

**University of Alberta  
LING 205 – LEC A1**

**Final Examination – Tuesday, Dec. 20, 2005 at 14:00**

Instructor: T. Nearey

Location : ETL E1-003

Time 3 hours

**Instructions:**

- 1) Make sure your name is on every sheet.
- 2) Three sheets of scratch paper are provided. Hand them in when you hand in your exam. You can also use the backs of the exam for scratch.
- 3) Write your answers on the sheets in the space provided on this exam packet. Nothing else will count.
- 4) OPTIONAL: On the last page (before the two pages of acoustic figures), there is space for comments and clarifications. Use it especially if you think a question was vague or ambiguous and you want to clarify how you interpreted it. Indicate clearly the question you have 'issues' with.
- 5) OPTIONAL: You can use the space on the back page (and the backs of other pages if necessary) deal with "But I thought you were going to ask about \_\_\_\_\_" and provide your own open-ended question and answers things you thought were important but weren't (at all or adequately) addressed in the exam.

**Part 1.** Fill in the indicated items with the appropriate vowel symbols from the master vowel chart. 2 pts each. (unr. = unrounded; rnd=rounded; cent. = central)  
(You do **not** need to fill in boxes where marked with \*\*\*)

	Front unr.	Front rnd.	Cent. unr.	Cent. rnd.	Back unr.	Back rnd.
Higher high						
Lower high		***	***	***	***	
Higher mid				***		
Lower mid				***	***	
Higher low	***	***	***	***	***	
Lower low		***	***	***		***
Super low	***	***		***	***	***

**Part 2.** Provide the IPA symbol and any appropriate diacritics for the following descriptions. 2 pts each

1)	pharyngealized voiceless alveolar fricative	s <sup>̠</sup>
2)	postalveolar ejective affricate	tʃ <sup>ʼ</sup>
3)	murmured dental fricative	ð̤
4)	retroflex nasal	ɳ
5)	voiceless postalveolar-velar fricative	ɣ̠
6)	retroflex flap/tap	ɽ
7)	glottal stop	ʔ
8)	voiceless uvular stop	q
9)	labiodental approximant	ʋ
10)	alveolar tap/flap	ɾ
11)	palatal approximant	j
12)	laterally released voiceless palatal stop	c <sup>l</sup>
13)	velar ejective	k <sup>ʼ</sup>
14)	palatal implosive	ɟ
15)	advanced voiceless velar fricative	x̟
16)	alveolar approximant	ɹ
17)	uvular implosive	ʕ
18)	voiced glottal fricative	ɦ
19)	dental nasal	ɳ̪
20)	raised voiceless labial velar fricative (or approx.)	ɰ
21)	voiceless alveopalatal fricative	ç
22)	palatal nasal	ɲ

23)	voiced retroflex fricative	ʐ
24)	voiceless dental fricative (non-sibilant)	θ
25)	voiceless pharyngeal fricative	ħ
26)	palatalized -palatal labial-velar approximant	w <sup>j</sup>
27)	voiceless labial-velar fricative or approximant	ʍ
28)	creaky voiced uvular stop	ʁ
29)	inaudibly released voiceless velar stop	k̚
30)	bilabial trill	β
31)	voiced uvular fricative	ʁ
32)	uvular nasal	ɴ
33)	velar lateral	ʟ
34)	voiced bilabial fricative	β
35)	bilabial implosive	ɓ
36)	velarized voiceless bilabial fricative	ɸ <sup>y</sup>
37)	voiced alveolar stop	d
38)	voiced pharyngeal fricative	ʕ
39)	retroflex lateral	ɭ
40)	long voiced alveolar fricative	zː
41)	voiced postalveolar click	g! or ɠ
42)	voiced retroflex stop	ɖ
43)	alveolar ejective	t̚
44)	velar approximant	ʋ
45)	voiceless retroflex fricative	ʑ
46)	voiced palatal fricative	j

47)	retracted alveolar nasal	ŋ
48)	voiced alveolar lateral fricative	ɮ
49)	lowered bilabial nasal	ɱ
50)	alveolar lateral flap	ɺ
51)	nasally released voiceless alveolar stop	t <sup>n</sup>
52)	voiceless retroflex stop	ʈ
53)	bilabial click	⦿
54)	alveolar lateral	l
55)	alveolar trill	r
56)	alveolar implosive	ɗ
57)	partly devoiced retroflex fricative	ʐ̥
58)	alveolar lateral click	ɺ̥
59)	bilabial ejective	p'
60)	voiceless alveolar lateral fricative	ɮ̥
61)	voiced velar fricative	ɣ
62)	voiced labiodental fricative	v
63)	voiced velar stop	g
64)	palatoalveolar click	ɽ
65)	voiced bilabial stop	b
66)	retroflex approximant	ɻ
67)	voiceless uvular fricative	χ
68)	palatal lateral	ʎ
69)	dark alveolar lateral	ɺ̤
70)	voiced postalveolar fricative	ʒ

**Part 3. Acoustic phonetics. The following questions refer to Figures 1 to 3 at the END of this packet.**

**NOTE:** Make sure you indicate the **units** (e.g., hertz, seconds or milliseconds) where appropriate.

**3.1)** What is the **fundamental frequency** of the signal shown in **Figure 1**?

Answer:  $F_0 =$  \_\_\_\_\_

**Figure 2 shows three displays of the same signal made by WaveSurfer.** The time axis units are seconds.

**3.2)** What is the name of the display in each of the three panels?

Top panel \_\_\_\_\_

Middle panel \_\_\_\_\_

Bottom panel \_\_\_\_\_

**3.3)** What is the approximate fundamental frequency of the signal in Figure 2 at 0.04 seconds? \_\_\_\_\_

**3.4)** What are the  $F_1$  and  $F_2$  values of the signal at 0.04 seconds

$F_1 =$  \_\_\_\_\_;  $F_2 =$  \_\_\_\_\_

**3.5)** What are the  $F_1$  and  $F_2$  values of the signal at 0.24 seconds

$F_1 =$  \_\_\_\_\_;  $F_2 =$  \_\_\_\_\_

**3.6)** Which of the following is the most likely transcription of the signal shown in Figure 2? *Circle one.*

a) /ju/    b) /ow/    c) /aj/    d) /aw/    e) /ej/

**Questions 3.7 and 3.8 refer to Figure 3. (The time axis units are seconds.)**

**3.7)** Figure 3 represents three stop + vowel syllables, labeled (A), (B) and (C). One stop is prevoiced, one is strongly aspirated and one is voiceless unaspirated. Identify the appropriate syllable label (A,B or C) for each of the syllables and provide the VOT value.

Type	Syllable label	VOT
Voiceless aspirated	_____	_____
Voiceless unaspirated	_____	_____
(Pre-)voiced	_____	_____

**3.8)** In figure 3, each of the three vowels vowels [æ] , [ow] and [ej] Using your general knowledge of the relation of F1 and F2 to vowel height and advancement, determine which is which and fill in the phonetic symbol as appropriate below

Syllable A represent [ \_\_\_\_\_ ]

Syllable B represent [ \_\_\_\_\_ ]

Syllable C represent [ \_\_\_\_\_ ].

**Part 4. General multiple choice. Circle the correct answer**

**4.1)** A stop made with ingressive glottalic air is also called a(n):

- a) Implosive b) ejective c) plosive d) click e) none of these

**4.2)** A stop made with egressive glottalic air is also called a(n):

- a) implosive b) ejective c) plosive d) click e) none of these

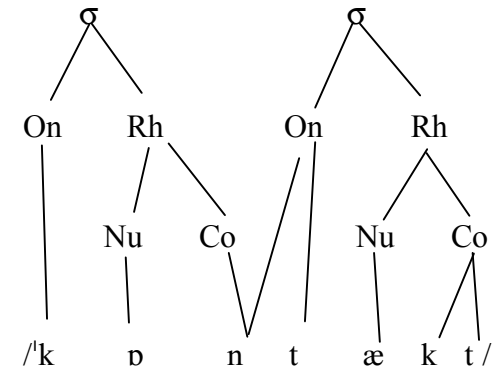
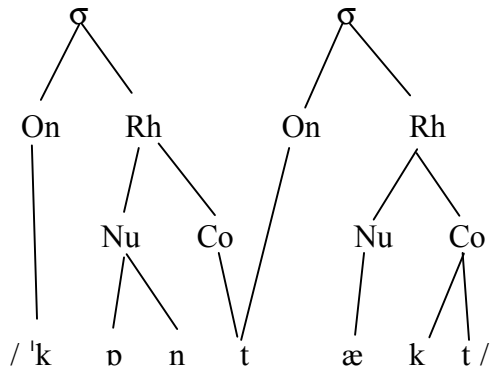
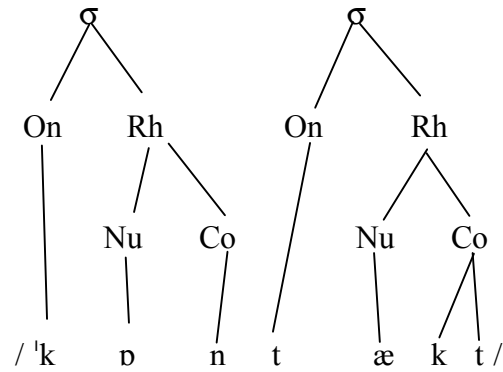
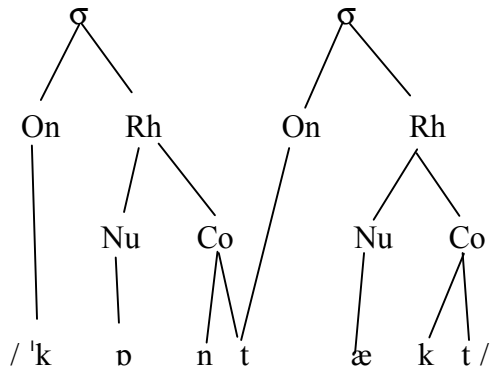
**4.3)** A stop made with egressive velaric air is also called a(n):

- b) implosive b) ejective c) plosive d) click e) none of these

**4.4)** Which of the following is true of clicks

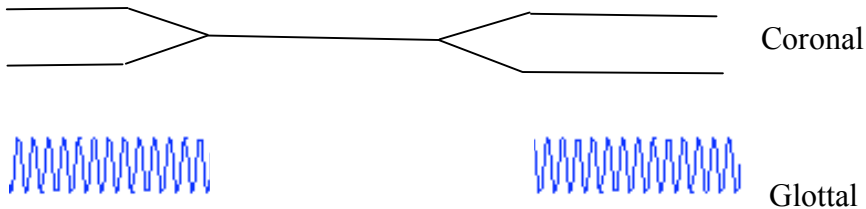
- a) They are usually voiceless but can be voiced  
 b) They are usually voiced but can be devoiced  
 c) They are always voiced  
 d) They are always voiceless  
 e) Voicing does not apply to clicks because of the airstream mechanism.

4.5) Which of the following represents an appropriate syllable tree for the English word "Contact". [Abbreviations: On = onset; Rh =Rhyme; Nu Nucleus]. Circle the correct tree.



- 4.6) Vocal folds are vibrating along most of their length, but the arytenoids are configured to allow a substantial flow of turbulent air. This describes which of the following:
- a) modal voicing    b) creaky voice    c) falsetto voice    d) breathy voice  
 e) aspiration

- 4.7) Vocal folds are vibrating along most of their length, but the arytenoids are configured to allow a substantial flow of turbulent air. This describes which of the following:  
 a) modal voicing    b) creaky voice    c) falsetto voice    d) breathy voice  
 e) aspiration
- 4.8) First, the glottis is closed tightly and the tongue tip produces a complete seal at the alveolar ridge. Then the glottis moves up, compressing air in the oral cavity. Then the tongue tip seal is abruptly released. This situation describes the production of a(n)  
 a) plosive    b) implosive    c) ejective    d) compressive    e) click
- 4.9) First, the vocal folds are held together loosely and the tongue tip produces a complete seal at the alveolar ridge. Then the glottis moves downward producing a slight decrease in air pressure in the oral cavity while the vocal folds start to vibrate. Then the tongue tip seal is abruptly released. This situation describes the production of a(n)  
 a) plosive    b) implosive    c) ejective    d) rarefactive    e) click
- 4.10) The following line diagram for an alveolar stop between two [a] vowels represents which of the following transcriptions:



- a) [ada]    b) [aḁa]    c) [ata]    d) [atʰa]    e) [at<sup>h</sup>a]

- 4.9) Which of the following syllables of Canadian English would you expect to show the vowel with the SHORTEST duration?  
 a) ['bʌt]    b) ['bɒt]    c) ['bʌd]    d) ['bɒd]

- 4.10) Any language where even one-syllable words can differ from each other only by the pitch pattern of the syllables is said to have:  
 a) register tone(s)  
 b) contour tone(s)  
 c) lexical tone(s)  
 d) pitch accent(s)  
 e) stress accent(s)



**4.11)** Any language where the tone on a key syllable determines the tonal pattern of the syllables in the rest of syllables in the word is said to have:

- a) register tone(s)
- b) contour tone(s)
- c) lexical tone(s)
- d) pitch accent(s)
- e) stress accent(s)

**4.12)** Any language where the tones on a single syllable may show movement (such as high-falling) is said to have:

- a) register tone(s)
- b) contour tone(s)
- c) lexical tone(s)
- d) pitch accent(s)
- e) stress accent(s)

**4.13)** Which of the following syllables of Canadian English would you expect to show the vowel with the LONGEST duration?

- a) ['bit]
- b) ['bɪt]
- c) ['bɪd]
- d) ['bɪd]

**Questions 4.14 and 4.14: Broad to narrow transcription of English**

In each of the following, decide which of the choices represents the most likely narrow transcription in Western Canadian English for the words whose broad transcription is given.

**4.14)** Broad transcription : /'mawntən/; Best Narrow:

- a) [ˈmāw̃nrɪn]
- b) [ˈmāw̃nd̃n̩]
- c) [ˈmawnrɪn]
- d) [ˈmāw̃nt̃n̩]
- e) [ˈmāw̃nʔən]

**4.15)** Broad transcription : /,klæsɪfɪ'keɪʃən/; Best Narrow:

- a) [kʰlæsɪfɪ'keɪʃən]
- b) [k̚læsɪfɪ'keɪʃn̩]
- c) [,klæsɪfɪ'keɪʃən]
- d) [kʰlæsɪfɪ'k̚eɪʃən]
- e) [ˈklæsɪfɪ'keɪʃʌn]

**OPTIONAL OPEN ANSWER SECTION. Use this page for comments or interpretations** of any questions. Indicate the question number clearly. You can also use this space **to pose and answer** any questions you thought were important but that I didn't probe properly. This section can do you no harm. It may do you some good. In rare cases it could be worth up to 15% of the total points on the rest of the exam. Any 'extra credit' will be applied to both the numerator and denominator in the calculation of your final percentage. (Continue on the back of previous pages if necessary, but start here.)

FIGURES FOR ACOUSTIC PHONETICS QUESTIONS

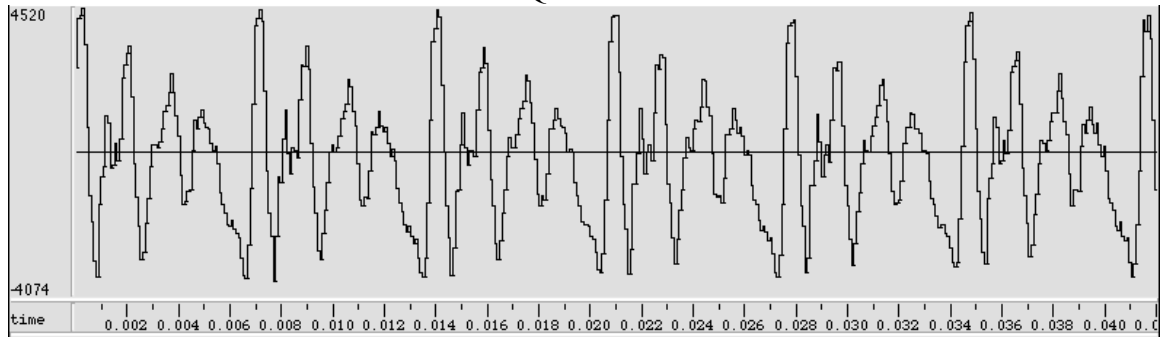


Figure 1. For question 3.1

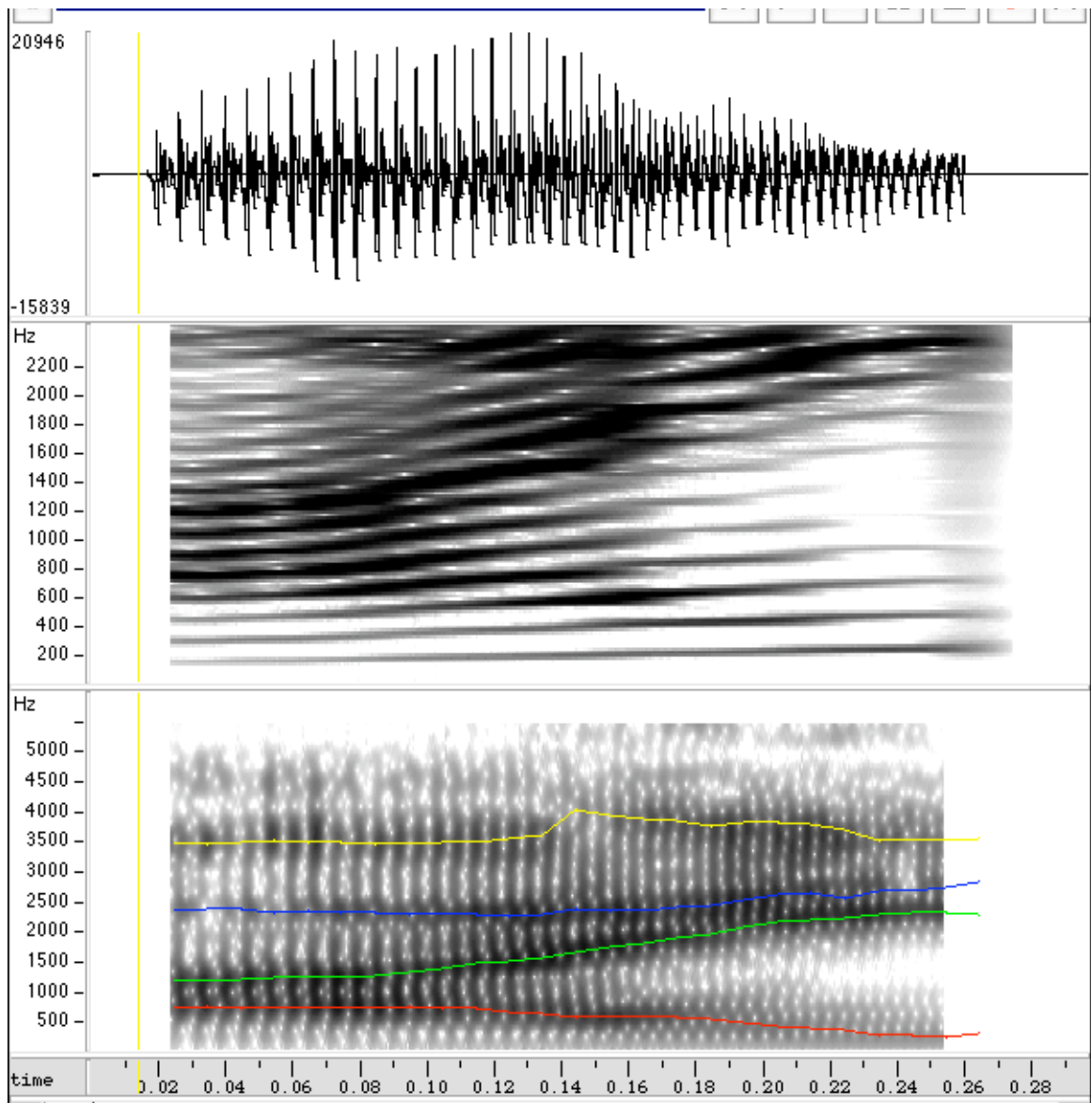
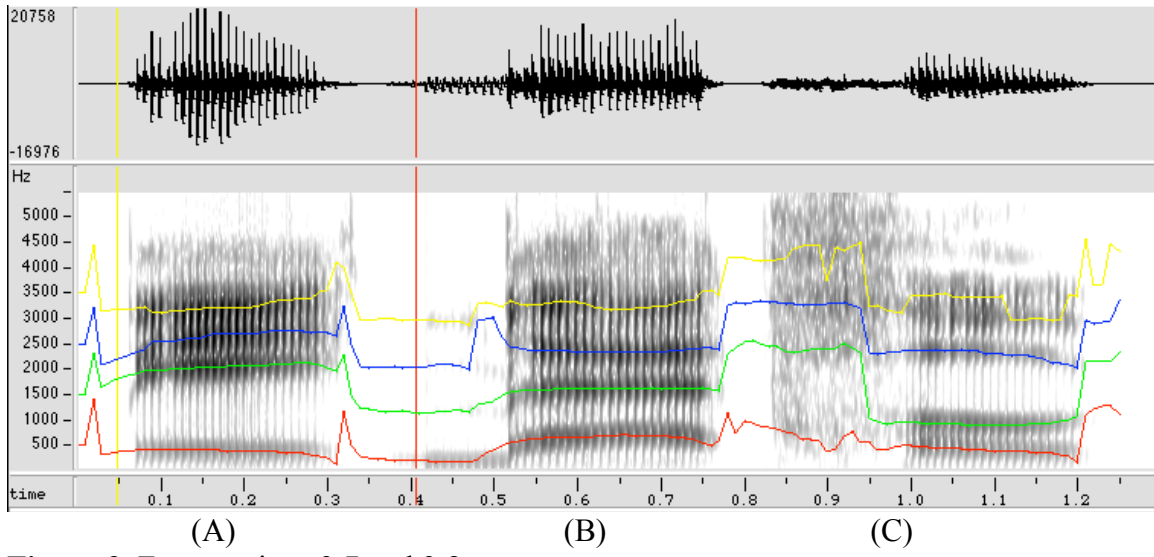


Figure 2. For questions 3.2 to 3.6



**Figure 3.** For questions 3.7 and 3.8