

Vowels, vowels, vowels (and glides)

Rogers Chapter 9

The next chart is the one you should know for the final

- A few differences from official IPA
- More consistent with our English vowel charts
 - Similar with Rogers' charts for English in chapter p 32-34
 - Easier to learn

Master vowel chart LEARN THIS ONE

| | Front Unr | Front R | Cent Unr | Cent R | Back Unr | Back R |
|----------------|--------------|---------|-------------|--------|-------------|--------|
| higher high | i | y | ɨ | ɤ | ɯ | u |
| lower high | ɪ | | | | | ʊ |
| higher mid | e | ø | ɜ | | ɤ | o |
| lower mid | ɛ | œ | ʌ | | | ɔ |
| higher low | | | | | | ɒ |
| lower low | æ | | | | ɑ | |
| ‘super’ low | | | ɑ | | | |

Official IPA chart

: Graphic removed Rogers p 336 Vowel diagram

Higher high

Higher mid

Lower mid

Lower low

Differences: IPA puts these at the pointy end of arrow

(Rogers changes his mind on some Vs for English vs IPA)

| | Front Unr | Front R | Cent Unr | Cent R | Back Unr | Back R |
|-------------|-----------|---------|----------|--------|----------|--------|
| higher high | i | y | ɨ | ɥ | ɯ | u |
| lower high | ɪ | | | | | ʊ |
| higher mid | e | ø | ɜ | | ɤ | o |
| lower mid | ɛ | œ | ʌ | | | ɔ |
| higher low | | | | | | ɒ |
| lower low | æ | | | | ɑ | |
| 'super' low | | | ɑ | | | |

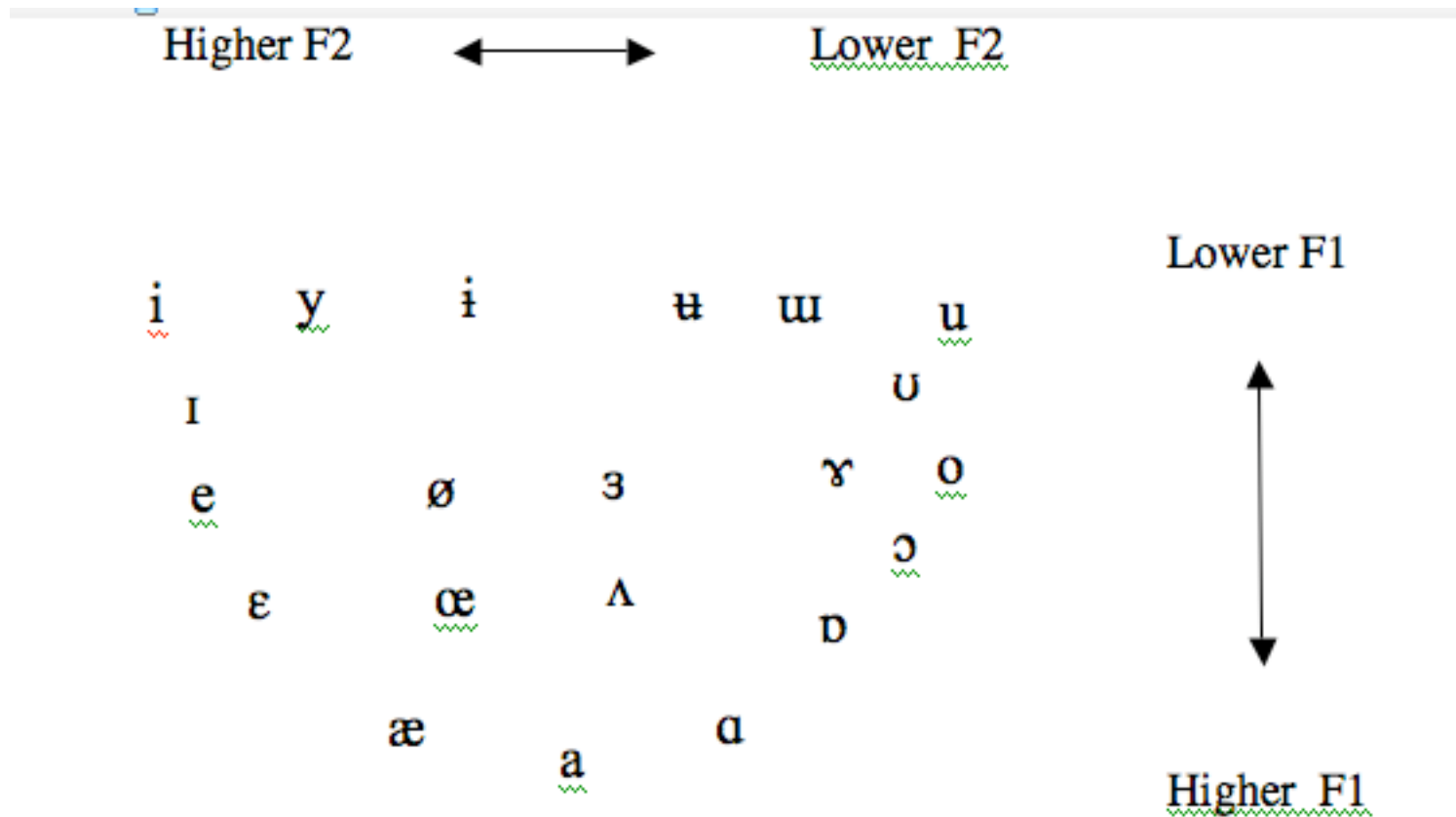
Variation in text (and notes)

- Rogers puts the English values closer to the previous charts
- I have revised one vowel from previous handout.
 - I think [ʌ] should be used for lower mid central vowel, not higher low central vowel.
 - Please check my consistency in marking quizzes

No new properties: Just new combinations

- Height, advancement and rounding
- New combinations
 - Front rounded vowels
 - Back unrounded vowels at mid and high heights
 - Some new central vowels

Relation of vowel chart to relative formant frequencies



See <http://fon.utu.fi>

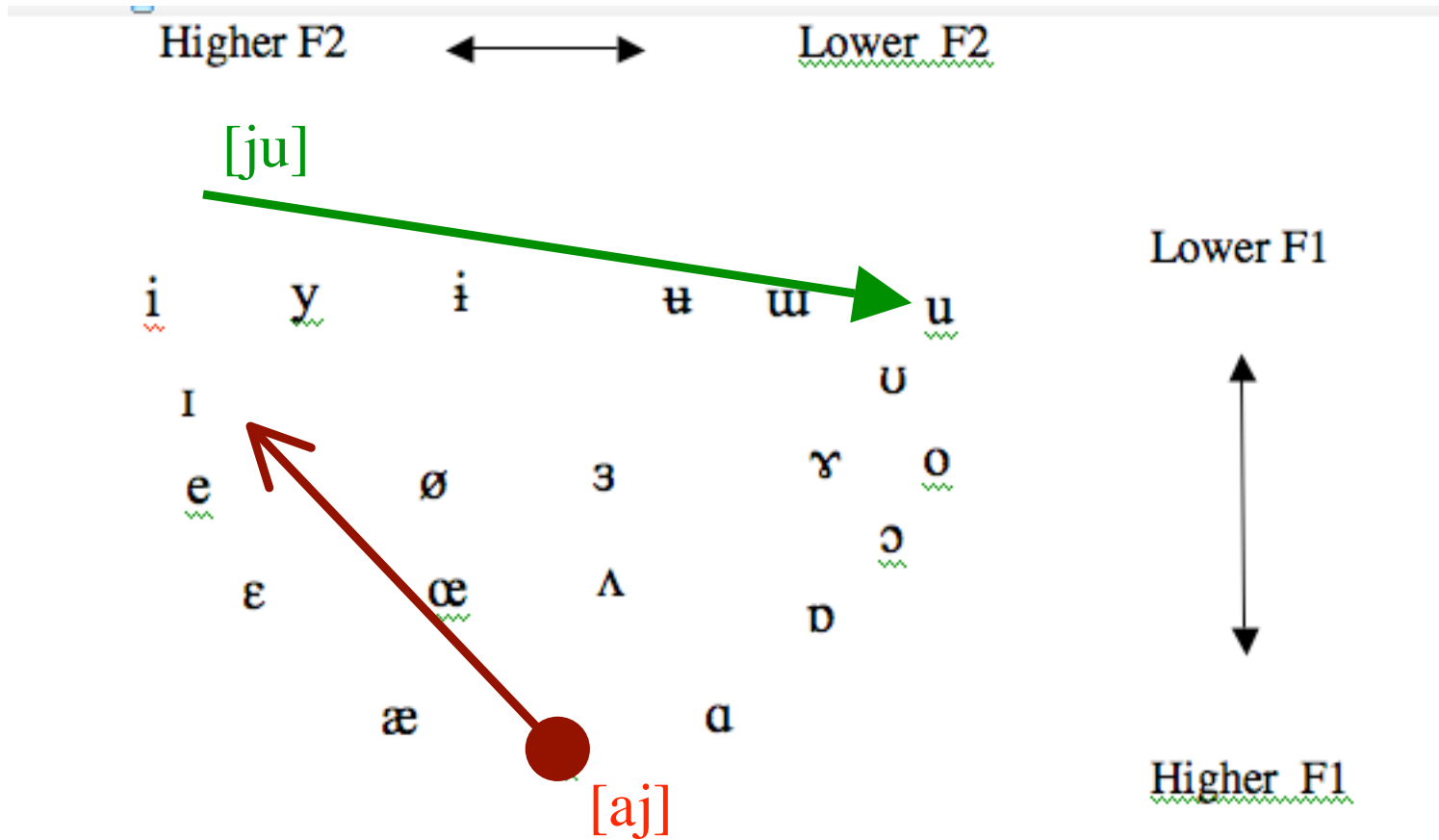
Manitoba Vowels

- Graphic removed see:
 - <http://www.umanitoba.ca/faculties/arts/linguistics/russell/138/sec4/form2.htm>

Of course, there are diphthongs

- ‘Falling’ diphthongs (glidy-bit after the vowel)
 - Movements of vowels from onset target toward another part of the the space
 - [aj] from [a] toward [i] (or [j]);
- ‘Rising’ diphthongs (glidy-bit before the vowel)
 - Movements from some part of vowel space toward a target.
 - [ju] from [j] to [u]. (These not always considered diphthongs)
- Rising/ falling has to do with increase or decrease in ‘sonority’ (more open vowels presumably more sonorous)

Diphthongs [aj, ju]



Lax vowel in English often show 'rising' diphthong patterns

- The vowels [ɪ ɛ æ] in several North American English dialects show movement toward [a [ɪ ɛ æ] at the end
 - How transcribe? [ɪ^a ɛ^a æ^a]
 - Not recognized as 'diphthongs' in traditional phonetics
- New term coined to cover it: 'VISC'
 - Vowel-inherent spectral change
- All diphthongs show VISC, but some other vowels may too.

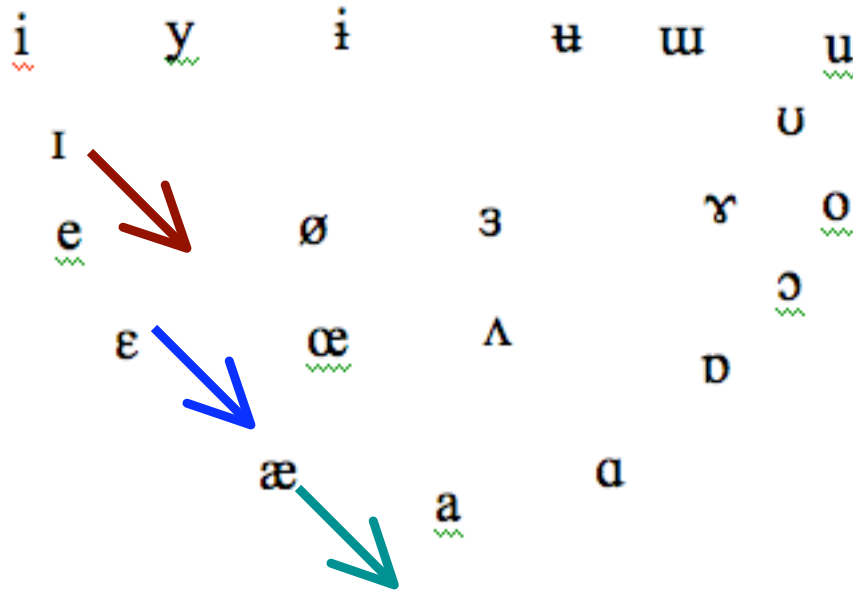
'VISC' [ɪ ɛ æ]

Higher F2



Lower F2

[ju]



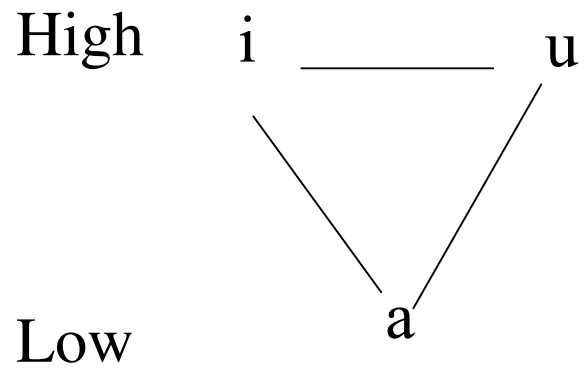
Lower F1



Higher F1

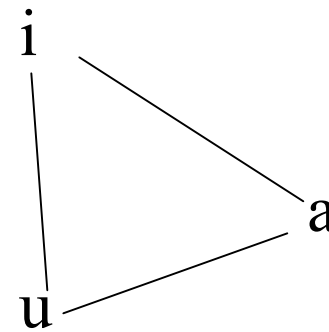
F1 x F2 versus traditional chart

Traditional chart



Front Back

‘Left-facing head, standing’



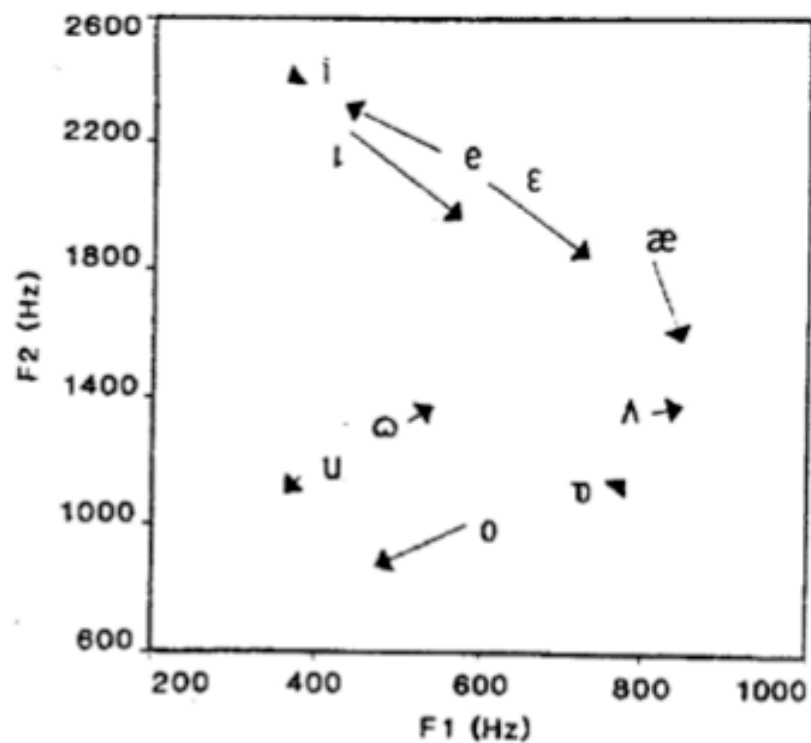
Hi F2

Lo F2

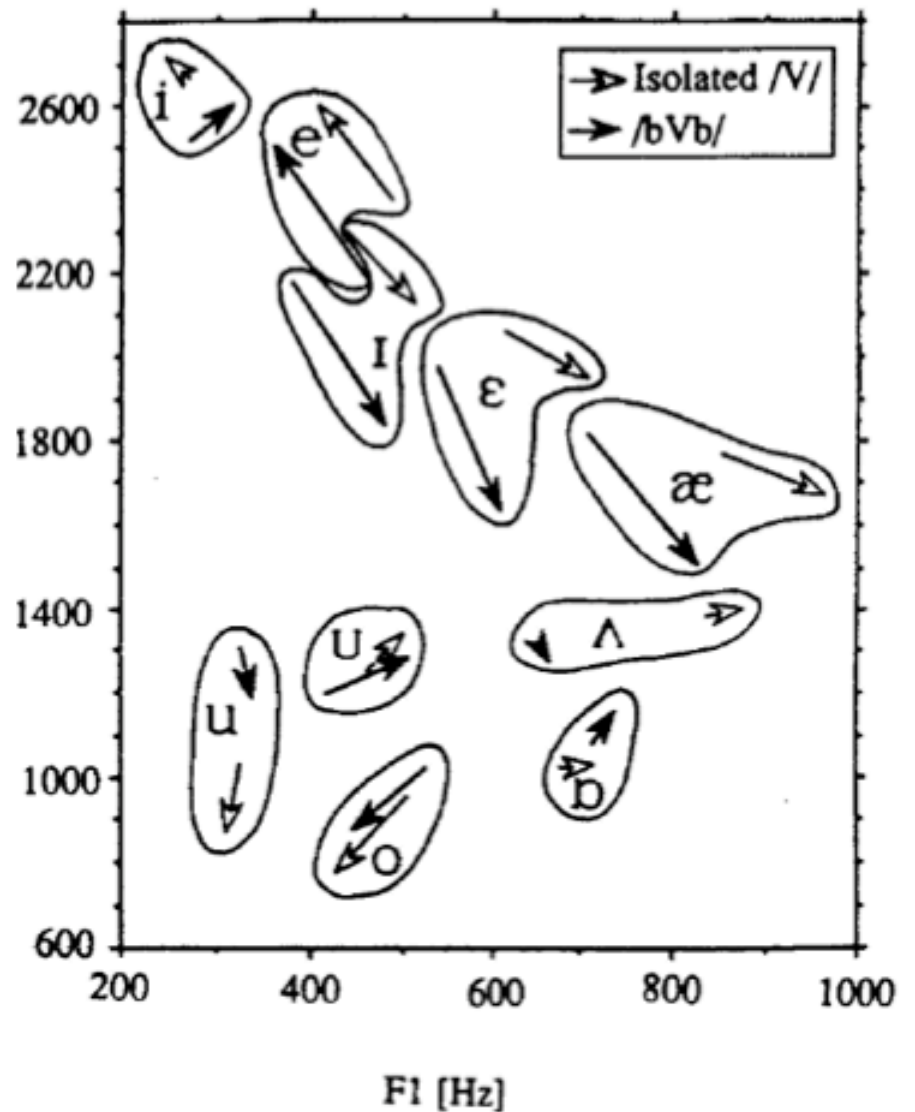
Lo F1

Hi F1

‘Lying on back, top of head
to left’



Nearey, T. M., and Assmann, P. F. (1986). "Modeling the role of vowel inherent spectral change in vowel identification," *J. Acoust. Soc. Am.* **80**, 1297–1308.



Andruski & Nearey (1991) On the sufficiency of compound target specification of isolated vowels and vowels in /bVb/ syllables. *Journal of the Acoustical Society of America*, **91**. 390–410. p394