

Electropalatography Questions (Total marks: 40)

1. (4 marks) Provide a broad (phonemic) transcription of the sentence (listen to the recorded sound file).

Use the electropalatographic data and the sampled speech data if necessary to answer the following questions.

In your answers, always assume that the left side of a palatogram refers to the left side of the mouth and that the right side of a palatogram refers to the right side of the mouth. (That is, we are viewing the palate from above in a palatogram)

2. (2 marks) For which frame numbers is there a maximum point of lingual-palatal contact for the [t] of 'Kate'?

3. (2 marks) Which frame numbers would you say correspond to the [ɹ] of wheateron's?

4. (2 marks) Which frames have no tongue-palate contact during the [p] in 'plays'? Is this during the [p] occlusion or burst/aspiration phase?

5. (2 marks) Indicate the frame numbers and estimate the duration of [l] (to the nearest 10 ms) of 'plays'. Over which side of the tongue would you say air is being directed during the production of this [l]?

6. (2 marks) How would you describe the tongue-palate contacts between the [z] of 'plays' and the [s] 'so'? Is there much evidence of a movement away from the [z] to the medial [ə] vowel for 'are'?

7. (2 marks) Determine the start and end frame numbers and the duration of the vowel of 'that' (to the nearest 10 ms).

8. (2 marks) Which frame number would you say is the transition from [t] to [s] of 'that some'?

9. (2 marks) Palatal sounds like [i:], [ɪ], and [j] often have contact around the sides of the tongue (ie. laterally). For which frames is the lateral contact at a maximum in the [i:] of 'people'? Is there any evidence of anticipatory lateral contact during the burst of the preceding [p] (which, as the speech waveform shows, extends from palate numbers 515-522)?

10. (2 marks) Assuming that the [n] of 'now' starts at about frame 569, how would you describe phonetically the final [l] of 'people'? (Use the palatograms and speech waveform to answer this question).

11. (2 marks) Estimate the start and end frames and the duration of [ɹ] of 'write'.

12. (2 marks) How would you describe phonetically the [t] of 'write'? Can you suggest a reason why this [t] has extensive *lateral* contact?

13. (2 marks) What are the start and end frames and the duration of the closure of the [k] of 'wheateresque'? By looking at both the EPG data and the speech waveform, decide whether the movement towards the closure starts during the preceding [s].

14. (2 marks) Estimate from the speech waveform the start time and end time of the [n] in 'know'. Use the palatographic data to estimate the start and end frames and the duration of the [n] closure (to the nearest 10 ms)? Why is there extensive contact laterally in the palatograms preceding the [n] closure?

15. (2 marks) Estimate the onset frame of the [l] of 'playright'. Is the speech voiced at this point?

16. (2 marks) Estimate the start and end frames and the duration for the parts of the [t] of 'playright' which is (a) voiced and (b) voiceless. Can you explain why there is no alveolar closure during this segment? (Note that there is a burst at 7.45 s)

You don't need to use the supplied palatographic data to answer this question.

17. (6 marks) A speech therapist suggests that a child with a certain kind of dysarthria has difficulty coordinating the production of a consonant and a following vowel. Specifically, the speech therapist has a hypothesis that there is a disruption to anticipatory coarticulation so that none of the /k/ consonants are adjusted to the context of the following vowel. For example, whereas normal speakers would palatalise their /k/ before high front vowels ('keep', 'kin') and retract their /k/'s in the context of a following back vowel 'could', 'caught', the dysarthric child is presumed to produce the /k/ sounds without any adjustment to the context of the following vowel (so there is presumed to be no articulatory difference in the production of /k/ for the child in 'keep' and 'caught' for example). Describe briefly how you could use electropalatography to test this hypothesis. Comment on the kinds of words you would ask the child to produce as well as the kinds of palatographic patterns you would expect to find if the speech therapist's hypothesis is (a) correct (b) incorrect.

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*(Keep your answer **brief** and **concise**. Only use the space supplied above.).*