My L1 is Mangalorean Konkani, and I grew up in the San Francisco Bay Area and now live in the Sacramento Valley. I expect that I have a California English dialect with light Konkani influence. The other speaker's L1 is Mandarin, and he grew up in Hangzhou and now lives in the Sacramento Valley, having moved to America as an adult. I expect that he has a California English dialect with heavy Mandarin influence.

Figure 1 shows the vowel space of California English, which has eleven vowels (three high, six mid, two low / five front, two central, four back), and Figure 2 the vowel space of Konkani, which has nine (three high, five mid, one low / four front, two central, three back). Although the distribution of vowels based on height and frontness is similar for the two languages, the vowels ɪ, æ, ʌ, ɑ are not present in Konkani; a Konkani accent is then expected to produce approximations of those vowels as variants of Konkani vowels e, a, a, a respectively. Konkani is further highly nasalized, which affects vowel acoustics in complex ways that may not be represented in the formant plots. On the other hand, Figure 3 shows the vowel space of Mandarin, which has six vowels (four high, one mid, one low / two front, two central, two back). The distribution of vowels based on height and frontness in Mandarin is significantly different to that of English and Konkani. In English and Konkani, vowels tend to be mid in terms of height and front in terms of backness while in Mandarin, vowels tend to be high in terms of height with relatively equal distributions of backness. The vowels ɪ, ɛ, æ, ʌ, ɑ are not present in Mandarin; a Mandarin accent is then expected to produce approximations of those vowels as variants of Mandarin vowels i, a, a, ə, a respectively.

Figures 4 and 5 show the midpoints and contours of my vowel space, respectively. It is similar in shape to the shapes of both the English and Konkani vowel space, with the phonemes fairly close to their expected locations in terms of relative height and backness. The vowels not present in Konkani are closer to where they lie in the English vowel space than to their closest approximations in the Konkani vowel space, indicating that any Konkani influence on my vowel space is light. There is also a significant amount of motion in the vowel formants, as is expected of standard English dialects, which lack true monophthongs. Figures 6 and 7 show the midpoints and contours of the other speaker's vowel space, respectively. It is significantly different from the English vowel space, and far more closely resembles the Mandarin vowel space. Many of the vowels not present in Mandarin are closer to their closest approximants in the Mandarin vowel space than to where they lie in the English vowel space; the phoneme ɪ is very close to i (more height), the phonemes ɛ, æ are very close to a (slightly more backness), and the phoneme ʌ is very close to ə (more height), as expected. On the other hand, the phoneme ɑ is very close to u (significantly more height). This indicates a strong Mandarin influence on the other speaker's vocal space. There is also less motion in the vowel formants. Comparing the two dialects, the relative locations of the phonemes i, u are similar; this is expected, as these vowels are common across the vowel spaces of all three languages. The phonemes ɪ, ɑ are higher the the other speaker's vowel space than in mine; this reflects the lack of mid vowels in Mandarin in comparison to English and Konkani. The phonemes æ, ʌ has similar height in the two vowel spaces, but is slightly more back in the other speaker's vowel space; this reflects the lack of front low vowels in Mandarin in comparison to English and Konkani. The phoneme ɛ is both less high and more back in the other speaker's vowel space; this reflects that ɛ is present in both English and Konkani, but not Mandarin. My vowel space exhibits more diphthongization.
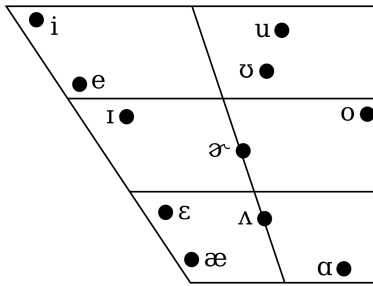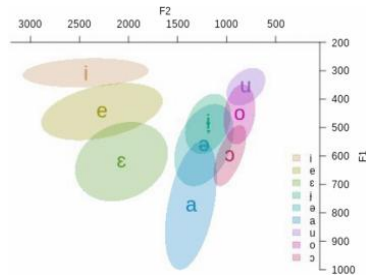
Fig. 1: California English vowel space
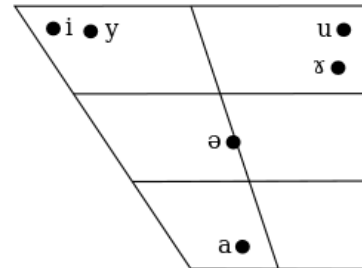

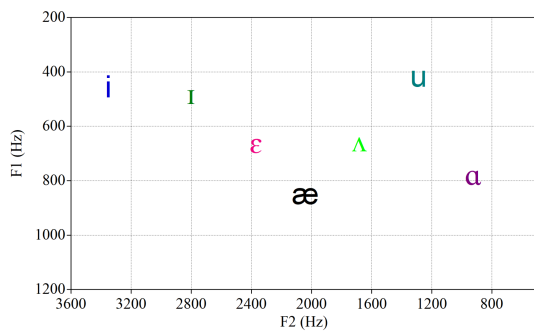Fig. 2: Konkani vowel space

Fig. 3: Mandarin vowel space

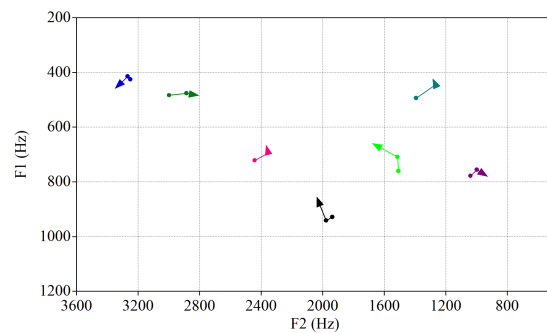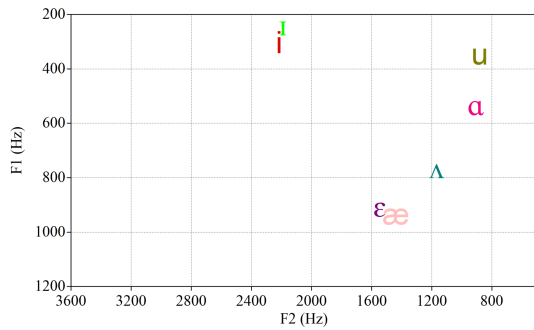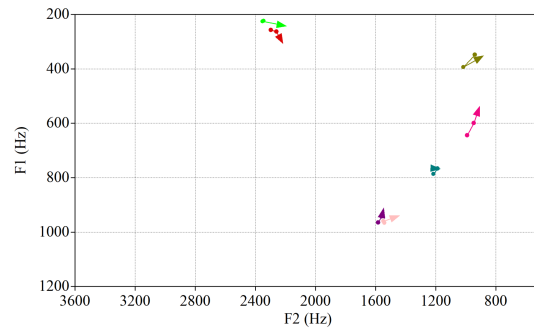Fig. 4: Formant plot (me)

Fig. 5: Contour plot (me)

Fig. 6: Formant plot (other speaker)

Fig. 7: Contour plot (other speaker)