

Hall & Wong
Ling 500
Winter 2006

Lab 4, part 2: Investigating Consonants Using X-Rays, Ultrasound, and Palatography

We have talked about how different consonants are articulated in class, but we don't want you to take our word for it. Instead, we want you to see for yourselves how these sounds are produced. After all, someone had to figure it all out in the first place – how did they do it?

Last week, we looked at some videos of speech that make use of x-rays and ultrasound to see a dynamic representation of the articulators in action. This week, we are going to show you how to do static palatography, a technique that allows phoneticians to figure out how the tongue makes contact with the roof of the mouth during the production of different consonant sounds.

First, write down the key differences in articulation that we have said distinguish the following types of consonants:

1. stop vs. fricative

2. alveolar vs. palatal

The question for today is: do we have evidence from actual productions of consonants that these key differences are accurate?

To answer this question, we will be using static palatography, as described in the chapter from *Vowels and Consonants* that you read for today. Remember, this involves coating your subject's tongue with a black charcoal mixture, having them produce a word, and then taking a picture of the roof of their mouth to see where their tongue made contact.

As a class, you'll need to come up with a set of words (or non-words) that will allow you to answer the question.

3. Write down the words you want your subject (Kathleen) to produce. Explain how these words will allow you to answer the question above.

Together, we will do the static palatography in class, and Peggy will take digital pictures of each of the words you have chosen. These will then be posted online at our class website. For each picture, describe the pattern of the charcoal markings on the roof of Kathleen's mouth, and then explain how these markings either corroborate or fail to corroborate the characteristics we talked about in class.

To turn in on Monday, February 27, 2006:

- A. The answers to Part 1 of the lab (from last Friday) on x-ray and ultrasound imaging.*
- B. The answers to questions 1, 2, and 3 above.*
- C. Your description of the pictures we do in class, and how they relate to the expected differences from questions 1 and 2.*