

LING 313.02 – Problem Set 3

Answer Key

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Notation: [ɯ], [ɔ̣], [ɑ̣] are the fronted allophones of /u/, /o/, /a/. \$ = syllable boundary, # = word boundary.

Exercise 1: Vowel allophones

Each pair below contains two allophones of the same phoneme. Transcribe the bold vowel in each word and state the environment that conditions the difference.

Pair	Vowel 1	Vowel 2	Conditioning environment
a. ben / beni	[ɛ]	[e]	/e/ → [ɛ] before a nasal in word-final position; [e] elsewhere
b. sol / ot	[ɔ̣]	[o]	/o/ → [ɔ̣] before word-final /l/; [o] elsewhere
c. kabul / sulak	[ɯ]	[u]	/u/ → [ɯ] before /l/ only if /l/ is syllable- or word-final; in <i>su.lak</i> it is not
d. kâr / kar	[ɑ̣]	[ɑ]	/ɑ/ → [ɑ̣] after /c/; [ɑ] elsewhere

Answer key

W4 slides: *ben* [bɛn], *beni* [beni]; *sol* [sɔ̣l], *ot* [ot^h]; *kabul* [k^habɯl], *sulak* [sułak^h]; *kâr* [c^hɑ̣ɾ], *kar* [k^hɑɾ].

Full rules on the slides: /e/ → [ɛ] / __ {liquids \$, nasals #} (exceptions: *el*, *elli*, *belli*, *en*, *pencere*); /o/ → [ɔ̣] / {/l/ __ ; __/l/\$; __/l/#}; /u/ → [ɯ] / {/l, c/ __ ; __/l/\$; __/l/#}; /ɑ/ → [ɑ̣] / {/c, ʝ, l/ __ ; __/l/}.

Exercise 2: Phonotactics

(a) Final consonant clusters

Classify each final cluster as sonorant + obstruent (S+O), obstruent + obstruent (O+O) or sonorant + sonorant (S+S). Then state whether it is an exception to either voicing tendency: (i) the first consonant is voiced, (ii) the second consonant is voiceless.

Word	Cluster	Type	Exception to (i) or (ii)?
zevk	-vk	O+O	none
aşk	-şk	O+O	(i): first consonant voiceless
çift	-ft	O+O	(i): first consonant voiceless
şarj	-rj	S+O	(ii): second consonant voiced
derz	-rz	S+O	(ii): second consonant voiced
form	-rm	S+S	(ii); also an exception to the S+O pattern

Where would you place *aks*, *boks* and *raks*?

Answer key

W5 phonotactics slides, Tables 1–3: exceptions to (i) are *-ft*, *-st*, *-sk*, *-sp*, *-şk*; exceptions to (ii) are *-rj*, *-rm*, *-rn*, *-rz*; *form*, *norm*, *modern* are S+S.

aks/boks/raks: the slides leave this as an open question. From the definitions, *-ks* is O+O, and its first consonant /k/ is voiceless, so it is an exception to (i). It does not appear in the slide tables.

(b) Initial consonant clusters

Turkish does not allow initial clusters in pronunciation. Give the epenthetic vowel for each word and the rule that selects it.

Word	Pronunciation	Rule
kravat	k[ʊ]ravat	velar C1: high back; [round] from the vowel of the word
klima	k[ʊ]lima	velar C1 overrides the lateral C2 rule (cf. k[ʊ]lasör)
plan	p[i]lan	labial C1 + alveolar lateral C2: high front (cf. p[i]lak)
Brezilya	B[i]rezilya	labial C1: [back] and [round] from the first vowel (cf. f[i]ren)
trafik	t[ʊ]rafik	other C1: [–round]; [back] from the first vowel
tribün	t[i]ribün	other C1: [–round]; [back] from the first vowel

Compare *spor* and *ıspanak*. How is the cluster broken up in each case?

Answer key

W5 phonotactics slides. The epenthetic vowel is always high. Velar C1: k[ʊ]ral, k[ʊ]rem, g[ʊ]ri, g[ʊ]rup. Labial C1: b[y]rüt, F[ʊ]ransa, f[i]ren; with lateral C2: p[i]lak, p[i]laj, p[i]lazma. Other C1: s[ʊ]tar, s[ʊ]maç, t[i]ren.

spor: the vowel is inserted inside the cluster, s[ʊ]por/s[u]por. *ıspanak*: a high unrounded vowel is inserted before the cluster, as in *istasyon*, *istop*, *istatistik*, *Isparta*.

Exercise 3: Long vowels

(a) The status of *ğ*

Complete the table. Which words does *bağ* pattern with, and what does this show?

	<i>ada</i>	<i>bina</i>	<i>çay</i>	<i>bağ</i>
3sg possessive	adası	binası	çay1	_____bağ1
accusative	aday1	binay1	_____çay1	_____bağ1

Answer key

bağ patterns with *çay*: the 3sg possessive is {-I}, not {-sI}, and the accusative has no buffer [j]. *ğ* therefore behaves as an underlying consonant, which Lees (1961) analyses as /ɣ/. Source: W5 handout, (26)–(27), with *dağ*.

(b) Vowel shortening

	Nominative	Accusative	Locative
<i>zemin</i>	[zemin]	[zemi:ni]	[zeminde]
<i>yasemin</i>	[ja:semin]	[ja:semini]	[ja:seminde]

- Why can a rule that lengthens the root-final vowel before a vowel-initial suffix not account for these data?
- Propose an alternative and give the underlying forms of *zemin* and *yasemin*.
- Explain the vowel length in *kabul et!* [k^habɯ:let^h] and *kabuller* [k^habɯlleɾ].

Answer key

- It would predict *[ja:semi:ni] as well; it cannot distinguish *zemin* from *yasemin*.
- Vowel shortening: /zemi:n/ has an underlying long vowel in the root-final syllable, which is shortened when the word is in isolation or followed by a consonant. /ja:semin/ has a short final vowel, so the rule does not apply to it.
- /kabu:l/: in *kabul et!* the root is followed by a vowel, so no shortening; in *kabuller* it is followed by a consonant, so the vowel is shortened. Source: W5 handout, (42)–(58).

Exercise 4: Underlying and phonetic representations

Give the underlying and phonetic representation of each word, and list the rules involved. Consider only the rules from Weeks 4–5.

Word	Underlying Rep.	Phonetic Rep.	Rules involved
<i>zaman</i>	/zama:n/	[zaman]	vowel shortening
<i>zamanı</i>	/zama:n/ ACC	+ [zama:nu]	none (a vowel follows)
<i>kabul</i>	/kabu:l/	[k ^h abul]	vowel shortening; /u/ fronting before word-final /l/
<i>öğlen</i>	/øɣlen/	[ø:lɛn]	V → V: / __/ɣ/\$; /ɣ/ → Ø; /e/ → [ɛ] before word-final nasal
<i>düğme</i>	/dyyme/	[dy:me] [dyjme]	or lengthening and /ɣ/ deletion; or /ɣ/ → [j] after a front vowel
<i>soğuk</i>	/soyuk/	[souk ^h]	/ɣ/ → Ø between different back vowels; no lengthening, since /ɣ/ is not syllable-final

Answer key

Phonetic forms from the W5 handout: *zaman* (42), *kabul* (48), *öğlen* (11), *düğme* (13, 29a), *soğuk* (35). Aspiration and /r/ devoicing are visible in the transcriptions but are not asked here.

Exercise 5: True or False

1. There are no initial consonant clusters in Turkish pronunciation. T / F **T**
2. In *krem*, the epenthetic vowel is front because the vowel of the word is front. T / F **F**
3. The second consonant of a final cluster is always voiceless. T / F **F**
4. [e] and [ɛ] are separate phonemes in Turkish. T / F **F**
5. According to Lees (1961), [ø:] in *öğlen* is a phonemic long vowel. T / F **F**
6. Under Analysis 1, Turkish has 16 vowel phonemes. T / F **T**
7. *saman* has an underlying long vowel in its final syllable. T / F **F**

Answer key

2. A velar C1 always gives a high back vowel: k[u]rem. 3. Exceptions: -rj, -rm, -rn, -rz. 4. They are allophones of /e/. 5. For Lees, only /a: e: i: u:/ are phonemic long vowels; [u: o: y: ø:] arise only from /ɣ/. 7. *saman* has a short vowel in all forms: [samanu], *[sama:nu].