

### 3 Navajo Answer Key

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## Phonology

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### 1. Allophones versus Phonemes

a. Are these three sounds ([x], [x<sup>w</sup>], and [x<sup>j</sup>]) allophones of one phoneme, or do they form separate phonemes of Navajo?

*Answer:* These are allophones.

b. Provide evidence for your answer to (a).

*Answer:* They occur in complementary distribution, with the palatalized consonant before a front vowel, the labialized consonant before a rounded vowel, and the plain consonant elsewhere.

c. Can you predict which of the above will occur in the following words? If yes, give the symbol; if no, explain.

i. [jaaɕjin] ‘there is a black patch of it’

*Answer:* [x]

ii. [joyan] ‘hogan, home, type of dwelling’

*Answer:* [x<sup>w</sup>]

d. The following words contain voiced velar fricatives, [ɣ], [ɣ<sup>w</sup>], and [ɣj]. Based on what you have seen about the voiceless velar fricative, can you predict how the voiced velar fricative would likely be pronounced in the following words? If yes, give the form; if no, explain why not.

- i. 'a[ ]aa' 'wool'

*Answer:* [ɣ]

- ii. bi[ ]e' 'his/her son'

*Answer:* [ɣj]

- iii. bi[ ]oo' 'his/her/its teeth'

*Answer:* [ɣ<sup>w</sup>]

## 2. Voicing Alternations

- a. Describe the distribution of the voiced and voiceless fricatives in the forms in (3).

*Answer:* Voiceless fricatives occur at the beginning of a word and voiced fricatives after a vowel.

- b. Are the voiceless and voiced fricatives at the same place of articulation allophones or distinct phonemes based on the above data? Explain your answer.

*Answer:* They are allophones: they occur in complementary distribution.

- c. Suppose you know that the following word begins with an alveolar fricative.

[ ]aad            ‘word, language’

Can you predict the voicing of the fricative? If so, give the form; if not, explain why not.

*Answer:* Yes, it will begin with [s].

What would you predict that the form that means ‘his/her word’ would be?

*Answer:* [bi-zaad]

### 3. Syllables in Navajo

a. Based on the Navajo data that you have seen so far in all of the exercises, how many consonants can appear maximally in the onset of a syllable in Navajo?

one    two    three

*Answer:* one

(Keep in mind that many of the sequences of symbols represent single sounds, as noted below the table showing the Navajo consonant system.)

b. How many consonants can appear maximally in the coda of a syllable in Navajo?

zero    one    two    three

*Answer:* one

c. Based on your answers to the above, and ignoring the possibilities for the nucleus of the syllable, the maximum syllable in Navajo is (circle only one):

CV CVC CCVC CVCC CCV CCVCC

*Answer:* CVC

## 4. Borrowings

a. Each of the words in the source language has the consonant /r/ in it. Examine how /r/ is borrowed from the source language into Navajo. Describe how /r/ is borrowed into Navajo, making reference to syllable structure.

*Answer:* When it is syllable-initial, /r/ is borrowed as [l] (as in ‘white man’, ‘bull’, and the middle [r] of ‘carburetor’); when it is syllable-final (in ‘number’ and the last [r] of ‘carburetor’), it is lost.

b. Suppose that the following English words were borrowed into Navajo. For each, show what you think the Navajo form would be by filling in either an l or Ø for the English /r/’s.

<i>English</i>	<i>“Navajo”</i>
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butter	
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*Answer:*

butteØ
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partner	
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*Answer:*

paØtneØ
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ready	
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*Answer:*

leady
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# Morphology

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## 5. Numbers

- a. Based on *ts'áadah* and *naakits'áadah*, describe the pattern for producing the numbers 'eleven' and 'twelve'.

*Answer:* ones + ts'áadah

- b. Assuming that all of the numbers from 'eleven' through 'nineteen' are formed in the same way, give the forms that you predict for 'fourteen' and 'nineteen'.

*Answer:* 14 díí'ts'áadah

*Answer:* 19 náhást'éits'áadah

- c. What do you think that the following number is?

*Answer:* táádiin 30

- d. Describe the pattern for predicting the tens.

*Answer:* ones + diin

- e. Describe the morpheme order of *naadiintáá* 'twenty-three'.

*naadiintáá* 'twenty-three' (Note that this form is actually *naadiitáá*.)

*Answer:* ones + ten + ones

naa + diin + táá'

(The first ‘ones’ tells us how many tens there are. *naa-* is a shortened form of *naaki* ‘two’.)

f. How do you think you would say ‘forty-two’?

*Answer:* díí’diinnaaki (Note that the form is actually *dízdziinnaki* or *dízdziinaki*.)

g. Take a guess at what the following might mean, paying attention to the meaning of the parts. The first one is done.

neeznádiin 100

*Answer:* naakidi neeznádiin 200

*Answer:* tseebíi neeznádiin ła’ ts’áadah 811

## 6. Verb structure: Morpheme Identification and Ordering of Morphemes

(Note that in the forms in (6) and others with an adverbial prefix with a low tone, the vowel of the prefix is actually lengthened in the first and third person forms: *haasmáás* ‘I come rolling up out’, *haamáás* ‘She/he/it comes rolling up out.’ Basically, the vowel of a low-tone adverb is lengthened if there is no syllable between it and the verb stem. This detail is not included here to simplify the problem somewhat.)

(6)	hasmáás	‘I come rolling up out.’
	hanimáás	‘You (sg.) come rolling up out.’
	hamáás	‘She/he/it comes rolling up out.’

a. Identify each of the following morphemes in the data in (6)–(9) above by listing all of the allomorphs after the appropriate gloss.

	<b>Stems</b>	<b>Subjects</b>	<b>Adverb</b>
	‘roll’	first person singular subject	‘up out’
<i>Answer:</i>	máás	s/sh	ha
	‘stretch neck’	second person singular subject	
<i>Answer:</i>	ts’q̣q̣d	ni	
	‘creep on all fours’	third person singular subject	
<i>Answer:</i>	dlóósh	i	
	‘handle object like a belt, rope, snake’		
<i>Answer:</i>	lé / ʔé		

b. Note that the first person singular subject has two forms. Identify these. Based on (6)–(9), state the underlying form of the first person singular subject. Justify your choice of form.

*Answer:* /sh/—it has wider distribution; [s] seems to occur only when the stem has an alveolar consonant in it.

c. Identify the Navajo adverbs in (10) and (11) by filling them in below.

	<i>Navajo</i>	<i>Gloss</i>
<i>Answer:</i>	’ada	‘down from a height’
<i>Answer:</i>	ch’é	‘out horizontally’

*Answer:* yisdá 'to safety'

d. Taking all the data into account, state the order of morphemes in the Navajo verb.

*Answer:* adverb + subject pronoun + verb stem

e. Suppose that you find a new verb stem of the form 'eeł 'float, go by boat'. How do you predict you would say the following?

I float to safety by boat.

*Answer:* yisdásh'eeł

You (sg.) float down from a height.

*Answer:* 'adani'eeł

She/he floats out horizontally.

*Answer:* ch'é'eeł

f. Identify the morphemes with the following meanings.

first person singular object

*Answer:* shi (*sh* would also be a possibility)

second person singular object

*Answer:* ni (*n* would also be a possibility)



third person singular object

*Answer:* yi (y would also be a possibility)

(The vowel in these forms is often analyzed as epenthetic. The details of the morphophonemics are complex and probably beyond the abilities of most students at this level.)

g. Now copy your previous responses into the following table. (Note that when there are two responses given in the table, such as ni/n, either one is an appropriate answer.)

**Table 3.5** Summary of verb morpheme identification and ordering of morphemes

<u>Verbs</u>		<u>Subjects</u>		<u>Direct Objects</u>		<u>Adverbs</u>	
<i>Navajo</i>	<i>Gloss</i>	<i>Navajo</i>	<i>Gloss</i>	<i>Navajo</i>	<i>Gloss</i>	<i>Navajo</i>	<i>Gloss</i>
máás	‘roll’	s/sh	1 sg. subject	shi/sh	1 sg. object	ha	‘up out’
ts’q̣d	‘stretch neck’	ni	2 sg. subject	ni/n	2 sg. object	‘ada	‘down from a height’
dlóósh	‘creep on all fours’	i-/Ø	3 sg. subject	yi/y	3 sg. object	ch’é	‘out horizontally’
lé / ʔé	‘handle object like a belt, rope, snake’					yisdá	‘to safety’

h. Revise the order of the morphemes given in (d) by adding the direct objects.

*Answer:* adverb + direct object pronoun + subject pronoun + verb stem

i. How do you predict you would say the following?

I float you down from a height.

*Answer:* 'adanish'eet

I roll you out horizontally.

*Answer:* ch'énismáás

She/he takes it (ropelike object) up out.

*Answer:* hayilé

j. Based on the following forms, state where this morpheme belongs in the order of morphemes.

*Answer:* adverb + direct object pronoun + inceptive + subject pronoun + verb stem

k. How would you say the following?

I start to float you to safety.

*Answer:* yisdánidish'eet

He starts to roll you up out.

*Answer:* hanidimáás

## Syntax

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### 7. Word Order

a. Write a set of basic phrase structure rules to account for word order in Navajo.

*Answer:* (one possibility)

$S \rightarrow NP VP$

$NP \rightarrow N$

$VP \rightarrow (NP) (PP) V$

$PP \rightarrow NP P$  (PP = postposition phrase)

- b. The sentences below have more complex noun phrases. Revise the phrase structure rules to account for them.

*Answer:*  $NP \rightarrow N (\text{Adjective}) (\{\text{Determiner}, \text{Quantifier}\})$

- c. The following sentences have adverbs. Revise the phrase structure rules to include these adverbs.

*Answer:*  $VP \rightarrow (NP) (PP) (\text{Adv}) V$

- d. Provide the glosses for words that are not glossed in the sentence below.

(27) shi'zhé'é    Kinłání góó    doo    deeyáa    da

*Answer:*    my father    Flagstaff to    Neg    3S go    Neg

'My father is not going to Flagstaff.'

- e. Revise your phrase structure rules to accommodate the negative.

*Answer:*  $VP (NP) (PP) (\text{Neg}) V (\text{Neg})$

## 8. *Wh-* Questions

a. Provide the English glosses for all the Navajo words in these sentences by filling in the blanks.

(28) a. 'ashkii ha'át'íish yiyiíłtsá

*Answer:* boy what 3S see 3O

'What did the boy see?'

b. ha'át'íish 'ashkii yiyiíłtsá

*Answer:* what boy 3S see 3O

'What did the boy see?'

(29) a. Mary hádą́ą́'sh ółtadéé nádzá

*Answer:* when school 3S return

'When did Mary return from school?'

b. hádą́ą́'sh Mary ółtadéé nádzá

*Answer:* when school 3S return

'When did Mary return from school?'

b. List the Navajo question words and their English glosses. These are sometimes called *wh-* words in English. Based on the Navajo forms here, what might you call them in Navajo?

*Answer:* ha'át'íish 'what' hádą́ą́'sh 'when'

*ha-* words

c. Describe each of the strategies of question formation, taking into account the phrase structure rules you created. (Think of *ha'át'íish* as a direct object and *hádǎǎ'sh* as an adverb.)

*Answer:* The question word can go where it would be expected by the phrase structure rules (in situ), or it can be at the beginning of the sentence.

## Semantics

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### 9. Classificatory Verbs

a. Here are some nouns. Indicate which class you think each one belongs in by providing the classificatory verb.

<i>Answer:</i>	siká	dishes in a dishpan
	silá	shoestring
	sitá	pencil
	siłtsooz	open blanket
	si'ǎ	single coin
	shijaa'	a number of coins
	siłtsooz	a five-dollar bill
	siyí	load of firewood

b. The following sentences come in pairs, with the usual classificatory verb used to express the location of an object found in the first of the set, and an unusual classificatory verb that

shows an extension of meaning found in the second. What do you think the likely meaning is of the second one in each set?

- i. a. 'asdzáá      sidá  
       woman      3S sit  
       'The woman is sitting.'
- b. 'asdzáá'      sitléé'

*Answer:* The woman is sitting all sprawled out.

- ii. a. nahasht'e'ii      sití  
       kangaroo rat      3S lie
- b. nahasht'e'ii      si'á

*Answer:* The kangaroo rat is curled up in a ball.

- iii. a. gish      sitá  
       cane      sticklike object is located
- b. tééchaa'í      sitá  
       dog

*Answer:* The dog is lying stiff, dead.

## Navajo Code-Talking

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### 10. Deciphering the Code

Using the correspondences in the table above and taking into consideration how we often spell our words when using relatively low-quality channels of communication such as over telephones, decipher the following words written in code:

tsah be-la-sana ah-keh-di-glini tsah-ah-zih

*Answer:*    n            a                    v                    y  
              = navy

gloe-ih wol-la-chee a-who dzeh gah

*Answer:*    w                    a                    t                    e                    r  
              = water

dibeh-yazzie tkin tsah jeha shi-da yeh-hes klesh

*Answer:*            l                    i                    n                    g                    u                    i                    s

              a-who tkin moasi dibeh  
                  t            i            c            s

= linguistics