study is threefold: 1) to present an articulatory analysis of the Parisian French language sounds, 2) to present an original systematic representation of the orthograph of these sounds so that the student may recognize and produce these sounds from a text written in conventional orthography, and 3) to present the general articulatory difficulties experienced by American speakers when learning these sounds and ways of eliminating these problems.
<table>
<thead>
<tr>
<th>Vowels</th>
<th>Consonants</th>
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</thead>
<tbody>
<tr>
<td>i As in &quot;ligue&quot;</td>
<td>p As in &quot;peur&quot;</td>
</tr>
<tr>
<td>ü As in &quot;tu&quot;</td>
<td>t As in &quot;telle&quot;</td>
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<tr>
<td>é As in &quot;dé&quot;</td>
<td>k As in &quot;corps&quot;</td>
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<tr>
<td>ôe As in &quot;peur&quot;</td>
<td>b As in &quot;bon&quot;</td>
</tr>
<tr>
<td>è As in &quot;quel&quot;</td>
<td>d As in &quot;de&quot;</td>
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<td>òe As in &quot;peur&quot;</td>
<td>g As in &quot;garçon&quot;</td>
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<td>a As in &quot;ma&quot;</td>
<td>f As in &quot;feu&quot;</td>
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<tr>
<td>ã As in &quot;pâte&quot;</td>
<td>v As in &quot;vin&quot;</td>
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<td>ò As in &quot;moule&quot;</td>
<td>s As in &quot;sel&quot;</td>
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<td>ò As in &quot;autre&quot;</td>
<td>z As in &quot;mesure&quot;</td>
</tr>
<tr>
<td>u As in &quot;moule&quot;</td>
<td>m As in &quot;mère&quot;</td>
</tr>
<tr>
<td>ê As in &quot;fin&quot;</td>
<td>n As in &quot;notre&quot;</td>
</tr>
<tr>
<td>œ As in &quot;un&quot;</td>
<td>l As in &quot;loup&quot;</td>
</tr>
<tr>
<td>ñ As in &quot;dans&quot;</td>
<td>s As in &quot;chat&quot;</td>
</tr>
<tr>
<td>ɔ As in &quot;mon&quot;</td>
<td>z As in &quot;jambe&quot;</td>
</tr>
<tr>
<td></td>
<td>ñ As in &quot;gogne&quot;</td>
</tr>
<tr>
<td></td>
<td>r As in &quot;rose&quot;</td>
</tr>
</tbody>
</table>

Semi-vowels

y As in "pied," "caille"
ì As in "lui"
û As in "fouet"
Key to Symbols

"deux" = (written as)
# = initial position
- = medial position
# = final position
/ = environment
V = any vowel

\{v_{i, e, o}\} = vowel sound; either /i, e, o/

Vn = nasal vowel
C = any consonant
Cvd = voiced consonant
Cvl = voiceless consonant
Cs = consonant; any stop
Ccont = consonant; any continuant

{\{l, r\}} = either /l/ or /r/

\{m, n\} = written as "m", "n"

/\ = loss of voiced quality

PA = Point of Articulation

\longrightarrow = becomes; is pronounced as; written as

N = noun
Adj = adjective
Prep = preposition

Ve = Verb
/E/ = realized as either /é/ or /è/
č = unpronounced consonant
"č" = written but unpronounced consonant
*/ /= nonsense... non-existent form
SPEECH ORGANS
(after Kinzel)
CLASSIFICATION AND DESCRIPTION OF CONSONANTAL POINTS OF ARTICULATION:

1. Bilabial
2. Labiodental
3. Dental
4. Alveolar
5. Palatal
6. Velar
7. Nasal

(after Valdman, Salazar, Charbonneaux)
RELATIVE POINTS OF ARTICULATION OF PRINCIPAL FRONT AND BACK FRENCH VOWELS

(after Maurice Grammont, La Prononciation Francaise, Librairie Delgrave, Paris, 1966.)
APPROXIMATE RELATIVE HEIGHTS
OF TONGUE FOR CARDINAL FRENCH
FRONT VOWELS

(after Daniel Jones, An Outline of
English Phonetics, Leipzig, 1932.)
APPROXIMATE RELATIVE HEIGHTS OF TONGUE FOR CARDINAL FRENCH BACK VOWELS

(after Jones)
POINTS OF ARTICULATION
FOR FRENCH CONSONANTS
(after Kinzel)
The Parisian accent in general

The model for this study, as for most prescriptive studies concerning the French language, is the language contemporarily spoken in normal conversational style by the educated middle-aged group of Parisian society, which consists mostly of the established bourgeoisie. This is so simply because language is eminently too much of a social interaction to have prevented such an evolution in a country such as France, where Paris is recognized by nearly all Frenchmen as the political, economic, and cultural center of their country. Following are what the author considers to be the principal distinguishing phonological features of Parisian speech as compared to that of the various provinces.

The Parisian knows only a single high, front, unrounded phoneme (/i/), a single high, front, rounded phoneme (/u/), and a single high, back, rounded phoneme (/u/). He distinguishes between a tense /ó/ (o fermé), and a lax /ô/ (o ouvert), as well as a tense /óê/ and a lax /ôê/. The Parisian distinguishes quite generally two phonemes /E/- - /é/ and /ê/- in final unchecked syllabic position, but uniquely in this position. In a checked syllable the opposition of /é/ and /ê/ is neutralized.

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A distinction between a low, back, unrounded vowel (/a/) and a low front unrounded vowel (/a/) is still heard in Paris, although disappearing. It appears as if the /a/ will eventually be the only low, unrounded vowel sound heard in Paris.

The Parisians distinguish the nasals /ã/, /œ/, and /œ/, but there is quite extensive confusion between the nasals /œ/ and /œ/, at the expense of the latter. This confusion is so simply because there no longer exist in contemporary French many words which use this function of opposition to distinguish themselves from one another. Probably the only monème which has universally maintained its pure /œ/ sound is “un” when used in numeration or as an indefinite article before a word beginning with a vowel sound: e.g., “un ami” /œ nami/.

The high vowels /i/, /ü/, and /u/ when in hiatus, as in “pied,” “huit,” “douane,” are usually pronounced as semi-vowels. The Parisian bourgeoisie is gradually ceasing to maintain the difference between “-gn-” and “-n” + /y/, as in “l’agnelle - la nielle,” but they still conserve the distinction between “-l” + /y/ and /y/, (type “soulier/souiller”).

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3Used by French linguists to mean morpheme.

The opposition between the voiced or weak consonants and the unvoiced or strong consonants is distinctly maintained in Paris. Also, unlike among the various Provinces, gemination of consonants (les consonnes geminées) is rare in Paris. As a whole, the consonantal structure of French is stable.

But there is a weak point, which is represented by the phoneme /ñ/, whose "liquid" characteristic is unique and isolated in the French sound system. This phenomenon is realized by a palatal /n/ followed by a slight yod /y/. Consequently, words as "la nielle" and "l'agnelle" are many times identical to the ear.

Vowels: Differences of Sound Systems; French versus American English

Simply, vowels can be defined as those language sounds produced on an egressive air stream* which lacks any audible friction or obstruction. The individual vowels obtain their different qualities by variations of the resonating chamber which is made up of the throat and mouth cavities. These variations are accomplished by motions of the lips and tongue accompanied by changes in the tension of the mouth muscles. Due to the number of variables involved, the number of possible vowel sounds may be unlimited, but most languages possess no more than 20 vowel sounds. For our purpose, the French sound system contains 16 vowels and 3 semi-vowels (which in some environments are considered as semi-consonants). Of the 16 vowels, 4 are classified as nasal vowels or those which are

* In French, occasionally "ouï" /ui/ is produced with an ingressive air stream when it is used as a single word response.
produced by a lowering of the velum, thus forcing the air into the nasal cavities.

According to Valdman, vowels are described in terms of the variables as follows:

1. The height of the tongue in the mouth cavity; low, mid, high.

2. The point of articulation: where the highest part of the tongue mass is pointing during sound production; front, central, back.

3. The position and shape of the lips; rounded, protruded, spread, neutral.

4. The tenseness of the tongue and mouth musculature: tense or relaxed. French vowels are characterized by their tenseness.\(^5\)

In addition, vowels are described in relation to the position of the velum which permits or prevents free passage of air to the nasal cavities; quality of nasality or non-nasality. English is said to be lacking in nasal vowel sounds as there is no function of opposition between nasal and non-nasal sounds as there is in French.

Vowels may be said to be either pure or diphthongized. During production of a pure sound, there is no sign of quality change. In producing a pure vowel, the speech organ musculature must be tense at the initial and at the final phases of the vowel sound. With diphthongs there is a marked change

\(^5\)Valdman, Salazar, Charbonneaux, p. 10.
in quality from beginning to end. French is characterized by pure vowel sounds, whereas American English possesses numerous diphthongs.

A difficulty encountered by American speakers is in mastering the opposition of the two series of front vowels in French: the rounded series /u, o, œ/ and the unrounded series /i, e, è/. This problem can be traced to the fact that, in their native language, American speakers do not possess an unrounded series of front vowels, nor in American English is labilization of vowels a pertinent factor. On the other hand, American English possesses central vowels which are unknown in French, a situation which many times causes problems of overdifferentiating by the American speaker.

A general rule in French is that in a checked syllable a vowel has a tendency to be more lax, whereas in an unchecked syllable a vowel has a tendency to be tense, as with the distributions of /e-e/, /o-o/, and /a-a/.

The Isolated Phonemes:
The vowel /u/.

Production:

For the articulation of the French /u/ the tongue is

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drawn back in the mouth nearly as far back as is possible. The point of articulation (PA) is the soft palate. The lips must be rounded and tensely protruded. Any deviation or relaxation of this tenseness will surely result in the glided prolongation of the American /uw/. The opening between the front teeth is approximately 2 millimeters.

Orthographic Representation:

\[
\begin{align*}
"\text{ou}" & \rightarrow /u/ \\
\{"\text{ou} \hat{\text{c}}", "\text{ou} \hat{\text{u}}"\} & \rightarrow /u/ \\
"\text{ou} \hat{\text{c}}", "\text{ou} \hat{\text{u}}" & \rightarrow /u/ \\
\end{align*}
\]

The vowels /ô/ and /ɔ/. 

Analysis:

In French there are two distinct mid-back vowel sounds: the tense /ô/ (o fermé) and the lax /ɔ/ (o ouvert).

Production:

The positions of the speech apparatus for the produc-

\[8\text{Valdman, Salazar, Charbonneaux, p. 24.}\]
tion of the /o/ are analogous to those for the phoneme /u/, except that for the /o/, the PA is more forward on the soft palate and the opening between the incisors reaches 5 millimeters. Also, the lips are opened more. The /o/ is a back, low mid rounded vowel with the PA almost at the hard palate. The lips are opened slightly more than for the /o/ phoneme, and the incisors are about 8 millimeters apart.

Orthographic Representation:

```
{o} → /œ/ / - {/z/}
```

```
"eau" → /œ/ / - {#}
```

```
{"au"}
```

```
"o" → /o/ / - C (except /z/)
```

e.g., "botte" /bot/, "porte" /port/.

```
e.g., "rose" /roz/,
"pot" /pɔ/, "zéro" /zéro/.
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e.g., "chapeaux" /ʃapɔ/, "tableau" /tablɔ/.

e.g., "gauche" /ɡoʃ/, "côte" /kɔt/.
Interference Problems:

The main problem encountered with the /ó/ by American speakers is the substitution of the /ow/ found in "coat" for this sound. This can be avoided by concentrating on a fixed lip position. With the /ó/, American speakers tend to over open their lips and emit a sort of /a/. To avoid this, one need only to maintain the proper lip position.

The vowels /â/ and /a/.

Analysis:

As previously mentioned, the contrast between the posterior /â/ and the anterior /a/ is disappearing from the repertoire of phonemes possessed by the Parisian speaker. The differences between these two vowel sounds is at present so slight that one could function linguistically in Paris with only the /a/ phoneme.
Production:

For the posterior /â/ or the low back, rounded vowel, the PA is slightly forward on the hard palate than the PA for the /ɔ/. For /â/ the laterals of the tongue touch the last pair of lower molars. The lips are barely rounded and protruded. The space between the incisors is approximately 10 millimeters. As for the /a/ or the low front, unrounded vowel, the PA is forward of that for /â/. It is the portion of the hard palate at its greatest height in relation to the tongue in a relaxed position. During production of the /a/, the laterals of the tongue rest against the last three pairs of molars. The lips are not rounded, but drawn back. The opening between the teeth is 7 millimeters.

Orthographic Representation:

```
"a" → /â/ / - Z
"a" → /â/

"a" → /a/ / - "se" e.g., "caille" /kay/, "paillasser" /payas/, "opera" /opera/, "abatage" /abata/.

/â/ → "a" / "se" e.g., "écrase" /ékrâ/, "château" /šátou/.
/a/ → "a"

"oi" → /œ/ e.g., "froid" /frua/,
"œ/ → "oi"
```

"œ/ → "oi"
Interference Problems:

The main difficulty encountered by American speakers is the replacement of the French /a/ with the too open /ɔ/ as in "paw." For correction one need only be conscious of the distance between the front teeth.

The vowels /ɛ/ and /é/.

Production:

The lax /ɛ/ is a low mid, unrounded vowel sound similar to the American English vowel sound /ɛ/ as in "let," but the French sound is pronounced without any presence of glide.

The tense /é/ or the high mid, unrounded vowel sound is also shorter and without a glide in comparison to the closest resembling American vowel sound, which is /ey/ as in "day."

For production of the /é/, the teeth are closer together (3 millimeters), than for /ey/ and the lips are tensely spread.

Orthographic Representation:

\[
\begin{align*}
\text{"e"} & \rightarrow /ɛ/ \quad \text{e.g., "chanter" /ʃɑ̃tə/}, \quad \text{"clef" /klɛf/} \\
\text{"ai"} & \rightarrow /ɛ/ \quad \text{Verb - #} \quad \text{e.g., "jesera" /ʒɛ səʁə/} \\
\text{"e"} & \rightarrow /ɛ/ \quad \text{e.g., "épais" /epeə/} \\
\end{align*}
\]
The vowels /œ/ and /œ/.

Analysis:

The vowels /œ/ and /œ/ are called compound vowels. This term is used because /œ/ and /œ/ utilize the PA of /œ/ (/œ/) and /œ/ (/œ/), and the tense rounding and protrusion of the lips as for /œ/ (/œ/), and the not so tense rounding of the lips as for /œ/ (/œ/).

Since American speakers have no near equivalent vowel sound for /œ/ in their native language but one for /œ/, (the /œ/ as in cut), they must strive not only to perceive a difference in the French system, but also to produce the two distinct sounds. This can only be accomplished with extensive guided imitation and practice.
The vowel /i/

Production:

The /i/ is the highest, the most tense, unrounded, and frontal of all the vowel sounds in the French phonological system. The /i/ is articulated as the /e/, except that everything is "more"; the lips are more tensely spread, the incisors are closer together — a single millimeter apart — and the apex of the tongue is pressed more strongly against the lower front teeth. The air passage between the mid-tongue mass and the roof of the mouth is only enough to allow the air
stream to pass unobstructed.

Orthographic Representation:

\[
\begin{align*}
"i" & \rightarrow /y/ \quad \text{C} \quad \{/r/ \quad \text{-} \quad \text{V}\} \\
"i" & \rightarrow /i/ \quad \text{C} \quad \text{-} \quad \text{C} \\
"y" & \rightarrow /i/ \quad \text{C} \quad \text{-} \quad \# \\
\hat{"i}" & \rightarrow /i/ \\
\end{align*}
\]

Interference Problems:

There are two general interference problems encountered by American speakers when learning the French /i/. The most frequent problem is the presence of a glide as in "me" /miy/. This glide may be avoided by shortening the /iy/ and concentrating on maintaining the teeth in a fixed position. The second interference problem involves the positions of the teeth and lips. Many times American speakers tend to substitute a lax /I/ as in "it" for the tenser French /i/. This can be remedied by being sure of specified lip, teeth and tongue positions.

The vowel /u/.

Production:

The /u/ is the most difficult French vowel sound for
an American to produce. This compound vowel sound is produced with the tongue and teeth in the exact positions as for /i/ and the lips are tensely rounded as for /u/.

Orthographic Representation:

<table>
<thead>
<tr>
<th>Sound</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;u&quot;</td>
<td>/ʊ/</td>
</tr>
<tr>
<td>&quot;eu&quot;</td>
<td>/ɥ/</td>
</tr>
<tr>
<td>&quot;eût&quot;</td>
<td>/y/</td>
</tr>
</tbody>
</table>

The semi-vowels.

Analysis:

In French there are three semi-vowels: /y/ (yod), /ɥ/, and /u/. Their orthographic representation is the same as for the vowel sounds /i/, /u/ and /u/ respectfully, and the realization of a vowel or a semi-vowel depends upon the phonological environment.

The semi-vowel /u/.

Production:
This sound is best learned by beginning with the vowel /u/, as initial articulatory positions are identical: the lips rounded and tense and the tongue well back and rather high in the mouth cavity. The semi-vowel characteristic is attained by a rapid movement from the initial positions for /u/ to those of the following vowel sound.

Orthographic Representation:

```
"ou" -> /u/ / _ V
"oin" -> /uo/ /u
"oi" -> /ua/ /u
```

```
e.g., "douane" /duan/, "coincer" /kue^se/, "froid" /frua/.

"oin" -> /ueV

"oi" -> /ua/ e.g., "fouette" /fuete/, "moindre" /mue^dr/, "emboiter" /abuate/.

"loi" /lua/.
```

Interference Problems:

Since the French /ua/, unlike the American English /wa/, is sharp and entails a quick change of articulatory positions, many American speakers produce poorly this short, semi-vocalic sound in the following situation:

```
/ua/ / C _ V, e.g., "soir" /suvar/ and not */suwar/, "loi" /lua/ and not */luwa/.
```

The same difficulty may occur with "oin" /uo/.
Also, because of the quick articulatory changes of the French /ua/ and /ue/, many American speakers do not perceive the /u/ and hear "la" /la/ for "loi" /lua/ and */le/ for "loin" /luw/. This may be corrected with practice of word pairs such as: "le roi" vs. "le rat," "la fin" vs. "le foin."

The semi-vowel /u/.

Production:

The manner of articulation for /u/ is analogous with that of /u/. The lips are well rounded and the apex of the tongue is forced against the lower front teeth. The /u/ attains its semi-vowel quality during the rapid change to the following vowel sound, which is usually /i, e, or a/. Orthographic Representation:

```
"u" --> /u/ / C {l /r} - V e.g., "cruaute" /kruaute/, 
"u" --> /u/ / _ V "nuage" /nuaj/. 
```

Interference Problems:

American speakers experience difficulty in distinguishing between /u/ and /u/ in words such as "lui" /lui/ vs. "Louis" /lui/. This problem may be traced to the perception/production problem of /u/ vs. /u/. This problem can be eliminated if

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it is remembered to maintain the tongue in a high, frontal position for /ï/ and high and back for /u/.

Another problem is that of distinguishing between /œi/ and /i/ as in: "le puits" vs. "la pie," /œ pi/ vs. /la pi/. Only guided practice with selected word pairs can eliminate this difficulty.

The semi-vowel /y/.

Production:

The /y/ or yod, as it is referred to in French, begins as the vowel /i/. The lips are in a spread position and the front of the tongue is high against the hard palate. Whereas during production of the /i/ there is no perceivable obstruction of the air stream, for /y/ there is a short, energetic contact between the tongue and the hard palate. This brief contact gives /y/ its consonantal characteristic of an energetic release.

The closest resembling sound in American English would be the /y/ glide as in /ay, ey, iy, oy/, but the French /y/ is produced with greater tension.

Orthographic Representation:

"il" → /y/ / V _ # e.g., "pitié" /pity/, "œil"
"ill" → /y/ / {C V} _ /œi/ / "mouille" /muy/, "paille"

"pay", "crayon" /krɛy/,
It is in the environment / CV that American speakers experience their most frequent difficulty with /y/ as they tend to insert a vowel sound before the yod. This happens, because in American English a vowel sound is automatically placed between the consonant and the /y/. In French, however, there is an absence of this vowel and the consonant and yod are pronounced with a single articulatory movement:

Fr. - "sieste" /sje/  
Am. Eng. - "siesta" /sje/  

This problem can be corrected by practicing a quick movement from the consonant to the yod and following vowel.

\[ 11 \text{Valdman, Salazar, Charbonneau, p. 186.} \]
The nasal vowels: /æ, ɔ, ɛ, õ/. 

Analysis:

Parisian French possesses a four way contrast of nasalized vowels. Even though American English contains more nasalization of vowels than does French, in American English this nasalization is predictable; therefore it does not have phonemic value. In French, however, the nasal vowels have a definite contrastive function, as they occur in all positions where the oral vowels occur except in environment /-n/. In overall distribution, American English and French are in opposition:

|               | Vn / _ #, e.g., "mon" /mɔ/ | Cnn / _ #, "monter" /mɔtɛ/ | Cnt / _ #, e.g., "came", "coming."
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>French: yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Am. Eng: no</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French: yes</td>
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<td></td>
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<tr>
<td>Am. Eng: no</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French: no</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Am. Eng: yes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Production:

The feature which differentiates the nasal vowels from the oral vowels is that of nasalization, which is accomplished by a relaxation of the velum to allow an air passage into the nasal cavity, thus creating a nasal resonance. The nasal vowels are differentiated from each other by tongue position (high or low), and by lip position (rounded or unrounded). The PA for /æ/ is that of for /a/, for /ɛ/ it is that of for /ɛ/. The PA for /ɔ/ is mid-way between that of for /o/ and /o/. For /œ/, the PA is between that of for /œ/ and that of for /a/.
Although the older aged group of upper-class Parisian speakers still make the contrast between /œ - œ/, it is evident that the younger generation of this social class fails to round their lips to make this distinction and employs /œ/ regardless of orthography, e.g., "brin/brun" → /brœ/. Since /œ/ occurs in such a few number of words in contemporary usage and in a limited number of positions, this "confusion" does not at all hinder communication.  

Orthographic Representation:

The general rule for the nasalization of a vowel in French is the following:

\[
\text{"v"} \rightarrow \text{Vn} / - \left\{\begin{array}{ll}
\text{"m"} & \text{#} \\
\text{"n"} & \text{(except /n/)}
\end{array}\right. 
\]

Orthographic Representation:

\( /a/ : \)

\[
\begin{align*}
\text{"ant"} & \rightarrow /\text{a}/ \quad /\text{ve}_-\text{#} \\
\text{"a"} & \left\{\begin{array}{l}
\text{"m"} \\
\text{"n"}
\end{array}\right. \rightarrow /\text{a}/ \\
\text{"e"} & \left\{\begin{array}{l}
\text{"m"} \\
\text{"n"}
\end{array}\right.
\end{align*}
\]

e.g., "chantant" /säta/, "ample" /apl/, "paon" /pa/, "empire" /apir/, "entrer" /atré/.

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The carry-over of articulatory habits in nasalization by American speakers creates two different pronunciation prob-

Interference Problems:

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Interference Problems:
lems: 1) diffusion of nasalization, and 2) an intercalation of nasalized consonantal elements. Diffusion of nasalization entails the extension of a nasalized consonant into a following oral vowel or the anticipation of a following nasalized consonant, which also affects the quality of the oral vowel; e.g., */má̆l/ for /mál/ "mâle," */plá̆n/ for /plan/ "plane." The consequence of diffusion of nasalization is that in a verbal pair such as "il vient/ ils viennent" /il vye̊ - il vyè̊n/, both pairs are not differentiated */il vyè̊n/ "il vient" vs. /il vyè̊n/ "ils viennent" and communication difficulties may arise.

As for intercalation of consonantal elements, in utterances ending with a nasal vowel followed immediately by a consonant, American speakers tend to insert a curt /m, n, "or" / after the French nasalized vowel so that: /lét/ becomes * /lent/ "lente," /tô̆bé/ becomes */tô̆mbé/ "tombé," and /sè̊nè̊/ becomes * /sê̊nè̊/ "saigner."

The Consonants:

While vowels were simply characterized from the articulatory point of view by a free passage of the egressive air stream, consonants will be characterized by a stricture in this air stream. This stricture may be complete, thus creating a stop, or it may be partial, thus creating a continuant.

Every consonant may be characterized further according to its manner of articulation and to its point of articulation, as well as its voiced or voiceless quality. Thus, it could

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Oe said that the /t/ in the French phonological system is a voiceless stop in regards to its manner of articulation, and is an apico-dental consonant as to its point of articulation.

**Consonant Chart: French/English**

<table>
<thead>
<tr>
<th>Manner of Articulation</th>
<th>Point of Articulation</th>
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<tbody>
<tr>
<td></td>
<td>Bilabial</td>
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<tr>
<td>Stop</td>
<td></td>
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<tr>
<td>Voiced</td>
<td>b</td>
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<tr>
<td>Voiceless</td>
<td>p</td>
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<tr>
<td>Affricate</td>
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<tr>
<td>Voiced</td>
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<td>Voiceless</td>
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<tr>
<td>Fricative</td>
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<td>Voiced</td>
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<td>Slit</td>
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<td>Fricative</td>
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<tr>
<td>Nasals</td>
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<td></td>
<td>f</td>
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<tr>
<td>Semivowels</td>
<td>w</td>
</tr>
</tbody>
</table>

(after Valdman)
Disregarding the semi-vowels /w, u, ü, r, y/, in glancing at the above consonant table, one will notice that, as a whole, the French and American English phonological systems have corresponding consonant sounds; i.e., both systems possess a [b] [z], etc. In number, the American consonantal system is supreme with twenty-one primary sounds as compared to eighteen in the French system. American consonants which the French system has no near equivalent to number five: the slit fricatives /ð, θ, h/ and the affricates /ʃ, ʒ/. The only consonant sound in the French system to which the American system has no near equivalent would be the /û/. Further differences of the two systems may be seen in the PA for each of the orders. This difference in PA does not seem too troublesome for American speakers if examined strictly from a phonemic point of view, as this PA difference does not affect so much the perception of the consonant sound itself, but the immediate surrounding phonemes. This affectation will be illustrated later with the velar French /r/ and apico-dental /l/.

The Stops.

Non-aspiration of voiceless stops:

In American English the voiceless stops /p, t, k/ may be produced with or without a marked aspiration, and the presence of this aspiration is predictable to an extent; they are always aspirated in initial position and may be as-
pirated in final position: types — "toy" /tˈoy/ and "cat" /ˈkaet/.

However, when found immediately after /s/, the /p, t, k/ are unaspirated: types — "spin" /ˈspin/, "store", "skate."

In French the consonants /p, t, k/ lack a marked aspiration in initial position. In fact, these stops are so unaspirated that, to a linguistically untrained American speaker, they may even appear as allophones of /b, d, g/ respectively.

Production:

To achieve an accurate production of the unaspirated French /p, t, k/, American speakers should be conscious of the PA and should be sure that the lips are tense during production. At the onset of practice, American speakers should hold a sliver of paper or a lighted match in front of the lips in order to measure the degree of aspiration.

Aspiration of the /p, t, k/ in final position.

Analysis:

In American English, the releasing or non-releasing of a puff of air in final position is in free variation and of phonetic significance; i.e., it does not change the meaning of a word, as the key for distinguishing between consonants is not locked into this final phase. Whereas in French, final aspiration is of phonemic significance; i.e., it may change the meaning of a word or words. Final aspiration, in many cases, distinguishes between masculine and feminine
forms of adjectivals /tu - tut*: /"tut" - "toute," and
with some verbs, it distinguishes between the third person
and the sixth person: /il me - il met*: /"il met" -
"ils mettent." American speakers tend to carryover this non-
aspiration of a final voiceless stop into French which creates
a difficulty of communication.

Production of /t/ and /k/:

The French /t/ is apico-dental in PA and the American
/t/ is apico-aveolar. This slight difference in PA is not
obvious in perceiving the consonant sounds, but this differ­
ence is manifested in the affectation of the surrounding pho­
nemes, especially the vowels. During production of the /t/
/k/, the lips assume the form demanded by the vowel which
follows. If one pronounces "ton" /to/ the lips would be in
a rounded position during production of the /t/, whereas for
"qui" /ki/, the lips would be spread tensely during articula­
tion of the /k/.

Orthographic Representation:

\[
\begin{align*}
\{"t"\} & \rightarrow /t/ & \text{e.g., "potable" /pÔta/}, \ "botter" \\
\{"tt"\} & \rightarrow /t/ & \text{e.g., "patte" /pat/}, \ "pathtique" \\
\{"th"\} & \rightarrow /t/ & \text{e.g., "patte" /pat/}, \ "pathtique" \\
\end{align*}
\]
The voiced stops, /b, d, g/.

Analysis:

The points of articulation for the voiced stops are
the same as those for the corresponding voiceless stops /p, t, k/, but for the /b, d, g/, the musculature is less tense and the sonority is strong and begins at the outset of articulation. In American English the voicing is weaker and begins after the articulation has begun. Like /t/, the French /d/ differs from the American /d/ in that it is apico-dental and requires a full closure intervocally, whereas American English uses a single flap of the tongue when between vowels.

Orthographic Representation:

\[
\begin{align*}
"b" &\rightarrow /p/ & \epsilon \{/s/, /t/\} \\
{"bb"} &\rightarrow /b/ \\
/b/ &\rightarrow \{"bb"\} \\
/d/ &\rightarrow \text{"d"} \\
"g" &\rightarrow /g/ & \epsilon \{/u/, /o/\} \\
"gu" &\rightarrow /g/ & \epsilon \{/\text{V}\}
\end{align*}
\]

\begin{itemize}
  \item "b" examples: "absolu" /apsɔlũ/, "fable" /fabl/, "abbé" /abẽ/.\par
  \item "d" examples: "débout" /dẽbu/, "abbesse" /abẽs/.\par
  \item "g" examples: "garçon" /garsõ/, "fagot" /fagõ/, "aigu" /ẽgũ/, "guêpe" /ẽp/, "ligue" /ĩlɛ/.\par
\end{itemize}
The affricates.

Affricates are described simply as a combination of a stop (initial phase), and a fricative (final phase). American English possesses two affricates: the /tʃ/ as in "child" and the /dʒ/ as in "judge." French has no such sound, except in "caoutchou" where it is transcribed as a combination of /tʃ/, /kautʃu/.

The fricatives.

Analysis:

Fricatives are those consonant sounds for which, during production, the air stream is audibly obstructed, but not completely closed off, by one or more of the speech organs. As the air passage is narrowed by one means or another, a friction noise is heard as the air stream passes through the altered passageway. Consequently, unlike the stops, the fricatives may be prolonged. Fricatives, similar to stops, may be either voiced or voiceless. Also, fricatives vary as to the location and the assumed position of the constricting speech organ, and as to the shape of the air channel, which
can be a slit as for /v, f, y, r/, and a groove as for /z, s, ʒ, ʃ/.

The groove fricatives.

Analysis, the "sifflantes" /s, z/:

In French /s, z/ are produced with a dental point of articulation, whereas for the American equivalents the contact point is alveolar. Usually, in French the voiceless /s/ and the voiced /z/ are not as prolonged as they are in American English.

Orthographic Representation:

```
"x" → /s/ (only in "dix" /dis/, "six" /sis/
"t" → /s/ / _ /y/ V
{"c", "Sc"} → /s/ / Y{"i", "e"}
{"S", "G", "SS"} → /s/

/s/ → {"x" / (in "dix," "six")
"t" / "i" / V
{"c", "Sc"} / {"i", "e"}
{"S", "G", "SS"}

"cc" → /ks/ / V / {"i", "e"} e.g., "accident" /aksidə/,
"ks" → "cc" / V / {"i", "e"} e.g., "accent" /aksə/.
```
"s" → /z/ / V  V
"se" → /z/ / #

"ex" → /ɛgz/ / #  V

/z/ → "s" / \{ V  V \} e.g., "peser" /peze/, "chose" /sɔz/.

/ès/ → "ex" / #  V e.g., "exasperer" /ɛgzaspɛrɛ/

"ex" → /ɛgz/ / #  V e.g., "exigu" /ɛgzigü/

Interference Problems with /s z/:

In American English the /s/ contrasts with /z/ in some instances, e.g., "Sue" vs. "zoo," but at other times this contrast is not maintained and one hears either /s/ or /z/, e.g., "greasy" → /grisi/ or /grizi/. This neutralization of contrast is an individual and regional variant which does not exist in French, however, as the contrast of /s/ → /z/ is maintained in all circumstances. American speakers tend to carry-over this speech habit of neutralization into French, especially in situations: V  V; e.g., "le dessert" /le dezɛr/ vs. "le desert" /le dezɛr/.

Assimilation of /s + y/ vs. /s + y/, and /z + y/ vs. /z + y/:

With many American speakers, during normal conversation, /s/ becomes similar to /ʒ/ and /z/ becomes similar to /ʒ/ under the influence of an immediate following /y/; e.g.,

---

14 Ibid., p. 99.
"Who's your teacher" /huw̃jər tɪˈtɛr/. In French the sequences /s + y/ and /ʂ + y/ are contrasted always as are the sequences /z + y/ and /ʒ + y/; e.g., "la sienne" /la syɛn/ vs. "la chienne" /la ʒyɛn/ and "lésion" /leʒyɔ̃/ vs. "legion" /leʒyɔ̃/. To avoid assimilation of this contrast, American speakers should enunciate clearly, all the while maintaining the tongue in a frontal position with the apex of the tongue in contact with the upper teeth.

Analysis: "Les chuintantes" /s ʒ/:

An examination of the consonant table will reveal that the French /s ʒ/ are more dorso-palatal than their American correspondants. This difference of PA is quite minor and should not cause interference problems. The only noticeable differences of these two sounds in the two language systems are that the French /s ʒ/ are more forceful and the voicing of the French /ʒ/ is maintained from beginning to end. If American speakers pronounce their own /s ʒ/ forcefully, the PA will back up thus becoming similar to that of the French phonemes.

Orthographic Representation:

```
"ch" → /ʃ/ e.g., "chercher" /ʃɛrʃɛ/.
/z/ → "ch" e.g., "marche" /mɑʁʃ/.
"ge" → /ʒ/ e.g., "mangeons" /maʒɔ̃/, "geai" /ʒɛ/, "âge" /ɑʒ/, "agir" /azir/, "jambe" /ʒɑ̃b/, "gens" /ʒɛ̃/.
"s" → /s/ e.g., "agir" /azir/, "jambe" /ʒɑ̃b/.
```

15 Ibid., p. 99.
The slit fricatives.

Analysis:

A slit fricative differs from a groove fricative in relation to the shape of the air stream channel. Both American and French speakers have a voiced and an unvoiced labiodental slit fricative \([v \ f]\) in their native language phoneme inventory. American English possesses an order of dental slit fricatives which is unknown in French: the \(\theta\) and its voiced correspondent \(\theta\). Also, the American sound system has a glottal /h/, as in "hurt," which is nonexistent in French. Of course, French also has slit fricatives which American speakers must master as language students: the yod /y/ and its distribution and the velar /r/.

The \(v \ f\), "les spirantes."

Analysis:

Basically, the \([v \ f]\) are alike in both French and American English; in both languages they are classified as labiodentals, a voiced and an unvoiced. Minor differences occur
in the forcefulness and duration of the sounds, with the French /v f/ as being more forceful as well as of shorter duration. A minor difference is also discovered in the PA: The French /v f/ are produced with the upper front teeth in contact with the inner border of the visible portion of the lower lip, whereas for the American /v f/, the contact point is further inside on the lip.

Orthographic Representation:

\[
\begin{align*}
\text{"ph"} & \rightarrow /f/ & \text{e.g., "phare" /far/, "feu" /fœ/, "effet" /efɛ/, "cafards" /kafar/}. \\
\text{"ff"} & \rightarrow /v/ & \text{e.g., "pheque" /fɔk/, "étoffe" /ɛtɔf/, "gonfler" /ɡɔflɛ/}. \\
\text{"v"} & \rightarrow /v/ & \text{e.g., "cavern" /kavɛrn/, "vite" /vit/, "ivrogne" /ivʁɔn/}. \\
\end{align*}
\]

The French \( ^r \) /

Analysis:

The "Parisian" or dorso-velar /r/ has no American equivalent. The nearest equivalents would be /h/ and /s/.

Production:

The velar /r/ is produced with the lips in a relaxed position as they play no role in articulation. The apex of the tongue rests against the lower teeth and the back of the tongue is in contact with the base of the soft palate. For the /r/ in initial position, this dorso-palatal contact
is very light with more voicing and friction than for /r/ in final or intervocalic position. For American speakers, the easiest way to master this sound is to pronounce /hς/ and gradually raise the back of the tongue towards the soft palate, thus obtaining the necessary friction and sound quality. Another way to learn the "Parisian r" is to begin with pronouncing /ga/ and gradually lower the dorsum of the tongue with each pronunciation. American speakers of the dialect spoken in the Boston area must be careful not to pronounce a final /r/ as /a/; e.g., "pour" /pur/ and not */pua/, "mort" /mɔ:r/ and not */mɔwa/.

Orthographic Representation:

\[ /r/ \rightarrow \{ /r^\text{h}, /r^\text{t} \} \]

\[ /r/ \rightarrow \{ /r^\text{h}, /r^\text{t} \} \]

E.g., "précis" /ˈprɛsɪ/, "peur" /ˈpœr/, "il courra" /il kura/, "verre" /ˈvɛr/. e.g., "rue" /ʁœ/, "barre" /baʁ/.

The resonants.

Resonants are those continuant sounds which are produced by a modification of the air stream rather than an obstruction. The tongue, by its assumed shape, and the lips create resonating chambers which modify the air stream as it passes from the larynx. There are three types of resonants: nasals (Fr. /m, n, ή /), laterals (Fr. /l/), and semi-vowels (called also semi-consonants; Fr. /ʎ, ɥ /).

16 Valdman, Salazar, Charbonneaux, p. 71.
The nasal resonants.

Analysis:

These sounds are characterized by their nasalization, which is obtained by allowing free passage of air into the nasal cavities, thus employing them, as well as the mouth cavity, as resonating chambers.

\(/m/:

The \([m]\) is bilabial in both French and American English, but in French the lips are more tense and the release for the initiation of the following sound is more forceful. If American students learn to produce \([m]\) with tense lips, it will be easier to avoid diphthongization of a following vowel sound. The French \(/m/\) is normally voiced, but it may lose this voicing in combination with voiceless consonants; e.g., after \(/s/\) in words ending in "sm": "enthousiasme" /ɛ̃tuˈziɑ̃ズ/, "communisme." \(^1\)

Orthographic Representation:

\["m" \rightarrow /m/ \quad \{C\} \quad \{V\} \]

\["mm" \rightarrow /m/ \]

\[/m/ \rightarrow \{"m\} \]

e.g., "mère" /mɛʁ/, "calmer" /kalmɛʁ/, "amant" /amɑ̃/, "il sème" /il ʁɛm/, "comment" /kɔmɑ̃/.

e.g., "dame" /dam/, "pomme" /pɔ̃m/.

\(/n/:

In French the \([n]\) is purely dental, whereas in American English it is alveolar. This difference is not so distin-

1. Malmberg, p. 44.
guishable in initial position; e.g., "notoriété" vs. "notoriety," but when /n/ is intervocalic in French, the pronouncing of the American alveolar /n/ will be distinguishable as affecting the surrounding vowel sounds; e.g., "c'est un otage" /sɛt o̞ nətɑ̃/. 

**Orthographic Representation:**

```
"n" → /n/  
"nn" → /n/  
/n/ → {"n", "nn"}  
```

Orthographic Representation: 

```
\[
\begin{array}{c}
V & - & \{V, C\} \\
\# & - & V \\
\end{array}
\]
```

"nerf" /nɛʁ/, "cyanure" /syanœʁ/, "retenir" /ɾœtnir/, "mine" /mœ̃n/, "donner" /dœ̃n/.

"/n/:

The /n/ is the least stable member of the French consonant system, because of its unique "liquid" characteristic. Phonetically the /n/ is a palatalized /n + y/; consequently, as stated before, forms such as "la nielle" and "l'agnelle" are frequently pronounced the same. The nearest American equivalent is the dorso-velar /ŋ/ as in "ring" /riŋ/.

**Production:**

The consonant sound /n/ is produced with the tongue in contact from the ridge of the upper teeth to the onset of the soft palate. The glide or "liquid" characteristic of this sound is obtained during the release of the tongue as it assumes position for the vowel sound which follows. For American speakers, a valuable learning exercise would be to pro-
nounce selected word pairs such as:

"peine" /pɛn/  -  "peigne" /pɛn/.
"seine" /sɛn/  -  "saigner" /sɛn/.

Orthographic Representation:

"gn"  $\rightarrow$ /n/  e.g., "grogner" /grɔn/.
/n/  $\rightarrow$ "gn"  e.g., "champagne" /ʃəpən/.  

The laterals.
Analysis:

In producing the laterals, as with the stops and nasals, the tongue is in firm contact at the required PA. But, unlike the latter groups, for the laterals this contact is only in the mid-section of the oral cavity, thus allowing the air to escape along one or both sides of the PA. This process of lateral air passage in the mouth cavity gives the name to the lateral consonant group.

Production:

American English possesses two variations of [l]; an apico-alveolar /l/ as in /# _ V  ; e.g., "lake," and a velarized /l/ as in /V _#  ; e.g., "whale." The French /l/ is always apico-dental, and is of a shorter duration and produced with more muscular tension than its American correspondent. Also, in French a final /l/ is always released. In positions /C _#/ and /Cv _V/, the /l/ may lose its voiced characteristic; e.g., "table" /tæbl/, "clou" /klu/.
Interference Problems:

As with /r/, the most frequent interference difficulty experienced by American speakers learning /l/ is found in morphemes with environment / V ^ , e.g., "belle." The difference in points of articulation and in articulatory habits of final /l/ release does not affect the perception of the consonant itself, but the preceding vowel sound is noticeably affected. To avoid this problem, American speakers must be sure of an apico-dental contact and of a final release of this consonant sound.

Consonant Clusters.

In French, consonants may occur together in initial, medial, and final position of words and phrases. The occurrence of two or more consonants together is termed a consonant cluster. Consonant clusters also occur in American English, but the specific types of clusters which may occur differ in the two languages. Even resembling clusters have phonetic differences. In French, the last consonant member of a cluster is pronounced with an energetic release, and the internal trans-
ition within the cluster is sharp; there is never a /z/ or /ə/ sound inserted between consonant members in a final two consonant cluster as there is in American English:

\[ \text{e.g., Fr. \ "peuple" } /\text{poepə}/, \ "theâtre" /\text{teəтр}/. \]

\[ \text{Am. Eng. \ "people" } /\text{pipə}/, \ "theatre" /\text{θiətər}/. \]

Syllables usually end with a vowel in French, while in American English, syllables are usually ended with a consonant. This difference in syllabification is evidenced with medial consonant clusters. In French, both members of a two consonant cluster begin the second syllable, whereas in the American system one syllable terminates one syllable and the remaining consonant begins the following syllable:

\[ \text{e.g., Fr. \ "technique" } /\text{teknik}/, \ "estime" /\text{e stim}/. \]

\[ \text{Am. Eng. \ "technique" } /\text{tik niyk}/, \ "estime" /\text{ɪs tiyə}/. \]

The mute "e" or schwa /ə/.

Analysis:

The inaccentuated "e" at times represents no sound at all and at other times it may represent the sound /OE/. This alternation between no sound and /OE/ is a speech behavior pattern termed mute "e" and transcribed as /ə/. The mute "e" is not a sound feature, but, when pronounced, is considered a type of grammatical phenomenon; a phenomenon which determines the most numerous and the most important alterations of spoken syllabic and word forms. When the "e" is suppressed it is suppressed completely; there is no short inaccentuated vowel sound as the American English /ɪ/. But when the "e" is realized, it is realized as /OE/ and it counts as any
other full inaccentuated vowel and syllable. Following are a number of guidelines for the realization or suppression of the "e" proposed by M. Rossi.18

The most general rule for the realization or the suppression of the "e" is that of the "Law of Three Consonants"; the "e" is pronounced only when its absence would permit the coming together of three consonant sounds, e.g., "quelquefois" /kelkofua/, "exactement" /ɛgzaktɛma/, "il part demain" /il pardɛmɛ/.

But, "la p(e)tite" /la ptit/, "tout l(e) monde" /tu lmod/.

This rule of three consonants is valid when the consonant sounds involved are stops; but when continuants are involved there are exceptions to this rule.

Initial syllabic position:

If the "e" occurs in utterance-initial syllable position and is preceded by a continuant, but not followed by another "e" in the second syllable, it is unpronounced:

/C cont ——> C cont /CC/.

e.g., "je n'en sais rien" /ʒ nɛ sɛ rye/.

"Venez nous voir" /vne nu vyar/.

However, if the consonant sounds which precede and follow the "e" in initial syllabic position are the same continuant, the "e" is pronounced, e.g., "ce sac est perçé" /sɛ sake pɛrse/.

"Ne neglige rien" /nɛ negliʁ rye/.

In initial syllabic position, preceded and followed by a stop and if not followed by another "e" in the second syllable, the "e" is pronounced:

\[ /C_s - C_s \{ [\text{C}] \} \rightarrow /C \diamond C \{ [\text{V}] \}/, \text{ e.g.,} \]

"que dit-il?" /koditil/,
"debout" /dəbu/,
"te trouve-tu bien?" /tətruvtu byə/.

However, if the second consonant sound is a continuant, the "e" is not pronounced, e.g.,

"d(e)main matin il partira" /dəmə matə il partira/,
"que voulez-vous?" /kvulə vu/.

When the "e" occurs in the first syllable of a phrase and there follows one or more "e" in the second and subsequent syllables, and with the initial and second consonants being continuants, then the "e" between these consonants will be realized:

\[ /\text{Ccont - Ccont - C} \rightarrow /\text{CəCC}/, \text{ e.g.,} \]

"je n(e) sais pas" /zənsə pa/,
"je (ne) te l(e) dis pas" /zən tal di pa/.

If the "e" occurs in phrase-initial position and is followed by one or more "e" in the subsequent syllables, and if the first consonant is a continuant and the second is a stop, the "e" in the first syllable is suppressed and the "e" in the second syllable is realized:

\[ /\text{Ccont - Cs - C} \rightarrow /\text{CCəC}/, \text{ e.g.,} \]

"ce que j(e) veux" /skəʃ voə/,
"(e) te l(e) redemande-t-il pas? /ntel redmadtil pa/.

When "(e)" occurs in the first syllable of a phrase and is followed by one or more "(e)" in the subsequent syllables, and if the first consonant is a stop, the first "(e)" is realized. 19

\[ C_s \rightarrow /C\bar{e}CCV/ \], e.g.,

"que d(e)mand(e) tu?" /kedmatu/,

"te l(e) rappelles-tu?" /telrapeltu/.

"(e)" in syllable-final position.

In general, Parisian speakers avoid pronouncing a /\emptyset/ at the end of a monosyllabic morpheme if the morpheme contains another vowel sound, e.g.,

"une grand(e) femm(e) pass(e) tout(e) seul(e)"

/\yn grad fam pas tut soel/.

When a final "(e)" is preceded by a two member consonant cluster the "(e)" is not pronounced and often times a voiced consonant which precedes this final "(e)" loses its voiced quality, e.g.,

"table" /tabl/,

"barbe" /barb/,

"fievre" /fievre/,

"peuple".

However, many times when the second member of a syllable final two consonant cluster is /r/ or /l/, both this consonant sound and the "(e)" are suppressed if the following morpheme begins with a consonant sound:

\^[19] Ibid.
A final "e" preceding an aspirated "h"* is pronounced, e.g.,
"une hache" /une as/, "je n'ai pas de hache" /jone pa də as/. 20

When the pronoun "le" is used after an imperative, the "e" is realized, e.g.,
"mangez-le tout de suite" /mæzə le tutsæt/.

Miscellaneous additional rules:
1. "ge"/George/ - /z/, e.g., "Georges" /zørzi/, "gageure"
2. "d(e)ssous" and "d(e)ssus" may be realized as /dsu/ and /dsu/.
3. In the prefix "res + s," the "e" is realized as /ə/, e.g.,
"resemble" /resəbl/; "ressenter" /resəte/.
4. The "mon" of "monsieur" is pronounced /mo/, e.g.,
"monsieur" /mɔsyoe/.
5. In the derivatives of the verb "faire," the "ai" is realized as /ə/, e.g.,
"faisons" /fæzo/, "il faisait" /il fəze/.

*Aspirate "h" is a term used to describe the historic "h" which, although not pronounced, behaves as a consonant in word-to-word linking.

Transitional Phenomena.

Word-to-Word Linking.

Analysis:

In American English, except for short function words and prepositionals, words are kept distinct from each other by stress and juncture features. Stress features distinguish certain adjective + nounal constructions from compound nounals: e.g., "a black bird" vs. "a blackbird." Juncture features distinguish such forms as "night rate" from "nitrate." In French, although stress occurs automatically on the last syllable of any normal style utterance, e.g., "une femme," "écoutez," there are no distinctly audible juncture features to which speakers consistently adhere. Consequently, words are usually not marked off from one another, and orthographically unlike utterances may be pronounced alike, e.g.,

"c'est ouvert," "c'est tout vert" /sɛ tu vɛʁ/.

"bon ami," "bonne amie" /bu na mi/.

Due to this phenomenon of lack of juncture between forms, many French words occur in more than one phonemic form. The occurrence of one form or another is determined and predictable in terms of the syntactic link between words (either close or open), and the phonological environment: pre-vowel, pre-consonant, pre-pause or final. This placing together of two determining factors is labeled sandhi-variation.

Words with three variant forms are rare and include only

\[\text{Valdman, Salazar, Charbonneaux, p. 247.}\]
the numerals "six" and "dix." Concerning these words, the phonological environment is the determining factor:

\[
\begin{align*}
\text{"six"} & \rightarrow \begin{cases} 
/siz/ & \quad \text{/}V\text{}/ \\
/si/ & \quad \text{/}C\text{}/ \\
/sis/ & \quad \text{/}#\text{}/ 
\end{cases} \quad \text{e.g., "six ans" /siz\tilde{a}/, "six chats" /siz\tilde{a}/, "j'en ai six" /\tilde{z}a ne sis/} \\
\text{"dix"} & \rightarrow \begin{cases} 
/diz/ & \quad \text{/}V\text{}/ \\
/di/ & \quad \text{/}C\text{}/ \\
/dis/ & \quad \text{/}#\text{}/ 
\end{cases} \quad \text{e.g., "dix amis" /diz\tilde{a}/, "dix types" /di tip/, "il en a dix" /il\tilde{a} na dis/}
\end{align*}
\]

In two variant words, sandhi-variation occurs in two types: liaison and elision.

**Liaison.**

Analysis:

A liaison type of sandhi-variation distinguishes the two variants by the presence or absence of a consonant, which is usually /z, t, n/. The pre-vowel form is with the consonant sound realized, and the pre-consonant, final form is with the consonant sound suppressed, e.g.,

\[
\begin{align*}
\text{"ses"} & \rightarrow \begin{cases} 
/\tilde{e}z/ & \quad \text{/}V\text{}/ \\
/\tilde{e}/ & \quad \text{/}C\text{}/ \\
/\tilde{e}t/ & \quad \text{/}#\text{}/ 
\end{cases} \quad \text{e.g., "ses oncles" /\tilde{e}z\tilde{o}k\tilde{l}/, "ses tantes" /\tilde{e}t t\tilde{a}t/} \\
\text{"sont"} & \rightarrow \begin{cases} 
/\tilde{s}\tilde{\iota}/ & \quad \text{/}V\text{}/ \\
/\tilde{s}/ & \quad \text{/}C\text{}/ \\
/\tilde{s}\tilde{\iota}i/ & \quad \text{/}#\text{}/ 
\end{cases} \quad \text{e.g., "ils sont ici" /il s\tilde{\iota}t\tilde{i}/, "elles sont laides" /\tilde{e}l s\tilde{\iota} l\tilde{\tilde{\iota}}d/} \\
\text{"un"} & \rightarrow \begin{cases} 
/o\tilde{e}\tilde{n}/ & \quad \text{/}V\text{}/ \\
/o\tilde{e}/ & \quad \text{/}C\text{}/ \\
/o\tilde{e}n/ & \quad \text{/}#\text{}/ 
\end{cases} \quad \text{e.g., "un an" /o\tilde{e}n\tilde{a}/, "un garçon" /o\tilde{e} gar\tilde{\tilde{\iota}}\tilde{\tilde{\iota}}/, "voici un" /\tilde{v}\tilde{\iota}xi o\tilde{e}/}
\end{align*}
\]

There exists a special type of liaison where the two variants reveal different vowel sounds. This is termed alter-
nation, e.g.,

<table>
<thead>
<tr>
<th>Form</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;bel/beau&quot;</td>
<td>&quot;bel&quot; /bɛl/</td>
</tr>
<tr>
<td>&quot;vieil/vieux&quot;</td>
<td>&quot;vieil&quot; /vyɛy/</td>
</tr>
<tr>
<td>&quot;bon&quot;</td>
<td>&quot;bon&quot; /bɔ̃/</td>
</tr>
</tbody>
</table>

It is noticed that with forms such as "bon," in pre-vowel environment, the nasal quality of the vowel is lost.

Production:

For American speakers there are three principal problems encountered in mastery of the liaison phenomena, and they are: 1) knowing which forms have sandhi-variants and learning these variants, 2) knowing which types of words enter into close syntactic link with each other, and 3) attaining automatic control of variant forms and their usage. For the first problem, one must simply learn if a word has a sandhi-variant and if so, learn these variants. For the third problem, one must drill extensively with these variant forms.

Concerning the second problem: this is best resolved by memorizing the following list of constructions which nearly always demand close syntactic link:

**Constructions of Close Syntactic Link**

1. **Determiner + N**
   - Examples: "les oncles," "cet ami," aux écoles"

2. **Numeral + N**
   - Examples: "trois ans," "deux arbres"

3. **Adjective + N**
4. **Determiner + (adj + N)**
   - Examples: "un grand homme"
5. Adj + (Adj + N)
6. Determiner + Pronoun

B. Verb Core Elements.
1. Ve + Pronoun
2. Pronoun + Ve
3. Pronoun + (pronoun + Ve)
4. (v + Pronoun) + Pronoun
5. "c'est + ...
"il est" + ...

C. Prepositional and Adverbial Phrases.
1. Monosyllabic Prep + ..."en hiver," "sans elle"
2. Monosyllabic Adv + ..."bien étrange," "pas utile"

D. Locutions and Bound Words. (Samples)
"rien à faire," "Comment allez-vous?," "avant aujourd'hui"

Elision.

An elision type of sandhi-variation involves the presence or absence of a final vowel as the distinguishing factor between two variants. The pre-consonant form maintains the vowel, while the pre-vowel form suppresses the vowel. Elision is found in types:

1. The final /i/ of "si";

---

Aspirate "h."

Analysis:

In French there are a number of words which behave as if they begin with a consonant when used in phrases although they begin with a vowel sound when pronounced in isolation; e.g., "homard" /o ma/ , but "le homard" /la ma/ . These forms are said to contain an aspirate "h." Although most words that possess this phenomenon have an initial "h" represented in their orthograph, some do not; e.g., "la hache," "le onze" /la oz/ . Also, many words written with an initial "h" do not behave in the above mentioned manner; e.g., "l'homme," "l'hôtel." When learning the aspirate "h" phenomenon, the following three points must be kept in mind:

1. This aspirate "h" term does not refer to a phonological feature, but to a grammatical feature.

2. Words containing an aspirate "h" cannot be predicted from their pronunciation, but must be memorized.

3. All words containing aspirate "h" will involve vowel-to-vowel transition.23

23 Valdman, Salazar, Charbonneau, p. 252.
Assimilation of Voice.

Analysis:

In French there are a number of stops and fricatives that, when found together in clusters, bring about an assimilation of voicing, i.e., the first consonant is affected by the voice quality of the second consonant. If the first consonant is voiced and the second voiceless, the first becomes devoiced, e.g.,

<table>
<thead>
<tr>
<th>stops</th>
<th>fricatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>voiced</td>
<td>b d g v z ²</td>
</tr>
<tr>
<td>voiceless</td>
<td>p t k f s ś</td>
</tr>
</tbody>
</table>

in assimilation /bs/ → /ps/, /št/ → /št/.

/Cvl Cvl/ → /Cvl Cvl/, "tout de suite" /tut suıt/.

If the first consonant is voiceless and the second voiced, the first becomes voiced, e.g.,

/Cvl Cvl/ → /Cv Cvd/, "bec d'aigle" /béı døglɛ/. 
Bibliography


Rossi, M. Lectures on "La Phonétique Normative." (University d'Aix-Marseille, France, 1967).


