English and Japanese Liquid Sounds; English /l/ and /r/ and the Japanese Liquid Sound

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Introduction

In this paper some characteristics of English /l/ and /r/ are discussed in conjunction with the equivalent sounds in Japanese. It is well known and accepted that English /l/ and /r/ are the most difficult sounds for the Japanese to pronounce and hear (Miyawaki et al. 1975, Goto, 1971, McKain, et al. 1981, Takagi & Mann, 1995 etc.). The reason is that no similar sound exists in Japanese, and in such cases a learner finds it more difficult to make a distinction (Yamada and Tohkura, 1992). The description of English /l/ and /r/, and the equivalent sounds in Japanese will be discussed to see whether there is any connection with difficulties that Japanese learners encounter when they learn English. Two issues are focused, namely, phonological description of English /l/ and /r/ and Japanese liquid sound are discussed, and the phonetic basis of English /l/ and /r/ and Japanese liquid.

1. /l/ and /r/ in English system and the equivalent sound in Japanese

Firstly English /l/ belongs to a group called laterals. According to Gimson (1994), as far as manner of articulation is concerned, when pronouncing lateral sounds, a partial closure is made at some point in the mouth, the air-stream being allowed to escape on one or both sides of the contact. These sounds may be vowel-like. Gimson (1994) classifies laterals into three different types: 1) clear, 2) voiceless, and 3) dark.

1) clear [l], there are four different positions where /l/ can occur. For example, /l/ occurs in:-
a) word initial position (i.e. *leave, let*),
b) word initial clusters (i.e. *blow, glad*),
c) word medial (i.e. *silly, yellow*),
d) word final intervocalic in context (i.e. *feel it, fall out*). This allophone is created with a relatively front vowel resonance, before vowels and /j/.

2) voiceless [l̥], which can be seen in words such as *play* and *clean* are of that kind, and in such positions /l/ is devoiced by and after a weakly accented fortis plosive. This allophone is created following accented or aspirated /p, k/. Less significant devoicing occurs after /s, f, th, ʃ / or weakly accented /p, t, k/.

3) dark [ɫ], there are four different positions where dark /l/ can occur. For example, /l/ occurs in:-
a) word final, after vowel (i.e. *feel, fill*),
b) after vowel, before consonant (i.e. *help, bulb*),

c) syllabic (i.e. *table, middle*),
d) variations in inflected forms of verbs ending (i.e. *pommelling, tunnelling*). This allophone is created with a relatively back vowel, before a consonant, and as a syllabic sound following a consonant.

Secondly, English /r/ belongs to a group known as approximants. Gimson (1994) classifies approximants into four different types: /r/ in 1) word initial, 2) word medial, intervocalic 3) word final, and 4) consonantal clusters.

1) **word initial**, /r/ at initial positions of words, as *reed, rag.*

2) **word medial, intervocalic**, /r/ between vowels, as, for example, *mirror, arrive.* Also /r/ occurs before /y/ such as *very* and *sorry.*

3) **word final**, /r/ in word final position in non-rhotic dialects, when a following word begins with a vowel. E.g.: *far away, poor old man.*

4) **consonantal cluster**, /r/ in different consonantal clusters. Gimson (1994) broadly describes three different situations:
a) following fortis accented plosive [ɻ̥]. /r/ as in *price* and *pride.*
b) /r/ occurs in following fortis fricative, unaccented fortis plosive, or accented fortis plosive preceded by /s/ in the same syllable, and it is somewhat devoiced [ɹ̥], as in *fry, afraid* and *sprint.*
c) /r/ in following lenis consonant, as in *brief* and *bright.*

Now the approximate equivalent sound in Japanese will be described. Although /r/ is used in Japanese to describe the liquid sound, it is different from English /r/. Unlike English it is claimed that Japanese only has one liquid sound (Vance, 1987 etc.). Kawakami (1977) argues that this Japanese liquid is ordinarily the apico-alveolar tap [ɾ]. According to Ladefoged (1971), a tap is defined as a sound formed by one articulator against another, and in [ɾ] the tip of the tongue is thrown against the alveolar ridge. This is essentially the same sound as the /r/ in Spanish, Russian, and many other languages. A more precise description will be discussed in a later section on Japanese phonetics. However, the example below shows that there are those who claim that there are two types of liquid sounds in Japanese phonology.

Amanuma et al. (1990) argue that the most typical liquid sound is seen in a sentence like *a rra ma a, (*or /aQ[1]ra maa/), (oh, dear!). When *rra*, (or /Qra/) is pronounced, the tip of the tongue touches the alveolar ridge. In a sense it can be said that it is similar to the English lateral /l/. Such sounds are seen when the liquid sound occurs in word initial positions. Examples of such words are; *rajio* (radio), *raitaa* (lighter), *ringo* (apple) and *roku* (six). Furthermore, according to Amanuma et al. (1990), when the liquid sounds occur in word medial or final positions, they are pronounced differently. Such liquid sounds can be seen in words like *reeru* (rail), *ryoori* (cuisine) and *rokuro* (potter's wheel). The second liquid sound in each word is pronounced differently from the first one, and it is similar to English apico-alveolar [ɾ]. However some of the liquid sounds seen in words such as *anrakuisu* (armchair) and *kanro* (sweetness), although in word

[1] Q is transcribed as double (long) consonant.

medial positions they are pronounced more like English lateral /l/.[2] An important point Amanuma et al. (1990) mention is that, depending on people's mood and degree of tenseness when pronouncing the word or sentence, these two liquid sounds are pronounced with this variation. For example, even if the same speaker repeats the same sentence containing liquid sounds, depending on his/her tenseness, the liquid sounds are pronounced differently every time he/she pronounces it. Therefore it can be said that Japanese liquid sounds do not follow a particular rule like that for the English liquid sounds. Some argue that this obviously relates to the existing problem that Japanese learners of English encounter when learning pronunciation (Vance, 1987, Kawakami, 1977, Bloch, 1950, Jones, 1967).

Finally, it can be concluded here that Japanese liquid sounds are difficult to define relative to English liquid sounds; Amanuma et al. (1990) claim that Japanese liquid sounds are replaced freely, depending on speaker's mood and tenseness. This phenomenon is discussed in the next chapter in the context of Japanese learning English.

We will now consider how English /l/ and /r/, and Japanese liquid sound(s) are described phonetically.

2. Phonetic description of English /l/ and /r/

Let us begin with English /l/. According to Gimson (1994)

> '[...] when English lateral /l/ is pronounced, the soft palate is in its raised position, shutting off the nasal resonator, and the tip of the tongue is in contact with the upper teeth ridge allowing air to escape on both sides of the teeth on one side. In the case of clear /l/, the front of the tongue is raised in the direction of the hard palate at the same time as the tip contact is made, thus giving a front vowel resonance to the consonant. This resonance is often of the [ë] type, but may be closer or more open depending on the following vowel (i.e. *leap, loop*). In the case of dark /l/, the tip contact is again made on the teeth ridge, the front of the tongue being somewhat depressed and the back raised in the direction of the soft palate. This resonance is often of the type [ö] or [ɣ]. The position of the lip is influenced by the nature of the adjacent vowel (i.e. *leap, feel, loop, pool*), and lip rounding is often seen in the case of [ɬ] with some speakers' (Gimson, 1994: 202).

On the other hand, in the case of /r/, the most common allophone of RP /r/ is a voiced post-alveolar frictionless continuant (or approximant) [ɹ]. Gimson (1994) claims that;

> '[...] the soft palate being raised and the nasal resonator shut off. The tip of the tongue is held in a position near to, but not touching, the rear part of the upper teeth ridge. The back rim of the tongue touching the upper molars. The central part of the tongue is lowered with a general contraction of the tongue, so that the effect of the tongue position is one of hollowing and slight retroflexion of the tip. The air stream is thus

[2] As will be discussed in a later part of this section, in Japanese, a sound consists of CV structure. Hence in a word final position, a consonant is always followed by a vowel, except for a nasal /N/.

> allowed to escape freely without friction over the centre part of the tongue. The lip position is determined largely by that of the following vowel such as *reach* with neutral to spread lips, *root* with rounded lips. This allophone of the RP phoneme is, therefore, phonetically vowel-like, but having a non-central situation in the syllable and it functions as a consonant' (Gimson, 1994; p.205).

Another point which Gimson (1994) notes is that when /d/ precedes /r/, the allophone of /r/ is fricative, the /d/ closure being post-alveolar and its release slow enough to produce friction. Such examples can be seen in *drive, tawdry* and in rapid speech at syllable or word boundaries in *headrest, bedroom* and *wide road.* Also completely devoiced fricative [ɻ̥] may be heard following accented /p, t, k/ in words such as *price, try,* and *cream.*

3. Phonetic description of Japanese liquids

As mentioned in the earlier section, Vance (1987) shows that the Japanese liquid sound is ordinarily described as apico-alveolar tap [r], and in order to articulate it the tip of the tongue is against the alveolar ridge. Such sounds can be found in American English when [t] is pronounced [d] in words such as *butter* and *shutter.* Kawakami (1977) claims that in word initial /r/ the tip of the tongue is already resting very lightly on the alveolar ridge and that the sound is produced by rapidly releasing this contact. The environment for this allophone is undoubtedly utterance-initial rather than word-initial. Kawakami (1977) describes the resulting sound as a kind of [d]. According to Nihon Onsei Gakkai (1976), this is why Japanese children sometimes mispronounce words like *radio* as /dajio/.

Again, although Japanese liquid sound is said to have only one allophone [r], in different positions it changes to [l]. For example, Bloch (1950) argues that /r/ is palatalized before /i, y/. Catford (1977) also claims that in any sequence /r/ + vowel, the /r/ shows co-articulation in anticipation of the following vowel. Another characteristic of Japanese liquid sound is that, as Kawakami (1977) argues, when it is lengthened for emphasis, it is pronounced as [l:], and if a tap [r] were lengthened, it would become [d:].

3. Conclusion

To conclude this section, it can be said again that the Japanese liquid sound is hard to define because of the frequent changes depending on a position. As mentioned earlier, it can also be said that no similar sound exists in Japanese and in such cases a learner finds it more difficult to make a distinction (Yamada and Tohkura, 1992). Further research seems to be needed in the case of English teaching. If there is no such equivalent sound exists in the Japanese language, more attention should be paid in teaching English phonology, since it is widely known that Japanese learners of English find it most difficult to acquire the English /l/ and /r/.

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