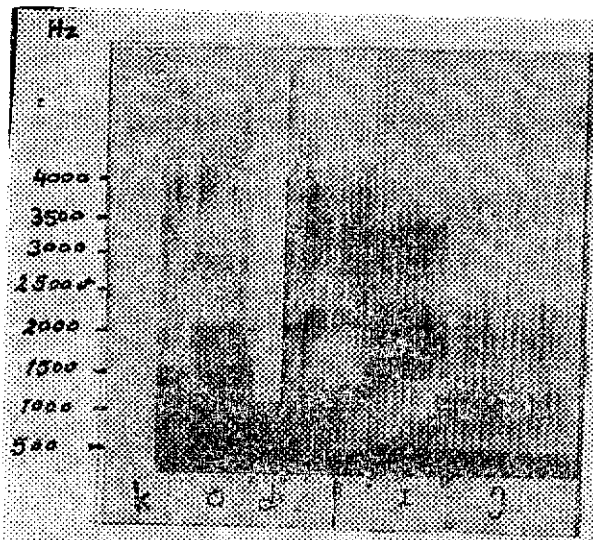
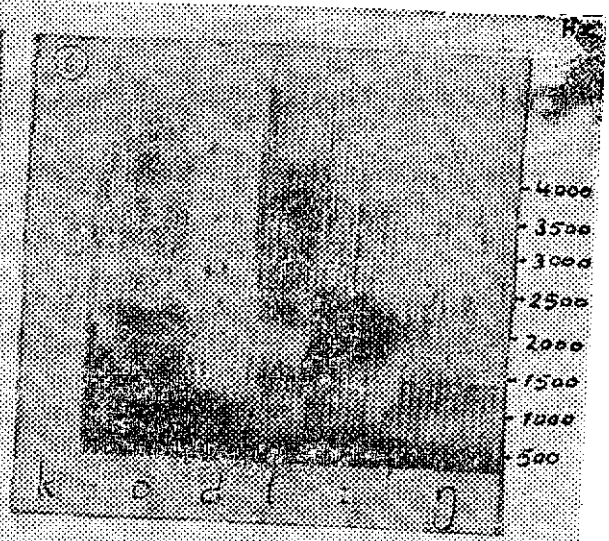


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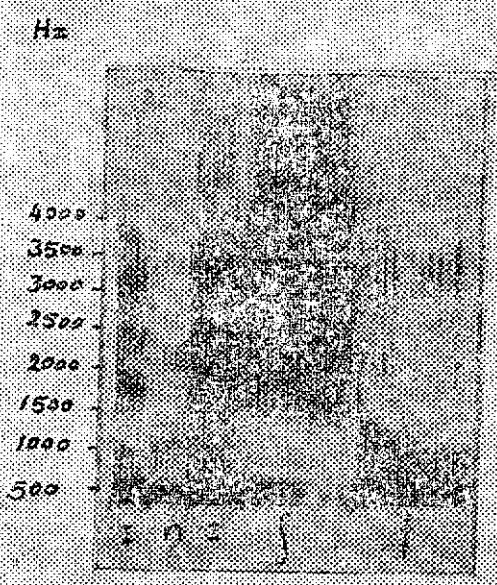
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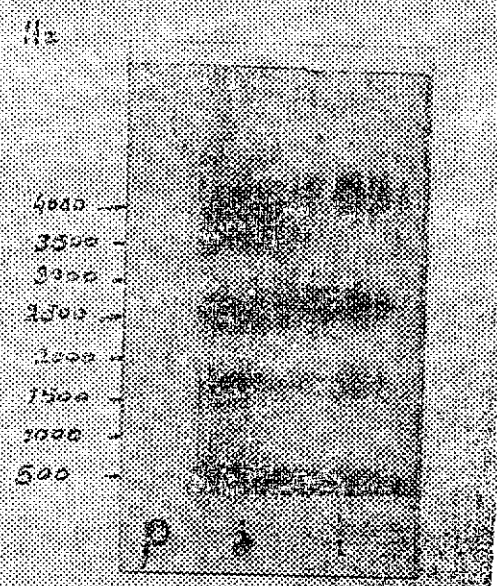
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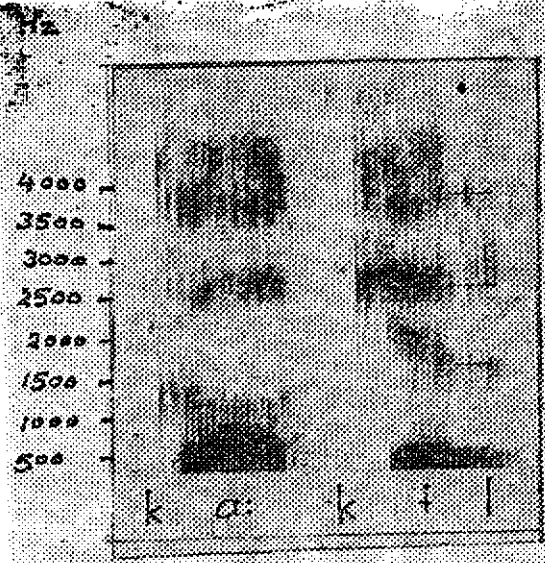
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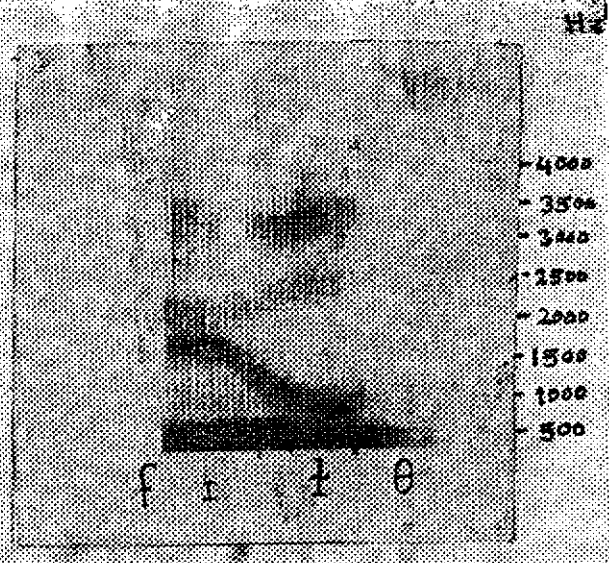
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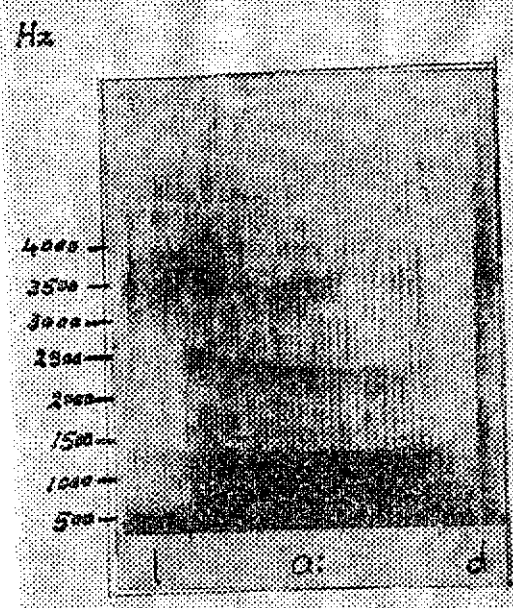
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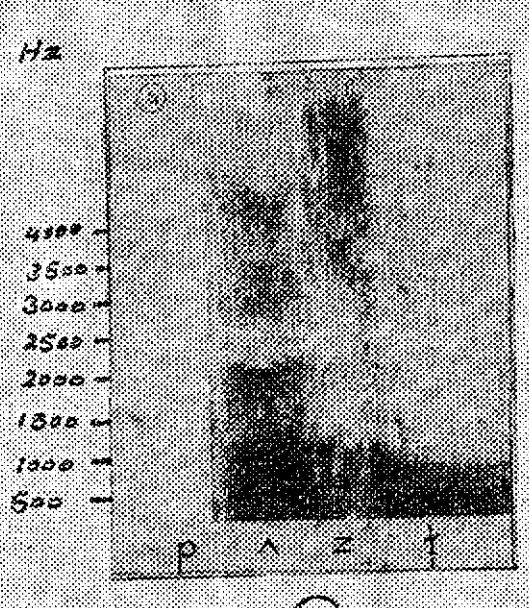
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vowel (i.e. / + /) is inserted between the two consonants as in /dik + 1/ (rooster) and / k̄a k + 1/ (kernel). 1. Thus we may safely say that in Kurdish, syllabicity is not a property of any of the two phonemes /l/ or /f/.

3. Conclusion

The foregoing descriptions of the lateral sounds in the three languages English, Arabic and Kurdish have revealed two points which can be taken as reasons for the difficulty encountered by Iraqi Arab and Kurdish students in producing English lateral sounds. Firstly the three languages have in their sound systems the two qualitatively distinct varieties of the lateral sounds, namely [l] and [f] which however do not have equal significance in the phonological systems of these languages. In English they are variants of the same phoneme in complementary distribution, whereas they are distinctive in Arabic and Kurdish. In other words they are two separate phonemes. This difference in the phonemic status of the two varieties creates a problem for the students because the distribution of these sounds is not the same. What happens is that the student substitutes a phoneme for an allophone (e.g. /l/ for [f]) not because [f] does not exist in his mother tongue, but because that phoneme (i.e. /l/) can occur in the same context. This clearly explains why so many students in the test group (Arabs and Kurds) used a clear lateral instead of the dark one.

Secondly laterals are not usually syllabic in Arabic (except for stylistic reasons mentioned above) and Kurdish, while they can be syllabic in English, a fact which clearly explains why speakers of the first two languages find it difficult to produce [f]. It is non-existent in their mother tongues, so they regularly insert a short vowel between the lateral and the preceding consonant, exactly as they do when they speak their native languages.

1. See spectrogram No .1

velarized variety regularly occurs in a phonetic environment identical to that in which the non-velarized variety occurs. Yet speakers of this variety of Kurdish regularly use the velarized lateral in some cases and the non-velarized in other cases regardless of the fact that the phonetic contexts are identical. For example, a lateral can be velarized or non-velarized initially before the vowels /'a/ and / + / as in / t + tʃ / (overcooked) / tāt / (a small field) / l + ŋg / (leg), / l + vā / (kind of wool). In medial intervocalic position, again the two varieties may occur as in / batā̄v / (scattered) / balā̄ʃ / (free) / fatak / (one Christian) / falak / (the world) / paṯā̄v / (boiled rice), / haṯā̄v / (kind of sweets), / batā̄ / (calamity) and / qalā̄ / (crows-objective case).

In word-final position after a vowel the lateral is usually non-velarized as in / gul / (rose) and / pīt / (turn); yet even here we find words in which the velarized lateral is regularly used as in / tʃ + t / (clumsy; disagreeable).

A quick examination of the words cited above will lead us to the phonological generalization that the two lateral sounds are phonemic. Apart from / fatak /, / falak / I know of no other minimal pairs distinguished by the velarized or non-velarized lateral, but the phonetic environments in which they occur are identical. In / t' ŋg / and / l + vā / the environment provided by the following vowel is the same as that in / t + tʃ /; and in / balā̄ʃ / and / haṯā̄v / the phonetic environment is the same as that in / batā̄v / and / batā̄ / for in both cases the lateral occurs in the context / ... a-ā̄ ... /. We cannot say that the two varieties are in free variation in these contexts, where one variant is preferred to the other for stylistic reasons, because no speaker of this dialect will ever say [fala] for [fata] [tʃ + l] for [tʃ + t] or [paṯā̄v] for [paṯā̄v]. So if this sameness of phonetic environment is taken into consideration, it will rule out any possibility of regarding the two sounds [l] and [ɭ] as allophones of the same phoneme.

In the two dialects mentioned above there is no evidence of syllabic laterals. When a lateral follows another consonant, say a plosive, a short

1. See spectrogram No. 8

Syllabicity is not a common characteristic of Arabic laterals (at least in colloquial Arabic). Except in Classical Arabic where the lateral is final in a word before a pause and where, for stylistic reasons, the word containing the lateral is not inflected, syllabic laterals are not used. And even in the context that has just been mentioned, the syllabic lateral is non-emphatic as in /ʕajnulʕaq1/ (very wise very reasonable). Otherwise the lateral is non-syllabic. In colloquial Arabic a non - syllabic lateral would be used in the same context with a short vowel inserted between the preceding consonant and the lateral. Thus the word for *mind* would be pronounced as /ʕaq ɪ 1 / and the one for *justice* as /ʕad ɪ l /.

2.4 Laterals in Kurdish¹

Two qualitatively distinct varieties of lateral sounds are used in Kurdish. The first is a voiced dental no-fricative lateral sound with the resonance of a front vowel (hence symbolised as [l]) and the second a voiced velarized dental non-fricative lateral with the resonance of a back vowel (hence symbolized [ɫ]).

In the literature available on Kurdish phonology (cf MacKenzie 1961) the laterals [l] and [ɫ] in Sorani dialect have been given a phonemic status on the basis of minimal pairs such as / kārta / (kind of red) and / kārta / (light shoes) / kal / (chipped) and / kat / (ox) . On the other hand they are treated as allophones of the same phoneme /l/ in Bahdinani dialect (cf MacKenzie ibid p.32). The velarized variety which occurs in words like [ɫ itp] (clod) has been considered an allophone occurring in the neighbourhood of other emphatic sounds. However this phonological analysis is not satisfactory because the velarized lateral may also occur in other contexts where there is no neighbouring emphatic sound. In some other cases the

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1. *Kurdish is here treated in terms of the two major dialects spoken in Iraq: Sorani and Bahdinani spoken by people in Suleimaniya and Amadiya respectively .*

the contrastive function of a sound is confirmed, it is given a fixed phonemic status: once a phoneme always a phoneme .¹

Moreover, the phonetic context mentioned by Al-Toma (i.e. in the proximity of other emphatic sounds such as / t̤ / and / s̤ / where / l / is separated from the emphatic consonant by / a /) does not seem to be always valid. A large number of people when speaking Classical Arabic, use a nonemphatic variety instead of the emphatic as in / t̤ alaba / (asked, demanded) and / s̤ alaba / (he crucified) . This can be regarded as a case of neutralization in which the distinction between the two lateral phonemes is neutralized in the same way as the distinction between / d / and / t / is neutralized in the final position in German .

(2) As far as colloquial Arabic is concerned the two lateral sounds are separate phonemes . This is obvious in Baghdadi Arabic in which there exist a number of minimal pairs distinguished by the lateral sound used in each. In the pairs / galla / (he told him) and / gatta / (a group of friends) / xali / (empty) and / xati / (my mother's brother) / xalli / (let) and / xatti / (my vinegar) the contrastive function of [l] and [t̤] is obvious and the phonemic status of the two sounds cannot be denied .

In other dialects such as that of Mosul minimal pairs like those in Baghdadi dialect are not so easy to find . However, it is always possible to establish minimal pairs when the word for God is involved as in / watta / (by God) and / walla / (he went away) . But again this is enough to show that the two sounds in question are phonemic .

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1. See C. Ferguson. *The Emphatic l in Arabic*, *Word* Vol .9 (1956) pp. 446- 452
 2. *Arabic dialects have been taken into consideration in this study because they are of great relevance to the process of learning a foreign language since they may function as a source of interference in the performance of the learner, especially in his production of the sound system of the language he is learning .*

Yet, due to the fact that these pairs of words can be pronounced identically with a non-syllabic /l/, as it is the case with the pronunciation of the majority of RP speakers, this distinction can safely be ignored since it will not throw any light on the problem which is being investigated.

2.3 Laterals in Arabic

In Arabic (whether classical or colloquial) two varieties of lateral sounds are identified namely a palatalized dental lateral symbolized as [l] and an 'emphatic' lateral sound with some degree of pharyngealization normally symbolized in the literature as [l̤]. However for convenience and in order to avoid confusion on the part of the reader, I shall use the same symbol as used for the 'dark' laterals in English, viz [ɫ].

The phonemic status of the two varieties mentioned above has been a subject of long controversy. In classical Arabic though there are minimal pairs which differ only in the lateral sound used such as /wattāhi/ (by God) and /wallāhi/ (and one who amuses) or /wattāhu/ (and God) and /wallāhu/ (gave him responsibility), the two types have been treated by some scholars as allophones of the same phoneme on the basis that [ɫ] appears in restricted contexts as in the word for God "provided that /l/ is not preceded by /i/" and in other contexts, namely in the proximity of other emphatic sounds such as /s t d ɖ/ provided that these immediately precede /l/ or are separated from it by a short vowel such as /a/ (cf Al-Toma 1969 p.14). However this treatment does not seem satisfactory because once minimal pairs have been established, we cannot ignore the phonemic status of the sound on the basis of its restricted occurrence. The word for God is regularly used with [ɫ] in certain contexts where the other variety and other established phonemes can occur, as illustrated in the minimal pairs above. So the two lateral sounds cannot be said to be in complementary distribution. Besides, once

However the degree of 'clearness' or 'darkness' is subject to substantial variation depending on the quality of the vowel with which the lateral combines, whether it is a preceding or a following vowel though coarticulation with a following vowel is more marked(1). These varieties have a characteristic distribution. The clear variety is found before vocoids (the set of vowel phonemes plus the frictionless continuant /j/) as in *live, loud, million*, and the dark quality elsewhere (that is to say finally before a pause and preconsonantly) as in *fall, fault* and *struggle*, where it is additionally syllabic.

The allophones mentioned above can be described shortly as voiced alveolar lateral sounds. However, other variants are established according to the phonetic contexts in which they occur. Thus /l/ is dentalized in the proximity of a dental fricative as in *all this* [ɔ: fθɪs] and *health* [he fθ] while in the proximity of a post-alveolar sound as in *already* the actual point of articulation is postalveolar. A wholly or partially devoiced /l/ occurs after voiceless aspirated plosives as in *play* [ph^hleɪ] *clay* [k^hleɪ] and *aptly* [aptl̥ɪ]. In such a case we may perceive some audible friction. In the proximity of a nasal sound the lateral can be strongly nasalized as in *kiln* [kɪl̃n] and *elm* [eɪl̃m].

Though it was mentioned earlier that there is one lateral phoneme in RP, it is worth mentioning that [t̬] can be established as a phoneme since it is possible to find minimal pairs (in the speech of some people) distinguished by the type of lateral occurring in each as in *coddling* [kɒd t̬ɪŋ] (from the verb *coddle*) and *codling* [kɒd lɪŋ] (a small cod) *suckling* [sʌk t̬ɪŋ] (from the verb *suckle*) and *suckling* [sʌk lɪŋ] (baby who still suckles).²

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1. For further details see R.A.W. Bladon and Ameen Al-Bamerni, (op.cit)
 2. for further information see Daniel Jones, *The Use of Syllabic and Non-syllabic l and n in Derivatives of English Words Ending in Syllabic l and n*. *Zeitschrift für Phonetik und Alg. Sprachwiss.* Vol.12,(1956),pp. 136-144.

articulatory variable "(Fant op.cit. p.79). However it has been found that F4 correlates rather strongly with the retraction of the tongue (1). This formant seems to have a lower frequency when the lateral sound is combined with back vowels than when it is combined with front vowels.

The identification of a lateral depends mainly on the transition of the first formant, for there is " a sudden shift up of F1 from the lateral to the adjacent vowel. "(Fant ibid p.167). In addition to F1 another factor is taken into consideration for the identification of the lateral namely the antiresonance(or zero frequency) which appears at the range of 2000Hz .

The above mentioned spectral characteristics are applicable to all the lateral sounds in the three languages, related to this investigation as we can find both varieties of the lateral sound 'clear' and 'dark' (2).

2.2 Laterals in RP

RP is different from many other widely used dialects of English in showing one lateral phoneme /l/ with two qualitatively distinct allophones traditionally referred to as 'clear' (with some degree of palatalization and with the resonance of a front vowel hence symbolized as [l̥]) and 'dark' (with some degree of velarization and the resonance of a back vowel hence symbolized as [l̠]). In addition to these two allophones a syllabic allophone symbolized as [l̥̩] is also distinguished which may be additionally dark.

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- (1). For further details see A.H. Al-Bamerni, *An Instrumental Study of the Allophonic Variations of /l/ in RP*, an unpublished M.A. Dissertation UCNW-BANGOR 1975.
 - (2). Syllabic l is also included in these varieties since it is of a dark quality in English and of a clear quality in classical Arabic (cf p. 7) ; however quality is not a good clue for the identification of a syllabic sound. Syllabicity is measurable mainly in terms of duration. See spectrogram No.4 and 5 and compare the latter with spectrogram 6

been found to give "fairly clear resonance" (Tarnoczy 1948 p. 75) and that the spectra of these sounds consist of "resonance bars" (1) (Potter et al 1966 p. 232). Thus lateral sounds reveal spectral characteristics typical of vowels. In fact the qualitatively distinct allophones [l] and [ɫ] (as far as English is concerned) have the resonance of the front vowel [i] and the back vowel [u] respectively.

The spectrum of a lateral usually reveals four distinct formants to be numbered from the bottom as F1 F2 F3 and F4 (2). These formants are related to cavities the volumes of which are determined by the shape and movements of the body of the tongue in addition to the movements of the velum. F1 and F2 of [l] are dependent on cavity volumes similar to those of [i] and F1 and F2 of [ɫ] on cavity volumes similar to those of [u]. Fant (1960 p. 165) states that "the dependency of F1 on the lateral constriction and F2 on the pharyngeal constriction is definite and similar to the conditions for the production of [u]". The 'dark' quality of the lateral sound seems to be substantially related to F2 (3). "The lower the frequency the 'darker' the [l] sound" (Gimson 1970 p.201).

F3 is rather problematic, for it is very often suppressed by an anti resonance which appears in the spectrogram and sometimes this formant is shifted up to higher frequencies approximating those of F4 (4), or very often these two formants (i.e. F3 and F4) cluster together, thus, creating great difficulty of identification.

F4 has usually been neglected as being "fairly independent of any

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1. *By resonance bars 'they mean areas of maximal energy concentration along the scale of frequency Resonance bars are also referred to as 'formants' abbreviated and numbered as F1, F2etc.*
 2. *See spectrogram No. 1*
 3. *Compare spectrograms 1 and 2*
 4. *See spectrogram No.3*

This study therefore sought to display the general articulatory and acoustic characteristics of the sounds in question and to reveal the phonological status of the laterals in the three languages in an attempt to show the differences, if any, between the laterals in English and the other two languages and hence to explain the cause (or causes) of difficulty faced by the students .

2.1 General Articulatory and Acoustic Properties of the Laterals

A lateral which is an "articulatory label" (O'Connor 1973 1.105) is a type of consonant segment which is produced by "a stricture of complete closure in the centre of the vocal tract, so that there is a lateral passage of the airstream round the side or sides of the obstruction" (Abercrombie 1967 .50) . This definition is rather general and overlooks the secondary articulations(1)which accompany the primary contact made by the tongue somewhere in the vocal tract. However, these secondary movements of the tongue will be deferred to the sections that follow in which allophonic variations of the laterals are discussed with reference to each of the three languages mentioned above. Nevertheless both the primary and secondary articulations are to be taken into consideration when an acoustic description of these lateral sounds is made for it is the movements of the body of the tongue and not of its tip that determine the varying quality of the laterals. (2)

The vibration of the vocal cords and the tongue movements necessary for the production of lateral sounds in these languages are important factors which bring about modulations in the supraglottal cavities and hence variations in the spectral qualities of the sounds for the l - like sounds have

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1. *Such as velarization in the case of English and kurdish laterals and pharyngealization in the case of Arabic ones.*
 2. *cf Daniel Jones, An Outline of English Phonetics. Ninth Edition Heffer. Cambridge (1972). 174*

1. Introduction

Iraqi Arab and Kurdish students face a number of difficulties in the perception and production of some English sounds. Among the many difficulties encountered by the students are those related to the production of lateral sounds in British English Received Pronunciation (hereafter RP) ⁽¹⁾ These difficulties were confirmed in a production test whereby a group of fifty students ⁽²⁾ (twenty Kurds and thirty Arabs) read a typed piece of conversation in which there were twenty - five occurrences of lateral sounds mainly covering three allophones of /l/ viz [l] [ɫ] and [ɭ]. Other allophones ⁽³⁾ were not taken into consideration on the assumption that the greatest difficulty is encountered in the distinction between the clear and dark ⁴ varieties on the one hand, and between syllabic and non-syllabic allophones on the other. The results showed that 52 % of the Kurds regularly used the clear variety where the 'dark' variety should have been used while only 40 % substituted a non-syllabic allophone for the syllabic one. On the other hand 43 % of the Arabs used a 'clear' variety instead of the 'dark' one and 75 % used the non-syllabic variety instead of the syllabic. Surprisingly no student substituted a dark variety for the 'clear' one except before the diphthong / aɪ /, though both varieties do exist in Arabic (classical and colloquial) and in Kurdish.

1- RP in the sense used by Daniel Jones. See A.C. Gimson, *Daniel Jones and Standards of Pronunciation*. *English Studies* Vol.53 No.2 (1977) pp. 151 158 .

2. Ten of these students were from second year Translation. The rest were First Year students *English and Translation*)

3. [t], [ɫ] and [ɭ]

4. Clearness or darkness varies according to the phonetic context. For details see R. A. W. Bladon and Ameen Al - Bamerni, *Coarticulation Resistance in English* [1]. *Journal of Phonetics*, No .4 (1976)

LATERALS IN ENGLISH , ARABIC AND KURDISH

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VIX