# PROGRAMMING A REMEDIAL PRONUNCIATION COURSE*

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If we accept Robert Lado's three point definition of programmed learning as: "learning by means of materials that break up the task into minimal steps, requiring an active response for each step, and providing an immediate check on the correctness of the responses"[1] then it is not appropriate at the present moment to give the label "programme" to any phonetics course, whether remedial or introductory.   When every language laboratory booth is provided with both an intonation counter and a modified spectograph, this may be the case, but until that time I prefer to use the more exact, if clumsier expression - "systematic phonetics course".   However, in accordance with the title of this paper, I intend to use the verb "programme" meaning organising a corpus of remedial phonetic material in such a way that the task of re-learning is broken up into minimal steps, with each step requiring an active response, thus fulfilling the first two requirements of Lado's definition.   I hope to show in due course why his third requirement cannot be fulfilled in a phonetics course.

Programming a remedial phonetics course for any foreign language presents a number of problems, due firstly to the nature of language and secondly to the previously acquired foreign language habits of the students.   Both these points need clarification.   Few would argue with the following broad working definition of language as a system of organised sounds emitted by human beings for purposes of communication.   The important point being that it is a system of sounds that is at the heart of human language, while the complex arrangements and permutations of sounds into structures and lexical items may be classed as forms rather than substance.   Without substance (sounds) there can be no form.   The American linguist Gleason illuminates this with his statement that "a speaking knowledge of a language...requires very close to a one hundred percent control of the phonology and control of from fifty to ninety percent of the grammar, while one can frequently do a great deal with one percent or even less of the vocabulary."[2]   Jakobson prefers the notion of an ascending ladder of liberty where the degree of liberty as regards phonemes is nil, is circumscribed for the phonetic realization of these phonemes in words, increases slightly for the formation of sentences, and increases enormously for the combination of sentences into larger units.[3]

It is also profitable here to look briefly at native language learning habits, and at adult verbal behaviour.   While the average child has full control of the sound system of his native language by the age of six or seven, his control of the grammatical system goes on increasing until he is eleven or twelve, and acquisition of vocabulary items continues for life.   For the adult native speaker who has been using the sound system of his language automatically for x number of years, speech characteristics have become part of his own personality, so strongly have they been ingrained and reinforced by habit.   Everyone has had the experience of being at loss for a word, has rephrased or restructured a sentence without relinguishing his control of sounds.   The most naive of listeners to a non-native speaker speaking, say, English is immediately aware of the slightest non-conformation to the English sound system, which he is inclined to stricture globally as a "funny accent" or a foreign accent.

*Revised text of a paper given at the University of Auckland Language Laboratory Workshop, 25th August, 1965.

[1]Lado 1964: 220   [2]Gleason 1961: 343   [3]Jakobson 1963: 47

Having established and made habitual the use of a particular sound system over a number of years, the adolescent and adult learner of a second language will automatically transfer all his previously acquired speech habits into the foreign language. He will hear and reproduce the foreign sounds in terms of his own system, he will transfer the grammatical structures from one language to another, and all the "meanings" and connotations of native language vocabulary items will be transferred to the foreign language form.

The problem stated in general terms, we must proceed to a specific case - the retraining of English-speaking New Zealand students of French, who have had between four and six years teaching by the traditional grammar/translation method, usually with non-native teachers. The vast majority of these students have developed their reading and writing skills in French to a point far in advance of their listening and speaking skills. This order of development of foreign language skills is diametrically opposed to that put forward by the proponents of the audio-lingual (or audio-visual) method - listening, speaking, reading, writing. It is outside the scope of this paper to discuss the principal tenets of this method, but it must be emphasized that the above order stems from a particular view of language, of language-learning psychology, and of student aims. It should also be remembered that we are not dealing with beginning students, but with university students who have entered upon the academic study of French as a discipline as well as a means of communication.

With this retardation of listening and speaking skills, we have the two-fold problem of training students in aural comprehension and discrimination, and in the production of acceptable French sounds. The latter aspect of the problem is increased by the formation and reinforcement of unacceptable speech habits over their previous four to six years of study. These students may now feel that they are taking a step backwards unless fresh motivation and new goals be instilled in them. It is important that they be made aware that their former standard is not acceptable to an informed non-native speaker (the teacher), and equally unacceptable to a native speaker.

The object of the remedial phonetics course is the deceptively simple one of improving the pronunciation, and the communication powers of the student, by exposing him to carefully graded materials, recorded by native speakers, for comprehension and repetition so that his powers of discimination and aural reproduction will be brought up to a level comparable with his reading and writing skills. It is illusory and unrealistic to expect his powers of speaking to equal his reading and writing skills. Again a quick look at the native situation is helpful. We all recognize and are familiar with many written vocabulary items which we do not, and in some cases may be unable to produce in speech. To a much smaller extent, this statement is also true of some grammatical structures which in their aural and written forms may be part of our passive reservoir, but not available for automatic production. I stress this point, because it seems to me that many applied linguists have created for the average student an artificially high standard of performance in the foreign language, expecting "near-native fluency", while at the same time misunderstanding the nature of fluency. Native fluency certainly involves automatic control of the sound system, but does not of necessity imply rapid, faultless speech, and is not proof against fumbling for words, backtracking, slowness of articulation, lack of vocal punctuation, and structures as yet unrecorded by linguists.

To predict, and where possible to minimise transfers and interference from the native language to the target language, a systematic comparison of the sound systems and prosodic features of the two languages should be undertaken. This analysis, together with a list of the frequency of occurrence of sounds in the target language,will determine the order of presentation of the material.

Figure 1

## ENGLISH

### Consonants

| | Bi-labial | Labio-dental | Dental | Alveolar | Alveo-Palatal | Palatal | Velar | Glottal |
|---|---|---|---|---|---|---|---|---|
| Occlusives | p b | | | t d | | | k g | |
| Nasals | m | | | n | | | ŋ | |
| Affricates | | | | | tʃ dʒ | | | |
| Fricatives | | f v | θ ð | s z | ʃ ʒ | | | h |
| Lateral | | | | l | | | | |
| Vibrant | | | | r | | | | |

### Semi-consonants

w — j

### Vowels and Diphthongs

| Front | Central | Back |
|---|---|---|
| i | | u |
| ɪ | ɜː ə | ʊ |
| e | ʌ | ɔː |
| ɛ | | ɒ ɔ |
| æ | | ɑː |

Diphthongs: eɪ aɪ ɔɪ əʊ aʊ ɪə eə ʊə

## FRENCH

### Consonants

| | Bi-labial | Labio-dental | Dental | Alveolar | Palatal | Velar | Uvular |
|---|---|---|---|---|---|---|---|
| Occlusives | p b | | t d | | | k g | |
| Nasals | m | | n | | ɲ | [ŋ] | |
| Fricatives | | f v | | s z | ʃ ʒ | | |
| Lateral | | | | l | | | |
| Vibrant | | | | | | | R |

### Semi-consonants

Front: [ɥ] [j]   Mixed (rounded): [ɥ]   Back (Rounded): [w]

### Close vowels

| | Front | Mixed (rounded) | Back (Rounded) |
|---|---|---|---|
| Close | i | [y] | u |
| ½ close | e | [ø] | o |
| ½ open | ɛ | œ ə | ɔ |
| open | a | | ɑ |

Nasals: [ɛ̃] [œ̃] [ɑ̃] [ɔ̃]

### Legend

□ Unstable phoneme
[ ] Phonemic learning problem
○ Phonetic learning problem
⬡ Distribution problem

Here my earlier statement that the learner will transfer his native language speech-habits to the target language needs enlarging upon. This automatic transfer leads to interference at three levels: the phonemic level, the phonetic level and the distributional level.

I use the term phoneme to mean a minimal unit of distinctive sound, which brings about a change of meaning, as compared with its realization in speech, a phone or unit of sound. For example, the English phoneme /l/ has three different realizations according to its phonetic environment: firstly clear l before vowels e.g. leap, voiceless l following accented p or k, e.g. pleat, and dark l finally after a vowel, e.g. peal. Yet these three different sounds or phones are all recognized and automatically classified under the one heading /l/ by native English speakers, because whichever one of the three sounds is chosen, the meaning of the word does not change. That is, the three phonetic varieties of English l are not distinctive among themselves and may therefore be called allophones of the phoneme /l/. If I say "leap" with a dark l, English hearers will not misunderstand my message. If however I replace my initial l with r giving "reap", then for English listeners the word and consequently the message has been changed, showing that /l/ and /r/ are distinctive units of sound in English, therefore phonemes. The distribution of phonemes and allophones refers to their characteristic patterning according to their position in the word and syllable and to their phonetic environment.

Figure 1 sets out for comparison the vowel and consonant phonemes of English and French - standard Received Pronunciation and "français standard". Unstable phonemes have been enclosed in a square, and phones in square brackets. As we are concerned solely with the problems of English-speaking students learning French, the right-hand diagrams only have been marked. Before an inspection of individual phonemes, some broad patterns of difference between the two systems should be noted. French possesses no affricate consonants and no dental fricatives /θ/ and /ð/. Theoretically it is not difficult to eliminate sounds no longer needed, but I feel that this generalization is dangerous in the case of our students, who because of their previous training, may still have spelling interferences from English to French, stemming from the absence of these phonemes in French. For example, it was noticed that before the remedial phonetics course began, a few students still retained English /θ/ on the basis of the spelling "th", particularly in such cognates as "méthode".

Corresponding to the reduced number of consonant phonemes is a reduction in number of the vowel phonemes, the elimination of all diphthongs so characteristic of English, and the addition of four nasal vowel phonemes, one of which is unstable. Equally important is the proportionate numerical difference between back and front vowels and the degree of lip-rounding in the two languages - French with a majority of front (including mixed) vowels, in the proportion 10:6, and rounded vowels, in the proportion 9:7, English with a majority of back and unrounded vowels.

In contrast with the consonantal phonemic systems, which, apart from the two major differences noted are basically similar, the vocalic systems are so fundamentally opposed as to have almost no points of similarity. Add to this the much greater degree of muscular tension characteristic of French articulation compared with the relaxation of English, and the general picture is complete.

A more detailed inspection on the phonemic level shows that apart from the elimination of the affricates and the dental fricatives, plus the glottal fricative /h/, the English-speaking learner will have to learn to recognize and reproduce the French phoneme /ɲ/ enclosed in a square (unstable phoneme) and a dotted square (phonemic learning problem). Otherwise learning problems are on the phonetic level. Immediate inspection brings some of these to light: English alveolar [r] must be

replaced by the French uvular [ʀ] while English alveolar occlusives
[t, d, n] become dental occlusives with the tongue tip further forward.
The diagram does not reveal other phonetic and distributional variations
which require a more detailed analysis than it is possible to give here,
but I propose to mention the main ones, so that all the important learning
problems and subsequent programming problems may be brought to light.
Voiceless occlusive stops [p, t, k] which are strongly aspirated in syllable
initial position in English are unaspirated in French - e.g. cognates
English "pain" [p'eɪn] : French "paine" [pɛn].    French [l] has no posit-
ional variations comparable with the English clear [l]/ dark [l], other
than devoicing in final position after [k] and [p] e.g. "mon oncle" -
[monõkl̩].    It is clear, with front vowel resonance.    Students therefore
have to make a conscious effort to produce the correct sound after a
vowel.    French [ʒ] has minor problems of distribution for English-speaking
students in that English [ʒ] does not appear in word initial position.    I
quote from Lado[4]:  "English speakers will transfer their /ʒ/ phoneme with
its limitation into French and will thus have difficulty with learning the
word initial /ʒ/ in that language."    It seems to me that Lado and other
writers on the subject have tended to magnify such distribution problems,
which, unless they also involve unfamiliar phonetic variants, are by far
the most readily solved.    Although English /ʒ/ does not appear in word
initial position, it does occur in syllable initial position within the
word in a number of cases, e.g. measure, leisure, treasure, etc., and with
such similarity of environment it is not unduly difficult to produce a /ʒ/
in word initial position.

        We are confronted with far greater variation and therefore far
more linguistic interference when we consider the vocalic systems for the
two languages.    I include for convenience the semi-vowels (or semi-
consonants) in this category, even though they function as consonants in
the utterance.    Vowels enclosed in a dotted square - the four nasals,
plus /y/ and [ɥ][5] represent phonemic learning problems:  those circled
represent important phonetic learning problems, those unmarked represent
minor phonetic learning problems, while /j/ and the phone [ə] (dotted
circle) represent distribution problems, the latter with a high degree
of spelling interference.

        Prosodic features characteristic of French and English also
differ fundamentally, so that interference is not limited to the segment-
als.    French with a majority of open syllables has a syllable-timed
rhythm, with the phenomena of enchainement and liaison within the rhythmic
group, while English with a majority of closed syllables, has a phrase-
timed rhythm, plus phonemic stress, and considerable reduction of vowels
in non-tonic positiion to neutral [ə] or [ɪ].    Predominantly rising inton-
ation of French similarly contrasts with the predominantly falling intona-
tion of English.

        Because no adequate description of the New Zealand dialect exists,
I was forced to reproduce the standard English vowel and consonant phoneme
diagrams.    While the consonantal system does not appear to have been mod-
ified to a significant degree, the opposite is true of the vocalic system
and some anecdotal remarks about New Zealand/standard English differences
may help to pinpoint some of the corresponding interferences and to
justify the programming of the course.    Most so-called pure vowels are
liable to be diphthongised, e.g. beat = [bəit] while the first element of
the diphthongs [eɪ] and [ou] is considerably more open than in standard
English, e.g. [eɪ]→[æɪ] and [ou]→[ʌu], that is further away from the
French pure vowels [e] and [o].    Front vowels tend to be raised and
nasalised particularly when followed by a nasal consonant in such words
as "pan", "pen".    Central vowels e.g. [ɜ:] as in "bird" tend to be raised

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[4]Lado 1957: 17.

[5]See p.48 below.

with lip-rounding, giving a sound nearer to the French [ø] than standard English [ɜ̃].

Until fairly recently, it was accepted that the most systematic way of teaching pronunciation was to deal with phonemic, phonetic and distributional problems in that order, with special study of prosodic features fitted in when and where possible. The relative frequency of sounds has now entered as another criterion by which order of presentation may be worked out - a criterion which does not always accord with the first criterion of phonemic and phonetic interference. On figure 2 are set out the comparative frequencies of occurrence of French sounds, (not phonemes) as determined by two French phoneticians working in the United States, Léon[6] and Delattre.[7] English consonant figures according to the English phonetician Gimson[8] are given for comparison.

Of French consonant phonemes, only /ɲ/ has to be acquired by the English-speaking student. Yet its frequency is so low as to hardly justify special study before a number of other features. It is interesting to note here that in her Exercises systématiques de la langue française Monique Léon omits /ɲ/ entirely, presumably because the phonetic realization of [nj] is acceptable. Similarly, of the vowel phonemes, /œ/ which is phonetically very close to /ɛ/, is third to bottom (Léon) and second to bottom (Delattre) on the frequency lists. The functional yield of /œ/: /ɛ/ is limited to five or six minimal pairs indicating that the teaching of /œ/ may safely be omitted at a preliminary stage.

To these criteria, must be added the particular needs and circumstances of students, the materials available, and the planned remedial course should take all of these factors into account. In this particular case, the most important features of French pronunciation had, this year, to be telescoped into a nine-week language laboratory course for all students from first to third year inclusive. I will describe the programming of this in some detail, giving reasons for the choices made:

Lesson 1 - vowels [e, ø, o]

Lesson 2 - close vowels [i, y, u]

Lesson 3 - semi-consonants [j, ɥ, w]

Lesson 4 - nasal vowels

Lessons 5 and 6 - enchainement and liaison

Lesson 7 - e mute, elimination, retention and "groupes figés"

Lesson 8 - tonic accent, rhythmic groups, introduction to intonation.

Lesson 9 - intonation with several rhythmic groups, interrogative intonation.

The course began with the pure vowels [e] and [o], strictly speaking phonetic problems, but equally difficult as some phonemic problems for New Zealand students (see above) who have to change the phonetic nature of their well-established diphthong [eɪ] or [æɪ]. There was the additional problem of [e] : [i] discrimination for some students who heard French [e] as [i], due to the considerably lower starting point of the first element of their own diphthong. The very high frequency of occurrence of [e] (8.14% - Delattre and 6.5% - Léon) was another reason for its high place in the list of priorities. [ø] was included to complete the horizontal contrast of the half-close vowels.

6 Léon, P. & M. 1964: 42. 7Delattre 1964a: 89 (Vowels); Delattre 1964b: 180 (Consonants). 8Gimson 1962: 214.

## Figure 2

### Comparative frequency of occurrence of French sounds

| Vowels | Léon % | Vowels | Delattre % | Eng. cons. | Gimson % |
|--------|--------|--------|-----------|-----------|----------|
| a | 8.1 | e | 8.14 | | |
| e | 6.5 | a | 7.04 | | |
| i | 5.6 | i | 5.23 | | |
| ɛ | 5.3 | ə | 3.21 | | |
| ə | 4.9 | ɑ | 3.20 | | |
| ɑ | 3.3 | ɛ | 2.83 | | |
| u | 2.7 | u | 2.70 | | |
| y | 2.0 | ɔ | 2.13 | | |
| ɔ̃ | 2.0 | y | 1.98 | | |
| o | 1.7 | ɔ̃ | 1.62 | | |
| ɔ | 1.5 | o | 1.10 | | |
| ɛ̃ | 1.4 | ɛ̃ | 1.03 | | |
| ø | 0.6 | œ | 0.76 | | |
| œ̃ | 0.5 | ø | 0.72 | | |
| œ | 0.3 | œ̃ | 0.44 | | |
| ɑ | 0.2 | a | 0.01 | | |

| Consonants | Léon % | Consonants | Delattre % | Eng. cons. | Gimson % |
|-----------|--------|-----------|-----------|-----------|----------|
| r | 6.9 | r | 8.67 | n | 7.58 |
| l | 6.8 | l | 6.14 | t | 6.09 |
| s | 5.8 | t | 5.59 | d | 4.89 |
| t | 4.5 | s | 5.06 | s | 4.81 |
| k | 4.5 | p | 4.60 | l | 3.66 |
| p | 4.3 | d | 4.18 | ð | 3.56 |
| d | 3.5 | k | 3.67 | m | 3.22 |
| m | 3.4 | m | 3.46 | k | 3.09 |
| n | 2.8 | n | 3.02 | r | 2.91 |
| v | 2.4 | v | 2.57 | w | 2.81 |
| ʒ | 1.7 | j | 1.86 | z | 2.46 |
| f | 1.3 | ʒ | 1.67 | v | 2.00 |
| b | 1.2 | f | 1.48 | b | 1.97 |
| j | 1.0 | z | 1.35 | f | 1.79 |
| w | 0.9 | w | 1.33 | p | 1.78 |
| ɥ | 0.7 | b | 1.31 | h | 1.46 |
| z | 0.6 | g | 0.65 | ŋ | 1.15 |
| ʃ | 0.5 | ʃ | 0.57 | g | 1.05 |
| g | 0.3 | ɥ | 0.49 | ʃ | 0.96 |
| ɲ | 0.1 | ɲ | 0.15 | j | 0.88 |
| | | | | dz | 0.60 |
| | | | | tʃ | 0.41 |
| | | | | θ | 0.37 |
| | | | | ʒ | 0.10 |

In such a short course it was not possible to include the vertical contrasts of the middle vowels: [e:ɛ, ø:œ, o:ɔ]. With a few exceptions, the yield of these pairs is extremely low in modern French, and students experience difficulty in production only with the [ø:œ] contrast, which, as Léon[9] says, is truly distinctive only in the artificial case of isolated words such as "jeune/jeune" - [ʒœn:ʒøn]. For practical purposes, [e:ɛ, ø:œ] and [o:ɔ] are regarded as being in complementary distribution.

Lesson 2 introduced the first of the new phonemes proper: front rounded close vowel [y] and the contrasting close vowels, front unrounded [i] and back rounded [u]. The logical follow-up was the corresponding semi-consonants with the difficult distinction [ɥ:w] and the minor distributional problem of [j] which in English does not appear in final position.

The four nasal vowels presented in lesson 4, with the stress on the [ɛ̃:ɑ̃:ɔ̃] distinction, completed the vowel section of the course.

It will be apparent that this analysis (particularly that on which lesson 3 is based) departs slightly from the orthodox phonemic solution. Gimson[10] notes that the phonemic analysis and solution of a language depend to a certain extent on the purpose of the analysis, e.g. purely linguistic, pedagogical etc. For example, [ɥ] and [w] being in complementary distribution with /y/ and /u/ respectively, they are rightly regarded as being allophones of /y/ and /u/. But just as the student has to learn to distinguish between /y/ and /u/, so he has to learn to distinguish between [ɥ] and [w] in such pairs as "lui:Louis, buée:bouée" - [lɥi:lwi], [bɥe:bwe]. For this reason [ɥ] has been classed as a phonemic learning problem. For an English-speaking student, [ɥ] involves both a new contrast and the production of a new sound.

The remaining five lessons concentrated on the most important prosodic features of French as compared with English.

Within each lesson, an attempt has been made to fulfil the first two conditions of Lado's definition of a programme. Students are required to make an active response, by repeating after the model, the word, phrase or sentence, and according to the available material,[11] the learning process has been cut up into minimal steps, progressing from easier to more difficult material.

The following examples come from lesson 3 (semi-consonants). [j] is presented first as the problems it raises are minor compared with those raised by the opposition [ɥ:w].

    a)    [j] in word initial position, which is familiar: <u>hier</u>, <u>y a-t-il</u>, <u>hiatus</u>, <u>yoyo</u>, etc.

    b)    intervocalic [j] in syllable initial position within the word. Similar environment to a): <u>billet</u>, <u>payé</u>, <u>merveilleux</u>, <u>voyage</u>, etc.

    c)    [j] in final position - an unfamiliar position for English speakers - and preceded by different vowels:

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[9] Léon, P. n.d.: 24

[10] Gimson 1962: 45-46

[11] Material used for lesson 3 comes from M.Léon's <u>Exercises systématiques de prononciation française</u>, (2 vols.) plus three long-playing gramophone records. Exercises a), b), and c) come from vol.1, p.59, exercises d) and e) from vol.1 p.55-6. The programming described in this paper does not follow the order found in the <u>Exercises</u>, which are not designed solely for English-speaking students of French.

fille, bille, quille
soleil, merveille, pareil
taille, maille, paille
mouille, fouille, houille
seuil, oeil, Auteuil etc.

d) opposition [ ɥ:w] introduced in minimal pairs for
comparison. Subsidiary difficulty of unfamiliar conson-
ant clusters: [lw, nw, bw ]
oui:huit, Louis:lui, mouée:muée, etc.

e) short sentences concentrating on the unfamiliar [ɥ]
je suis étudiant, je suis chimiste, etc.
c'est lui qui parle, c'est lui qui écrit, etc.
il faudrait qu'il puisse partir, (finir, venir, etc.)

A twenty or twenty-one lesson first-year remedial course could
be programmed as follows:

Lesson 1 - Tonic accent and rhythmic group theory.

Lesson 2 - Declarative intonation.

Lesson 3 - Interrogative intonation.

Lessons 4-9 - vowels and semi-consonants as in shorter course,
with the addition of the open-close variation [ e:ɛ, ø: œ, o:ɔ]
and the complementary distribution of [ i:j, y:ɥ, u:w].

Lesson 10 - Nasal vowels continued. Oral:nasal opposition.

Lessons 11-12 - Enchainement and liaison (particularly as
applied to nasals).

Lessons 13-14 - e mute.

Lesson 15 - Opposition e mute: [a] (type: il te dit:it t'a dit)
and sequence: consonant + r or l, + e mute. (type: mon oncle).

Lesson 16 - [r].

Lesson 17 - [r] and [l].

Lesson 18 - Initial [p, t, k] (non-aspirated).

Lesson 19 - Geminated consonants.

Lessons 20-21 - More advanced intonation.

In this fuller course, the general prosodic framework is given
first, lessons on nasal vowels, e mute and intonation have been increased,
and lessons on [r] and [l] (the two most frequent French consonants, and
for English speakers the most difficult), [p, t, k] (the next most fre-
quent after s) have been incorporated.

In coming years it will also be necessary to programme in depth,
that is provide more advanced tapes for students, who although having done
a first-year course, still have faults of pronunciation, but who are not
going to be content with simple repetition. The majority of these more
advanced exercises need a good knowledge of intonation, as the student is
required to change either the form or the intonation, (or both) of the
sentences proposed, which are also designed to practise particular sounds.

A few random examples of such exercises,[12] which are mostly of the four-phase type: stimulus, response, reinforcement or correction, student repetition, follow:

   a) to practice [j] in various phonetic environments, the student is required to answer each question, beginning with "oui" and repeating the terms of the question:

> Vous aimez travailler? Oui, vous aimez travailler!
> Vous aimez mieux travailler? Oui, vous aimez mieux travailler!
> C'est un vieil appareil? Oui, c'est un vieil appareil!

   b) to practice [ɛ] the student is required to begin each sentence with "il vient" and to end with the indication given, modifying the intonation at the same time:

> bientôt        Il vient bientôt.
> demain matin    Il vient demain matin.
> de moins en moins   Il vient de moins en moins.

   c) to practice [w], the student is required to add each new element to the sentence, again modifying the intonation appropriately:

> Je me demande    (pourquoi)
> Je me demande pourquoi   (je le vois)
> Je me demande pourquoi je le vois   (ce soir)
> Je me demande pourquoi je le vois ce soir   (pour la troisième fois)
> Je me demand pourquoi je le vois ce soir pour la troisième fois.

In spite of the fact that these exercises are performed in the language laboratory with facilities for hearing responses both immediately through the activated headphones, and later when playing back the tape, a phonetics course by its nature cannot fulfil Lado's third requirement of a programme - provision of an immediate check on the correctness of the responses. If we take as a criterion of the correctness of a response, complete acceptability to a native speaker, the number of students achieving this would be as low as three to five percent. Obviously criteria of right and wrong are inapplicable. By successive approximations the student can be encouraged to come closer and closer to the goal of acceptability, but without a good deal of auditory experience of French, he will usually be unaware of his improvement or lack of improvement. At best, he may have a general impression that his attempt is not acceptable, without being able to say why and how.[13] For this reason, opinions are divided on the desirability of the language laboratory in this situation. F. Marty says: "The language laboratory is not a good solution because progress is unpredictable for these features of pronunciation."[14] With classes of ten students or fewer, his conclusion may be justified, but in most institutions today it is simply not relevant. Léon holds the opposite view, and his wife Monique Léon has created comprehensive exercises designed for foreign students of French and to be performed where possible in the language laboratory.

The laboratory is of value in the remedial situation where each student is subjected to hearing native speakers of French, and so gradually fixing the meaningful distinctions and correct sounds in his auditory

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[12] These exercises were designed at the Centre de Linguistique Appliquée, Université de Besançon, and are not available commercially.

[13] see Rivers 1964: 155-6.   [14] Marty 1960: 121.

memory. For a sound to be correctly produced, it must be correctly perceived; and to be correctly perceived and produced, intensive individual practice is necessary. Although of value, the laboratory is not, in this situation, a teaching machine and the monitoring of the class becomes of prime importance. Without careful monitoring, students will reward with their inner approval, their unacceptable responses, and thus reinforce these responses before the goal of acceptability to the teacher is reached. When this occurs, the unacceptable responses will become entrenched and not susceptible to improvement.[15]

While the laboratory will continue to be of value, especially with large numbers of students, for the maximum exploitation of phonetics courses, it seems that criteria for the organization and programming of such courses may be radically changed. I have tried to show that the criterion of phonemic difference does not always correlate with that of frequency. It has recently been put forward that the reactions of linguistically naive native speakers to the pronunciation of their language by non-native speakers should also be taken into account, and that those features of mis-pronunciation to which they react most strongly should be corrected first, regardless of phonemic, phonetic or frequency considerations. Some linguists may regard this as far too unscientific, but then human beings do not react scientifically, nor do they always speak scientifically. Delattre couches a similar concept in more formal language when he speaks of the "characteristic auditory impression of a language."[16] In his opinion, "the following consonants should be emphasized in decreasing order of importance"[17] (and I give his own frequency figures for comparison):

[r] (8.67), [ʒ] (1.67), and the two consonants with the lowest frequency of all: [ɥ] (0.49), and [ɲ] (0.15).

There seems to be no lack of conflicting criteria in the field of applied phonetics, without taking into account individual features of each teaching situation. Whatever the criteria finally proved to be the most productive of results, any new factors which will enable students to acquire an acceptable pronunciation as economically as possible will be welcome.

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Postscript. A digital computer[18] at the language laboratory booth, as developed by Harlan Lane of the Behavioural Analysis Laboratory, University of Michigan, can feed back to the student accurate information as to the closeness of approximation of his performance to that of the model (pitch, intensity and speed only)[19] but cannot tell the student how to improve his performance further.

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[15]Rivers 1964: 53.  [16]Delattre 1964a: 88.  [17]Delattre 1964b: 181.

[18]SAID - Speech Auto-Instructional Device.  [19]van Teslaar 1965: 91-2.

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