

## 11. Front Rounded Vowels

Ian Maddieson

### 1. Introduction

The lip position of vowels is generally correlated with the height and backness of the vowel, as discussed in chapter 2. Normally vowels which are back and not low are pronounced with the lips in a rounded position (e.g. [o] and [u]). Front and central vowels and back low vowels are normally pronounced with the lips unrounded (e.g. [i], [e], [a]). Lip rounding involves drawing the corners of the lips together and protruding the lips forward from their normal rest position. The ability to make these gestures with the lips is greatest when the vowel is high; as the jaw is opened further to make progressively lower vowels, the amount of adjustment of the lips that is possible becomes more limited, since the lips are being stretched vertically. This mechanical constraint may account for the fact that low vowels are normally unrounded, whether front or back. As for non-low vowels, the association of lip rounding with back vowels has to do with reinforcing the low-pitched acoustic overtones that are characteristic of back vowels. Rounding and protruding the lips lowers the frequencies of the acoustic resonances of the vocal tract to add to the lowering effect produced by the action of backing the body of the tongue. A rounded back vowel is therefore more clearly distinct from other vowels than an unrounded one (see Stevens 1972).

Although the occurrence of lip rounding with back non-low vowels is the normal pattern, front vowels with lip rounding and back non-low vowels without lip rounding do both occur in the inventories of vowels of a minority of languages. This chapter will focus on the occurrence of one class of these less usual vowels, the **front rounded vowels**. In the sample of languages surveyed for this chapter, there are only 37 languages (about

6.6%) in which one or more such vowels are recognized as part of the vowel inventory as defined in chapter 2.

@	1.	None	524
@	2.	High and mid	23
@	3.	High only	8
@	4.	Mid only	6
total			561

Front rounded vowels typically occur in vowel systems with a larger than average number of vowel qualities. The mean number of vowel qualities in the 37 languages concerned is 7.87, whereas the mean for all the languages without front rounded vowels is 5.85, a difference which is statistically highly significant. In most cases when any front rounded vowel occurs, the inventory of vowels has a front unrounded vowel of similar height, and also a back rounded vowel of similar height. For example, French, Albanian, Mandarin, Dagur (Mongolian; China) and Lezgian (Nakh–Daghestanian; eastern Caucasus) have a high front rounded vowel, the phonetic symbol for which is [y]. This symbol is chosen following the spelling tradition of languages such as Norwegian and Finnish, which also have this sound. The vowel systems of all these languages also include both a high front unrounded vowel ([i]) and a high back rounded vowel ([u]). Because of these facts, as well as what is known about the history of a good many of the individual languages concerned, the presence of front rounded vowels is generally taken to reflect an elaboration of a vowel system that had fewer members at an earlier time.

## 2. Geographical distribution

The majority of the languages with front rounded vowels, 29 of the 37, are found in the more northerly parts of the Eurasian land mass. Outside of this area the few languages reported with

front rounded vowels are widely scattered, and the reports are not always sufficiently detailed to be relied on with confidence. Only four languages of the Americas surveyed are reported to have one or more front rounded vowels: Hopi (Uto–Aztecan; Arizona), Quiotepec Chinantec (Oto–Manguean; southern Mexico), Wari’ (Chapacura–Wanhan; Brazil) and Aikaná (Arawakan; Brazil). Only one of the sampled languages in Africa, Ejagham (Bantoid; Nigeria and Cameroon), has been reported as having a front rounded vowel. One other African language in the survey, Wolof (Atlantic, Niger–Congo; Senegal and Gambia), has sometimes been said to have a mid front rounded vowel, but in fact this vowel seems to be central and unrounded. The report of a front rounded vowel may be because of the similarity to the ear of the two types of sounds. Given that most linguists working in Senegal, where Wolof is spoken, are familiar with French, it seems that they have described this vowel as having the characteristics of the most similar–sounding vowel of French. In the Pacific region there are just three languages in the survey with front rounded vowels: Malakmalak (Daly; Northern Territory, Australia), Iaaí (Oceanic; Ouvéa, New Caledonia), and Nambakaengö (Reef Islands–Santa Cruz family; Solomon Islands). Among these scattered languages the occurrence of front rounded vowels is certain in Iaaí and Wari’. For the remainder it is possible that an auditory confusion between front rounded and central unrounded vowels might account for the suggestion that these languages have front rounded vowels.

Accepting all the data discussed above as valid, the majority of the languages in the survey with front rounded vowels have them in both the high and mid vowel classes; this is the case for 23 of the 37. These languages are placed in one class. Of the remaining languages, 8 have only high vowels in their front rounded set and 6 have only mid vowels in their front rounded set. Altogether there are thus 31 languages in the survey whose vowel inventories include high front rounded vowels and a total of 29 languages whose vowel inventories include mid front

rounded vowels. These numbers are so similar that it is not possible to talk of any preference for front rounded vowels to be high rather than mid. The strong pattern is for both high and mid to occur together in the inventory of vowels.

### 3. Discussion

Although they are certainly not present in all of the languages in the area, it is clear that front rounded vowels are most "at home" in the languages of Europe and Asia, apart generally from South and Southeast Asia. They occur in a good proportion of the Uralic and Altaic languages, including Finnish, Hungarian, Selkup and Nganasan in the Uralic group and Turkish, Yakut, Dagur and Manchu in the Altaic group. These languages often have a pattern of vowel harmony according to which all the vowels in a word are required to agree in some of their properties; for example, all vowels might be required to be front. Thus, in Hungarian one of the case suffixes on nouns, traditionally called the *essive*, has the shape /-ul/ containing a high back rounded vowel if the noun stem has back vowels, but is /-yl/ (orthographic *ül*) if the stem has front vowels. In Turkish, in addition to agreeing in frontness, vowels in certain situations must agree in rounding with a preceding rounded vowel. It seems likely that the historical processes that bring front or rounded vowel harmony into the sound system of a language might be instrumental in introducing the front rounded vowels into the inventory. (It should be noted that vowel harmony patterns in individual languages are often more complex than the simple outline given here; for some discussion see the contributions in Vago 1980.)

Front rounded vowels can also be developed independently of vowel harmony, however. French is among the languages whose high front rounded vowel [y] arose as a consequence of an earlier high back rounded vowel [u] moving forward while keeping the rounding. In French a high back rounded vowel [u]

has been "re-created" in the system by mid vowels rising in height. For example, the familiar second-person subject pronoun *tu* is now pronounced [ty] — it is still spelled the same as its Latin source *tu* but in Latin pronunciation the word had a back vowel. The plural or polite second-person pronoun *vous* is pronounced [vu] or [vuz] (depending on context), with a high back vowel, but this derives from the Latin *vos* with a mid vowel. A number of varieties of modern English, such as those spoken in Australia, are well on the road to completing a similar change of the formerly back vowel, in words such as *food*, into a front rounded vowel. In these cases the creation of front rounded vowels is not conditioned by adjacent sounds in the word.

In other languages front rounded vowels have evolved from the transfer of the front property of an adjacent segment to a once-back vowel. A well-known example is German, where at some time in the Middle Ages back vowels in many words, when followed by a high front vowel, were changed into front vowels while keeping their other properties. The vowels causing this change were frequently in derivational suffixes or inflectional endings, and were subsequently lost or changed into mid vowels. The result is many pairs of words such as the singular/plural noun forms written *Kuh* 'cow', *Kühe* 'cows', in which the first has the vowel [u] and the second its front counterpart [y] followed by a mid vowel. Front rounded vowels have also evolved in some languages from the influence of a front consonant on a back rounded vowel. In the history of the Chinese languages one of the sources of the [y] vowel is a sequence such as /ut/. The tongue has to be moved forward to make the contact for /t/; consequently a more fronted position of the vowel is created and this pronunciation of the vowel becomes the new norm over a period of time. If the final consonant is later lost a change from [ut] to [y] is completed.

In view of the different historical scenarios which produced the front rounded vowels in various languages, it is quite striking that their occurrence is so relatively concentrated in a

particular geographical area. It seems likely that the hearing of sounds of this sort in some languages of the area may have given further support to phonetically natural processes in other languages, with the end result being the addition of front rounded vowels to the inventory of more of the languages.