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Exercises for a course in phonological analysis

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SIL-UND

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1968
WORK PAPERS

Part III
Supplement

Richard Pittman editor

1. Kalinga. (Mountain Province, Philippines). Data and design: R. Gieser.

b		pp		py	
gatab	sore	ppigat	tomorrow	ginupyat	forest
alabyan	yesterday	lippu ^u	cloudy	napya ^u in	shy
obsom	you repeat	ppongol	beads	ppupya ^u i	woman
^u ulub	dig	man ^u ippil	he is crying	pyansag	bamboo floor
sabl ^u ang	a species of tree	lappi	night	pya ^u i	female animal
latib	scissors	appupya	short	ulupyan	to dig

Instructions: State phonemic or allophonic relationship between b, pp, and py.

2. Bilaan (Cotabato, Philippines). Data and design: N. Abrams

ařat	custom	fdum, fřum	from
landay	beautiful	kařang	later
mdanâ	below	datal	shovel
diding, diřing	walling	sdè	pig
gágid	many	ltudu, ltuřu	noon
nbad	wrap	dsù	sacrifice

Instructions:

- 1) Is the alternation between [d] and [ř] one between full phonemes, or between submembers of the same phoneme?
- 2) Describe their distribution.

3. Ifugao (Northern Luzon, Philippines). Collected by D. Thomas from Leonard E. Newell, "Phonology of the Guhang Ifugao Dialect," Philippine Journal of Science Vol. 85, No. 4, December 1956.

happitan	speech	munpfuli	divide into sections
pfahol	fault	mumpepe	flutter
pahol	spear	ʔintipf, ʔintib	pagan altar
pfutungan	put in	kumpay	sickle
ʔipfa	sibling	munhuphup	suck
ʔibpfa	companion	dibdib, dipfdipf	breeze
hapang	branch	liblu, lipflu	book
pfodpfod	bundle	ʔiabpfa	carry on the back
ʔipaʔʔi	break	ʔattip	a water bug

Additional information and instructions:

- 1) CV and CVC are the only non-suspect syllable patterns in Ifugao.
- 2) Does (pf) function as a single unit or as a sequence of units?
- 3) State the bilabial phonemes (except /m/) and describe any allophonic distribution.

4. Mansaka (Eastern Davao, Philippines). Data and design: David Thomas

t̚iras	wonder	laruʔ	skin disease
giʔal	kinship	bagas	large crocodile
ʔuraw	drought	kilat	lightning
barin	turn	b̚gat	heavy
b̚gas	rice	b̚irad	to spread out rice to dry
b̚innal	happy	lagi	friend

Instructions: Are [a] and [i] allophones? If so, state their distribution. If not, prove the contrast.

5. Gaddang (Eastern Bontoc, Philippines). Data and design:
L. Troyer.

'da.wi	left hand	a'bəŋg	child
'ta.ki	leg	a'ri	post
'si.məd	chin	'mu.səp	haircut
'i.na	mother	i'kag	cough
'i.fut	tail	'u.ɡət	worm
a'sət	thorn	'bi.fəɡ	lips
bi'tun	star	'ki.sat	small monkey

Instructions:

- 1) Are (i) and (ə) allophones?
- 2) If so, state the distribution; if not, prove the contrast. Single quotes indicate stress; single quotes and periods in medial position indicate syllable boundaries.

6. Mamanwa (Philippines). Data and design: Doris Blood.

sɪlɪg	floor	ʔabriɪi	to open
kandol	large, round, green vegetable	paglaba	to wash
dakulaʔ	big	maɪɪnlu	clean
rongig	hole in tree	ʔiduʔ	dog
gulai	vegetable	sapaʔ	water
uaraʔ	none	lagkau	house
buiak	flower	ia	the
lugua	to emerge	dau	and
		bulan	moon

Instructions: On the basis of the non-suspect patterns of this language, rewrite 'none', 'flower', and 'open'.

7. Mansaka (Eastern Davao, Philippines) Data and design:
David Thomas

ʔebel, ʔeber	smoke	maretey	tired
karintu	right(side)	laruʔ	skin disease
lagi	friend	lilus	watch,clock
bennal, bennar	happy	ʔuntul,untur	character
kilat	thunder	ʔuraw	drought
letey	tiredness	bili	buy
ʔurud	worm	barin	turn

Instructions: Are (l) and (r) separate phonemes or allophones of one phoneme? If separate, show the contrast; if allophones, state their distribution.

8. Ilianen Manobo (Cotabato, Philippines). Data and design:
J. Shand

guru	to teach	uled	worm
rumat	rat	dilaʔ	tongue
duma	companion	daru	sickness
beter	true	se raru rin	his sickness
reteman	wick of lamp	dilaʔ din	his tongue
edretam	to light	dahing	sound
udtu	noon	merahing	is sounding
diʔdiʔ	boil	belikid	to turn
ruhi	thorn	belikiran	to turn (it)
neruhi	to prick		

Instructions:

- 1) Are (r) and (d) allophones?
- 2) If so, state the distribution. If not, prove the contrast.

9. Kalamian Tagbanua. Data and design: E. Ruch.

bábay	woman	lébek	to crush new rice
bábuy	pig	béyed	unhusked rice
labíʔ	night	bálay	house
dubáli	other side	buling	dirt
súbuk	hunger	babályan	spirits
hokób	finger nail	bítaybítay	to climb rope
hokóbu	my finger nail	lébken	to pound rice
aíbaʔ	why	bulbúl	feather
kábot	arrival	sóbli	to borrow
tébaʔ	tuba	te:b	sea
bibíl	lips	kiríb	cogon grass

Instructions:

- 1) Are (b) and (b) sub-members of the same phoneme or separate phonemes?
- 2) Give evidence.

10. Ilianen Manobo (Cotabato, Philippines) Data and design: J. Shand.

egkeʔéne	food	álat	fish trap
egkeʔéna	plate	élad	piece
egkelimengáwan	lonely	lálag	word
edrétem	to light fire	leláhan	person spoken to
ʔábu	ashes	sákeb	lid
tébu	sugar cane	sekeban	thing covered with lid
tábel	boiled water	bába	to carry
ʔébel	smoke	bebáʔan	thing carried

Instructions: Are [e] and [a] allophones of the same phoneme or separate phonemes?

11. Northern Paiute (Owyhee, Nevada). Data and design:
Ed and Neva Andrews.

pa	water	ta'ma	tooth
pa'p:a	bed	te'was:u	more
ta'ba	sun	sa'wabi	sagebrush
ku't:a	neck	'mu'a	tomorrow
sa'de'e	dog	'nats:i	boy
na'k:a	ear	mai	hand
i'go	tongue	i'mai	my hand
kwa's:e	shirt	u'm:ai	his hand
pa'kw:i	fish	i'ba	my water
na'gwi	shirt	u'p:a	his water
te'n:a	root	iwi'hi	my knife
te'p:a	antelope	ugwi'hi	his knife
te'ba	mouth	ide'p:a	my mouth
pu's:i'i	blind man	ut'e'p:a	his mouth
pu'si'i	louse	igu't:a	my neck
pu'gadzi	mouse	uk:u't:a	his neck
po'gidža	skunk	'pawai	in water
tsi'a'a	girl	no'bigwai	in house
hu'ts:i'i	father's mother	te'bogiwai	in cave
hu'dzi	sage hen	no'bi	house
yu'hu	fat	te'bogi	cave
wi'hi	knife	iyu'hu	my fat
tsi'aya'i	hungry	udžu'hu	his fat

Instructions: List all consonant phonemes, stating distribution of any allophones. Indicate an alternate analysis which could also be substantiated by statements of mutually exclusive distribution.

12. Tewa (New Mexico). Data and design: Randall H. Speirs
(tone omitted).

seŋ	man
sen t'aa	skinny man (fast speech)
seŋ t'aa	skinny man (slow speech)
sembi	man's (fast speech)
seŋbi	man's (slow speech)
seŋwa	the man also
seŋ kee'i	strong man
'oŋ	chin
'om ɸo	beard (fast speech)
'oŋ ɸo	beard (slow speech)
p'iŋ	mountain
p'in tɥwæ	high mountain (fast speech)
p'iŋ tɥwæ	high mountain (slow speech)
p'im bee	plum (fast speech)
p'iŋ bee	plum (slow speech)
mamɥ.	glove (fast speech)
maŋɥ.	glove (slow speech)
mɥɥ	sack
nɥɥ	ashes
maŋ	hand
naŋ	earth
yono	four

Instructions:

- 1) What are the nasal consonant phonemes?
- 2) State the submembers of each.
- 3) Is [m] always a submember of the same phoneme? Why?

13. Inibaloi. Data: David Huey and Alan Healey.
Design: R. Pittman

Huey and Healey have described two series of consonants in Inibaloi which are in complementary distribution except for apparent contrast in intervocalic position.¹ They are:

gw-	-gw-/-w-	-w
d-	-d-/-l-	-l
š-	-š-/-ř-	-ř
dž-	-dž-/-y-	-y
k-	-k-/-g-	-g

Suggest a hypothesis which would make it possible to rewrite the following words using only one of the two series.

asugwa-řa	their wives
asugwa-yu	your wives
asu-ša	their dog
asu-džu	your dog
dupa-řa	their faces
mata-ša	their eyes
na-nagas	he took medicine
ma-nakas	he will take medicine
i-sulum	will you use it for trapping?
i-sudum	use it for trapping!
i-dagam	will you do it?
i-lakam	do it!
i-múlam	will you plant it?
i-mudám	plant it!
báludáki	young man
badúlakí	young men

¹David Huey and Alan Healey, 'A Problem of Morphemic Alternation.' North Dakota SIL Workpapers, 1961, pp. 5-11.

14. Chrau (Vietnam). Data: David Thomas, Design: R. Pittman.

Given the following consonant phonemes, and accompanying rules, arrange them into a chart based on the distributional rules.

Phonemes.

p t č k b d j g ʔb ʔd m n ñ ŋ w r y s ʔ h

Rules

1. u and ú do not contrast before bilabials (p, b, ʔb, m, w)
2. ú and ê do not contrast before dentals (t, d, ʔd, n, r)
3. ú ú /σ σ, ii/êê, ú /σ, i/ê do not contrast before palatals (č, j, ñ, y, s) nor before velars (k, g, ŋ).
4. o and σ do not contrast before velars.
5. u and ô do not contrast before h.
6. ú ú /σ σ, ú /σ, o/ô do not contrast before ʔ.
7. The only consonants which occur between nasals and h are p, t, č, k.
8. The only consonants which occur as onset to atonic syllables but not word final are b d j g.
9. The only consonants which occur in neither of those two positions are ʔb and ʔd.
10. The only consonants which may occur immediately preceding all other consonants except w, r, y and h are m, n, ñ and ŋ.
11. The only consonants which may occur immediately following voiced stops are w, r and y.
12. The contrast between s and h is lost in word-final position after i.
13. s and ʔ have analogous distribution in the tonic syllable.

15. Mnong Rolom (Vietnam). Data: H. Blood. Design: R. Pittman

Mnong Rolom has a syllable initial contrast between voiced and voiceless consonants. ~~The~~ voiceless series occurs syllable final ~~only~~. The vowels may be long or short in closed syllables. (They do not contrast in open syllables).

<u>Syllable initial</u>	<u>Syllable final</u>	<u>Vowel</u>
p/b	p	a/a:
t/d	t	e/e:
c/j	c	i/i:
k/g	k	o/o:
m/ ^m b	m	u/u:
n/ ⁿ d	n	ê/ê:
ñ/ ⁿ j	ñ	ô/ô:
ŋ/ ^ŋ g	ŋ	

Suggest a hypothesis which would--

1. Make it possible to write only seven vowels instead of fourteen.
2. Give a more uniform distribution of the consonants.
3. Eliminate the open-syllable neutralization rule (CVC/CVC//CV).

Rewrite the words bǎb, bāt, pěk, pěk in a notation suitable to the suggested hypothesis.

16. Western Bukidnon Manobo. Data: Richard Elkins, 'Partial loss of contrast in Western Bukidnon Manobo' Lingua 12:205-10 (1963). Design: R. Pittman.

1. a and e (pepet vowel) are phonemes:

qeled	shame
qelad	piece
qalad	fence
qegkeqenan	eating place
qegkeqenen	food

2. But the contrast is lost on antepenultimate syllables. E (pronounced e) represents the archiphoneme; word base is underlined:

E- <u>la</u> -bat	wall
qEd-qE- <u>lE</u> -bat-an ku	I wall it
<u>tam</u> -bar	medicine
qEd- <u>tEm</u> -bar-an ku	I medicine it

3. And before syllable-final semi-vowel:

balEy	house
patEy	death
qandEw	day

4. Suffixes -an and -en make syllable-final y and w syllable initial, releasing E from rule 3:

<u>patEy</u> + -an = p <u>Etay</u> -an	death
kEdhipan <u>Ew</u> + -en = kEdhip <u>Enaw</u> -en	journey

5. Word-base final a becomes E before an intonation peak (marked with acute accent):

qE- <u>dúma</u>	He will go along
qE- <u>dumá</u> qa	I'll go along
qE- <u>dumE</u> kEy-qEn	We'll go along

Describe these data in terms of Firthian prosodies.

If non-linguistic considerations prevent use of a distinctive symbol for E, suggest symbol(s) to use instead.

17. Brazilian Portuguese. Data: David W. Reed and Yolanda Leite 'The Segmental Phonemes of Brazilian Portuguese: Standard Paulista Dialect', in K. L. Pike Phonemics, Ann Arbor University of Michigan Press, 1947, p. 195. Design: W. Harbeck.

		<u>Labial</u>		Alveolar	Alveo-palatal	Velar
		Bilabial	labio-dental			
Stop	vl.	p		t		k
	vd.	b		d		g
Nasal		m		n	ɲ	
Lateral				l	ʎ	
Flap				r		
Trill				ʀ		
Fricative	vl.		f	s	ʃ	
	vd.		v	z	ʒ	

Instructions: Suggest a modification of the chart which would make it less phonetic and more phonemic.

18. English.

Book It's a book He said it's a book

Instructions: Describe as many intonation contours as you know which will fit all three utterances. Give lexical names to the contours. What other operation(s) would help to establish the identity of the contours without changing the lexical referents? (Replacing "said" with "asked" is permitted.)

19. English.

Go home! He went home. Did he go home?

Instructions: Assigning the most general intonation you know to each sentence, how many intonemes result? If all are transformed into questions -- Go where? He went where? Where did he go? -- how many intonemes are there? Can these be equated with those in the first line of examples?

20. English.

1. Can you come?
2. Can you help him?
3. Can you put it on top?

What general statement(s) can you make about the intonation contours on these sentences? Where do the breaks come? Does the length of the span between breaks matter? If you end all sentences low instead of high, do the preceding generalizations still hold?

21. English.

I	II
Did he go?	Where did he go?
Can you come?	When can you come?
Has he quit?	Why has he quit?

Are the contours in column II the same as those in column I? If so, why? If not, why not? Give a transformational basis for distinguishing the sentences in column I from those in column II.

22. English.

I	II
What's the score?	Nine to nothing.
Who's ahead?	Green Bay Packers.
Will they win?	Maybe.

Are the contours in I all the same? Are those in II the same as those in I? Aside from variable emphasis possibilities, what normal variations from your own standard contour are possible?

23. Mohawk. Data and design: Paul M. Postal Aspects of Phonological Theory, New York: Harper and Row., 1968, p. 116.

<u>Morphemes</u>	<u>Phonetic transcription</u>	<u>Translation</u>
t-ni-ek-s	ídeneks	you (sg) and I eat it
t-wa-k-s	ídewaks	you ≥ 2 and I eat it
s-ek-s	í:zek s	you (sg) eat it
s-ni-ek-s	ízeneks	you 2 eat it
s-wa-k-s	ízewaks	you ≥ 3 eat it
k-ek-s	í:geks	I eat it
ya-k-ni-ek-s	yágeneks	someone and I eat it
t-ni-k^s	dení:g^s	you (sg) and I see her
t-wa-k^s	dewá:g^s	you ≥ 2 and I see her
s-k^s	ísg^s	you (sg) see her
s-ni-k^s	zení:g^s	you 2 see her
s-wa-k^s	zewá:g^s	you ≥ 3 see her
k-k^s	íkg^s	I see her
ya-k-ni-k^s	yagení:g^s	someone and I see her

Instructions. In which order should the following verb phonology rules be applied:

1. An initial (prothetic) vowel is added to any verb with less than two vowels.
2. The first of two contiguous vowels is dropped.
3. An epenthetic (consonant separating) e is inserted between a consonant and a following n or w.

24. Spanish. (Accent is written everywhere it occurs, for the purposes of this problem).

I.

cómo	I eat
cómes	you eat
cóme	he eats
comémos	we eat
coméis	you eat
cómen	they eat

II.

comí	I ate
comíste	you ate
comió	he ate
comímos	we ate
comísteis	you ate
comieron	they ate

III.

comía	I was eating
comías	you were eating
comía	he was eating
comíamos	we were eating
comíais	you were eating
comían	they were eating

Compare also:

hablo	I talk
habló	he talked
aguánto	I endure
aguantó	he endured

Instructions.

- 1) State the antecedent information required in order to write the accent rule for each tense.
- 2) Write diphthong rule(s) if needed.
- 3) If accent is calculated from some point, identify the point.

25. Mixteco. (Jicaltepec, Oaxaca, Mexico) Data and design:
Henry Bradley.

[ñùʔù]	earth	[sèʔè]	child
[šəʔə]	fat (noun)	[kīī]	jug
[ñúú]	town	[nàà]	to hold
[kʷə̃ə]	yellow	[wèʔè]	house
[kɪʔɪ]	to take	[kóʔó]	plate
[yùtù]	tree	[šikò]	to sell
[kòtō]	shirt	[wità]	week
[báššə]	balloon	[títá]	banana tree
[wàššī]	type of fruit	[tátí]	wind
[tīkʷə̃ʔdɪ]	berry	[kátí]	cotton
[kūyə̃ʔdɪ]	rainbow	[tʲàʔwì]	to pay
[səʔmə]	cloth	[čùʔwā]	earlier
[ñə̃ʔnɪ]	there is none	[šàʔwà]	ravine
[šə̃dù]	navel	[dàʔyù]	to cry
[nəmà]	wall	[kənà]	to call

Supplementary information:

1. The phoneme /d/ is phonetically [ʰd].
2. The data are written phonemically except for nasalization. A word-medial nasal consonant (including /d/) nasalizes a preceding vowel even across an intervening glottal stop.

Instructions.

1. Assuming nasalization to be phonemic, describe its distribution.
2. Discuss the pros and cons of writing it on penultimate syllables.

26. Kapauku (West Irian). Data: Marion Doble; Design: R. Pittman.

<u>(C)V</u>	<u>I.</u>	<u>(C)VV</u>	<u>II.</u>
i	sand	iì	yes
bo	weed	bou	wind
go	rattan bridge	beu	not
ma	stem	jou	to cook
be	not want	aa	wing
me	person	mei	come
wi	to court	wii	four
<u>(C)VCV</u>	<u>III.</u>	<u>(C)VCV</u>	<u>IV.</u>
ekà	name	etá	tongue
ekè	palm	uté	bag
itò	now	itá	trail
edì	rain	edú	rattan
egò	shame	egó	tooth
mogò	stone	megé	cowry
enà	one		
ijè	leaf		
<u>(C)VVCV</u>	<u>V.</u>	<u>(C)VVCV</u>	<u>VI.</u>
gaatì	ten	ajíí	wonderful
peiǰò	great	awíí	to put in
diipì	gnat	ojaà	purposeless
diibù	sting	benáí	arm
diitì	pretty	bineì	fish
kaidò	jews harp	enaa	good
geiǰò	cold	ijéé	nine
		ijèè	a quality
		awii	east
<u>(C)VVCVV</u>	<u>VII.</u>		
weewèe	play		
muumài	finish	maikàì	outer world
maawài	long knife	gāagāa	trouble
tuumai	to spill	joonìì	to stand
eenaa	a weed	oumàù	oldest daughter

Kapauku continued.

Supplementary information:

- [˘] represents down-glide
- [ˆ] represents up-glide
- [ˊ] represents high
- [ˋ] represents low

Instructions.

1. Suggest two hypotheses for the interpretation of long vowels. Discuss the arguments for each.
2. How many contrastive pitch-length patterns are there?
3. Is this pitch-length system complete or defective?

27. Stoney (Alberta, Canada). (Phonemicized except for [p, p^h, b, t, t^h, d]). Data and design: Warren Harbeck.

1. 'puɖač	or	it is dry	10. to'hɔ	or	very
'buɖač			do'hɔ		
2. nɥ'ba		two	11. wa'xpe		tea
3. a'p ^h ač		he hit him	12. 'p ^h uši		cat
4. hɔ'bi		juice	13. a'ba		some
5. i'yabič		they went	14. wa'pta		river
6. 'ɖaptɔ		five	15. a'de		father
7. 'i'p ^h ič		he is full
of food	16. t ^h a		moose
8. ɥ'p ^h abi		of stone	17. wa'yat ^h e		to eat
9. 'i'bi		blanket	18. o'yade		town

Instructions: On the basis of the above data, decide on the phonemic status of the bilabial and alveolar stops. Explain the reasons for your decisions.

28. Cubulco Achi (Guatemala). Data and design: M. Shaw.

Phonetically ordered display of word-initial and word-final stops. These are not conditioned by the vowels with which they occur.

p	t	k	ɸ	ʔ
pam inside	toʔ only	kuʔ with them	aɸ pig	ʔaʔ fire
sip thick	yet you	ʃok entered	ɸa our	kinaʔ bean

tʔ	kʔ
tʔiso	kʔaʃ pain
to sew	
tʔotʔ	akʔ chicken
frog	

b
be road
ba mole
bolo to roast

Instructions: Change the above from a phonetic to a phonemic chart. Note also the following information:

aʔbah	stone	si ^p	smoke	(V ^p = unreleased p)
iʔboy	armadillo	ha ^p	rain	
niʔbaʔ	poor	kuku ^p	jug	
		ʔa ^p	hand	

When the pluralizer /-ah/ is suffixed to /ʔa^p/ 'hand' it sounds like ʔaʔbah.

There is historical evidence that 'fire', ʔaʔ was once ɸʔaɸ and that 'bean', kinaʔ was once kinakɸ

29. Northern Paiute. (Owyhee, Nevada) Data: Edward and Neva Andrews. Design: Richard Pittman.

Additional Information.

Northern Paiute has been analyzed as having 27 consonants (but no geminate consonant clusters) in intervocalic position, and only 13 consonants word-initial.¹ Ten of the 13 which occur word-initial are neutralizations (archiphonemes) of 24 of the others. h, ɣ and q (glottal stop) are not neutralized.

<u>Phonemes</u>		<u>Archiphoneme</u>	<u>Phonemes</u>		<u>Archiphoneme</u>
(p:b)	:	P	(c:ɟ)	:	C
(t:d)	:	T	(m:mm:qm):		M
(k:g)	:	K	(n:nn:qn):		N
(k ^w :g ^w)	:	K ^w	(y:j:qy):		Y
(s:z)	:	S	(w:k ^w :qw):		W

Suggest another interpretation and rewrite any of the following minimal and analogous pairs (if necessary) to fit it. (The diagraphs in the data were written as single phonemes in the original analysis).

Tipá	'mouth'	Pusíqi	'blind person'
Tibá	'pinenut'	Puzíqi	'louse'
Pitá	'arm'	huciqi	'father's mother'
Sidá	'bad'	huɟi	'sage hen'
Naká	'ear'	Watí	'look for'
hagá	'who'	Wací	'hide'

¹Edward and Neva Andrews, 'A Statement of the Phonemes of Northern Paiute,' and 'Segmentation of Consonants in Northern Paiute.' North Dakota SIL Workpapers, 1961, pp.13-32.

30. Sundanese (Indonesia). Data: R. H. Robins "Vowel Nasality in Sundanese" in J. R. Firth, Ed., Studies in Linguistic Analysis, 1957, pp. 87-103. Design: R. Pittman.

A prosody of nasalization (written with a tilde) begins with any nasal consonant, (m, n, ñ, ng) and continues until checked by a word boundary or by any consonant other than h or q (glottal stop).

mãro	to halve
ñĩqĩs	to take a holiday
mĩqāsib	to love
kumãhã	how?

An infix -ar-/-al- checks the nasalization on the following vowel, but it reappears on the second vowel after the consonant of the infix.

mãhãl	expensive	mãrahãl
ñĩqĩr	to pierce	ñãliqĩr
mõẽken	to dry	mãroẽken
mĩãk	to stand aside	mãriãk

Instructions:

- 1) Restate the description using phonemic terms and rules.
- 2) Discuss the ordering of rules required to describe nasalization following the infix.
- 3) Discuss the notational problems involved from the standpoint of (a) a native speaker of the language, (b) one who does not recognize the -ar-/-al- infix unless it is somehow identified.

31. English.

<u>Column A</u>	<u>Column B</u>	
fine/vine	/æ dváys/	/æ dváyaz/
rice/rise	/haws/	/hawz/
fat/vat	/yuws/	/yuwz/
loss/laws	wreath	wreathe
feel/veal	half	halve
race/raise	sheath	sheathe
	strife	strive
	belief	believe

(continued)

English cont'd.

Instructions: Describe the (lexical) phonemic status of voicing in Column A of the data given here and, using distinctive feature analysis, describe its grammatical function in Column B.

32. Jicaltepec Mixtec (Oaxaca, Mexico). Data and design:
Henry Bradley.

[sàmà]	to change	[dò'yò]	spring
[sàmē]	I change	[pà'là]	wet
[šàà]	fierce	[kòtō]	shirt
[šà'ə]	fat (noun)	[kòtē]	my shirt
[sāā]	bird	[čìkà]	to walk
[sà'mà]	cloth	[čìkē]	I walk
[sàtà]	to buy	[núŭ]	face
[sàtè]	I buy	[núf]	my face
[ʔawī]	yes	[nàà]	to hold
[sà'mè]	my cloth	[nàī]	I hold
[dèkù]	to recline	[kó'ó]	plate
[šàī]	I am fierce	[kó'í]	my plate
[šú'ú]	money	[k ^w ə'ə]	to go
[šú'í]	my money	[k ^w ə'f]	I go
[pàlā]	shovel	[t ^y ú'wā]	hammock
[tàyù]	chair	[t ^y ú'wē]	my hammock
[šàdù]	navel	[šà'wà]	ravine
[tānū]	straw belt	[nù'ni]	to tie
[tē'ē]	shell	[là'dá]	to tear
[kèè]	to leave		
[ʔātū īyō wà'à nī ŭʔ]	how are you?		
[ʔīyō wà'ì]	I am fine		

Supplementary Information:

- 1) The data are written phonemically except for glottalization.

(continued)

Jicaltepec Mixtec continued.

Instructions:

1. Do closed syllables occur? Utterance final? Medial?
2. Do consonant clusters occur utterance medial?
3. How does glottal stop pattern? Is it a consonant, an element in a complex consonant phoneme, or an element in a complex vowel phoneme?
4. Is there a phonemic argument to support the solution to this problem? If so, what is it?
5. Is there a morphemic argument to support the solution to this problem? If so, what is it?

33. Kapauku (West Irian). Data and design: Marion Doble.

aki	you
ani	I
okwai	he
inii	we
okwei	they
kai	to become
otii	to jump
okwii	to flee
naitai	my father
noukwai	my mother
meukwa	sun
beu	no, not
te	negative and prohibitive
beu te kai	not to disappear
beu kwai	to disappear

Instructions: Attack or defend kw as a cluster or a single phoneme.

34. English.

wife	wives	knife	knives	fife	fifes	chief	chiefs
five	fives	life	lives	thief	thieves	wave	waves

Instructions: Given the rule that -s becomes -z after voiced consonants other than sibilants, describe the final variable -f in this problem. Can you suggest a hypothesis to explain why the f in fifes is not variable?

35. Capanahua (a Pano language of Peru). Data and design:
Eugene Loos.

nápò	center	wàrà	squash
mápò	head	wàràyá	with a squash
hònò	peccary	tàsá	basket
hònó	peccary (tr)	tàsáyà	with a basket
ríntì	mill	hùà	flower
kàntsí	banana	hòá	with a flower
kàntsò	guacamayo	ràápkì	sent
hímì	blood	ràánàì	sends
hímí	by blood	ràáwí	send!
bòtó	button	káwí	Go!
kòtó	shirt	káʔí	he goes
àmí	ronsocco	káʔì	I go
màráš	huaca	kàtámpá	Shall I go?
háà	he	máyà	Mayo (a tribe)
háá	he (tr)	máyó	Mayo tribe (tr)
báwà	parrot	ʔòʔná	red ant
báwá	parrot (tr)	yàʔná	tick
hísís	black ant	tsìpókì	downriver
bàʔkíš	tomorrow	ʔìnápkì	given
tsátsà	fish	ʔìnáànàì	gives
tšóskò	four	ʔìnáwí	Give!
màpó	clay	bánáwí	plant
ʔòmpá	home-brew	bánákì	planted
tsìpó	below	ʔíʔwí	die!
hìíʔ	little ant	ʔíʔmáwí	let him die!
mái	land	ràáyásáʔwí	Send (it) sometime!
máí	by land	hàán tà piʔíkí	he eats
	hònòn tà piʔíkí		a peccary eats

Additional information:

- 1) Tone is written phonemically
- 2) (tr) = transitive verb subject
- 3) Focus of attention in this problem is on the nasal consonants and vowels.

Instructions: By using an interpretation that will allow the simplest description of phonemes and morphology, rewrite phonemically:

button sent Send! with a squash
Send it sometime in the future!

36. Capanahua (Peru). Data and design: Eugene Loos.

ʔáni ʔín	Is it big?
ʔání taʔ kī	It is big.
mápo ʔín	Is it a head?
mápó taʔ kī	It is a head.
bóo ʔín	Is it a hair?
bóó taʔ kī	It is a hair.
kápa ʔín	Is it a squirrel?
kápá taʔ kī	It is a squirrel.
kapé ʔín	Is it an alligator?
kapé taʔ kī	It is an alligator.
mapó ʔín	Is it clay?
mapó taʔ kī	It is clay.
poó ʔín	Is it a jug?
poó taʔ kī	It is a jug.
westí ʔín	Is there one?
westí taʔ kī	There is one.
bánáwé	Plant!
bánákin	He planted.
mapéti	He climbed up.

Instructions:

1. How many tonemes are there?
2. Defend union or separation of phonetic tones in this problem.

37. Capanahua (Peru). Data and design: E. Loos.

a)	ʔóchítí ʔín	Is it a dog?
	ʔóchítí taʔ kī	It is a dog.
	yósíbo ʔín	Is it an old man?
	yósíbo taʔ kī	It is an old man.
	yoxábo ʔín	Is it an old woman?
	yoxábó taʔ kī	It is an old woman.
b)	bánáwé	Plant!
	bánámawé	Make him plant!
	bánábonawé	Go planting!

continued

Capanahua continued.

weránwé	Roll it!
weránmáwé	Make him roll it!
weránbónawé	Go rolling it!
mapéwé	Go up!
mapémawé	Take it up!
mapékanawé	Go along up (at intervals)!

Instructions: How do phonological factors influence tone in these problems?

38. Capanahua (Peru). Data and design: E. Loos.

mápo jísé	See the head!
mápo ʔáni jísé	See the big head!
mapó jísé	See the clay!
mapó ʔáni jísé	See the big clay ball!
ʔóchítí jísé	See the dog!
ʔóchítí ʔani jísé	See the big dog!
yósíbo jísé	See the old man!
yósíbo ʔani jísé	See the big old man!
yoxábo jísé	See the old lady!
yoxábo ʔáni jísé	See the big old lady!
ʔání yósibo mapo jísé	See the big old man's head!
ʔání yóxabo mapo jísé	See the big old lady's head!
mápo	head
yósíbo	man
yoxábo	lady

Instructions: Order the following rules:

1. The syllables immediately preceding and immediately following the first word boundary in a noun phrase are high.
2. The last syllable of a noun immediately preceding a verb is high.
3. There may not be more than three consecutive high tones in a noun phrase; all following tones must be low.

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