WICHITA: AN UNUSUAL PHONOLOGY SYSTEM

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ABSTRACT

When reexamined in the light of new and additional data, Wichita
surface phonology is seen to be somewhat different from that described
by Paul L. Garvin in 1950. The three-vowel system has only height
contrasts, no front-back dimension; two vowels have voiceless allophones
in word-final position; the phonemic consonant system has neither
labials nor nasals (which agrees with Garvin's conclusions), but does
contain /y/ (which Garvin excluded). No vowel clusters exist, but up
to five consonants may occur in sequence. The prosodic system includes
a pitch contrast and a three-way length contrast for vowels. Each of
these topics is discussed in detail, first to document an unusual
phonological system, and secondly to present scholars with additional
facts about Wichita.

-R1-

-R2-

0. <u>Introduction</u>. In 1950 Paul L. Garvin published an analysis of Wichita[2] phonemics which is a model of classical phonemic description: a precise list of all the allophones of each phoneme, replete with examples for each sound described in every possible environment, and containing a detailed list of occurring consonant and vowel clusters. In the belief that accurate determination of significant sound segments (something close to classical phonemes) must precede further analysis into distinctive features on the one hand, and generative phonological statements on the other, I would like to present the following statement of the Wichita surface phonological system.

My work on this language since 1965[3] has revealed a phonemic system which differs in a few important respects from the system Garvin describes. Unfortunately, I was unable to contact any of his informants, so it is possible that the differences I discuss below between his data and mine are partly due to idiolect variation. Nevertheless, since the variations are not subphonemic, and since my informants represent approximately the same generation as his,[4] I am reluctant to accept this explanation for all the discrepancies.

Whatever the reasons for the differences, I feel it is important to report precisely where the data collected since 1965 suggest an analysis different from the one published in 1950.

1. <u>Summary of Garvin's description</u>.

1.1. <u>Phonemes and allophones</u>. Garvin finds Wichita to have four vowels and nine consonants, plus a phoneme of length and one of primary stress placement. The segmentals are:

i	u		k^w	t	ḳ	ʔ
ε	a			c		
				s		
			w	ř		h

where /ř/ has two allophones: [n] when geminate, or when initial, or when it stands before a dental consonant in a cluster, [ř] elsewhere (i.e. intervocalically, finally, or before /h/).

The vowels all show a wide range of variation: /i/ may represent [i, ɪ, e]; /ε/ may be [ε, ɛ̌ æ]; /a/ may be [ɒ, ɑ, ɔ]; and /u/ ranges from [o] or [ω] to [u]. The more extreme allophones, [e, æ, ɒ, ω] are more frequent before length. Garvin lists very precise environments for each allophone.

1.2. **Prosodic Features.** Quantity is proven phonemic by minimal pairs (wic 'two', wi:c 'man', etc.) and by observing that its distribution follows no stateable pattern. The long/short contrast is nevertheless said to be neutralized (1) for V_1 in V_1V_2 clusters; (2) for /i/ in a final syllable; and (3) partially before /ʔ/, where V > V: optionally, but V: > V never occurs.

For stress only one minimal pair is offered, and many examples of variable stress are given. Nevertheless, Garvin is convinced of the phonemic, non-predictable status of primary stress.[5] Secondary stress, however, is almost predictable, occurring usually on every second vowel in either direction from the primary stress.

1.3. **Clusters.** To describe consonant clusters, Garvin first mentions geminate /ss, cc, řř/, and then ingeniously divides the consonants into three groups: Group I = /k^w, t, ḳ/; Group II = /w, ř, h, s/; Group III =

/c, ?/. Group III functions as Group I when adjacent to /s/, but as

Group II otherwise. He says (1950:182)

> Two consonant clusters may consist of two
>
> consonants of Group II, or of a consonant of
>
> Group I preceded or followed by a consonant
>
> of Group II.
>
> Three consonant clusters are of three
>
> types: they may have ʔ as initial member and
>
> then contain as many as two more consonants
>
> of Group II; they may consist of geminate
>
> ʔʔ or ss followed by one more consonant; or
>
> finally, they may contain consonants of
>
> Group I and Group II in alternating order.
>
> Four consonant clusters contain consonants
>
> of Groups I and II in alternating order, with
>
> s or c as the first member.

Vowel clusters discovered include /ia, ia:, iɛ:, iu:, ɛa, ɛa:, ui, ua,

ua:/. The first three of these occurred in all positions, the fourth in

medial and final positions only, the next three only in medial position,

and the last two only after /w/. If Garvin had had my data, he would

also have been able to identify /iɛ/ in kâ:kiɛʔɛskiri:ʔ 'There's nobody!'.

But all of these clusters are subject to a different analysis as we shall

see shortly.

2. <u>Changes suggested by new and additional data.</u>

2.1. <u>Phonemes and allophones.</u> Wichita (as spoken by all my informants)

actually has the following three vowels and ten consonants in its phonemic

system:

		k^w	t	k	ʔ
i					
e			c		
a			s		
	w r/n y h				

There are also two phonemes of length, resulting in a three-way length contrast: short vs. long vs. extra-long; and there is a contrast between high pitched and non-high pitched vowels.

In addition to the allophones of the vowels described by Garvin, voiceless [I̥] and [ɒ̣] must be added to the lists for /i/ and /a/ respectively. In his phonetic transcriptions, Garvin sometimes noted a voiceless [Ṿ̓] after a glottal stop, but he claimed this was merely a subphonemic release of the stop. Note, however, the following minimal pairs (the accent indicates high pitch):

[tᵛcʔɒ̣] 'corn silk'

[tᵛcʔỊ] 'It's me.'

[k æʔ æté:ʔI̥] 'It will be mine.'

[k æʔ æté:ʔɒ̣] 'I will come.'

The quality of the voiceless vowels is therefore significant, but voicelessness need not be added to the significant features for vowels: it is conditioned by word-final position. All the word-final vowels (whether short or long) in Garvin's data should have /h/ after them—which he heard and recorded sometimes. This /h/ removes the vowel from word-final position and thus prevents devoicing.

Each of the discrepancies between Garvin's segmental phoneme list and mine will now be discussed in turn.

2.1.1. /u/. Garvin described /u/ as varying from [o] to [u], depending
on environment. However, I have never heard any back vowel as high as
[u] or [ʊ] in Wichita; [o] is as high as the vowels seem to go. In the
article, we find a total of seventeen examples of short /u/, of which
eleven occur either before or after /w/. Of the remaining six, three
occur in the environments /u:ʔ_ /, /h_k/, and /k_k/ respectively. This
would seem to indicate a suspiciously limited distribution for /u/, but
one notes examples of all other vowels in similar environments.

Let us first discuss the vowels around /w/. Note e.g. Garvin's
examples of wuseʔɛkʔ 'dog' but wasa: 'cottonwood'. Not one of my informants
distinguished the first syllables in these words; the vowel is an extremely
low back one, slightly raised and rounded in the environment of /w/.
My test pronunciations with [u] or [o] produced only disbelief in these
informants. I am therefore forced to conclude that either (1) Garvin
sometimes heard a subphonemic distinction when /a/ was in a backing and
rounding environment or (2) /u/ and /a/ fell together in the period
1949-1965 for all presently living Wichita speakers. In either case, for
the language I studied (Rood 1969) /u/ should be changed to /a/ whenever
it is in the neighborhood of /w/.

I suspect something similar for the /h_k/ and /k_k/ environments.
The verb with -kuk- is one of the verbs 'to cut', whose root I have re-
corded numerous times as -kakacki. The form with /h_k/ is given as
ti:sahúki: 'this is' (Garvin 1950:181), which is unlike anything I have
ever heard with such a meaning. It could be tiʔisah aki:ʔi 'Thus it
was' or tiʔisah há:wah aki:ʔi 'So that's the way it was,you see' (há:wah
'again; then' is frequently pronounced [hó:h] in fast speech). This is

a possible variation of a frequent formula used to introduce the conclusion

of a narration. But without the expansions I have supplied and the tense

change in the gloss, the form Garvin gives is morphologically unanalyzable.

The point, however, is that here, too, /u/ is apparently unjustified.

It may represent the [ɒ] of aki:ʔi or the [o:] of the reduced form of

há:wah, but probably not /u/.

The form hú:ʔus ([hóʔos] in the speech of my informants) of Garvin's

hú;ʔuskʷu 'this time' (1950:181) is the only example of short [o] I have

in my data. The word by itself means 'soon; shortly thereafter; recently'.

(Just possibly, Garvin's hú:ʔuskʷa might be my há:skwah 'when, as soon

as', in which case his example is not of my unresolved [o] at all. The

[o] of [hóʔos] remains a problem nevertheless.)

Technically, of course, the existence of this word makes [o] a

phoneme and justifies Garvin's four-vowel system. But a single aberrant

word in a language seems to me to cry out for some other analysis; one

possible solution will be mentioned below.

2.1.2. /u:, ui, ua/. In contrast with /u/, which except for [hóʔos] is

really an allophone of /a/, Garvin's examples of /u:/ represent three

rather different situations.[7] Some of them are equivalent to /a:/ in the

neighborhood of /w/; others are contractions of VwV sequence, while still

others are indeed examples of [o:].

Following are the examples Garvin gives with /u:/ which are clearly

/a:/ for the speakers I interviewed. The forms are in the order in

which they are cited by Garvin, and the initial transcription is his.

(1) wu:ʃiʔihɛ:c 'Gracemont' (village in Caddo County, Okla.)

(2) î:kɛʔɛkiwù:ꝑ 'He (was) asked.' (From root -wa:ri 'speak to'
--cf. example (4)).

(3) kiú:hwic 'seven' (I have kiyáhwic--see below, section 2.4,
item (14)).

(4) aꝑckᵂu:ꝑ 'I told them.' (also from wa:ri 'speak to'; cf.
example (2)).

Cases similar to those where Garvin phonemicized the vowel after
/w/ as /u/ instead of /a/ are his diphthongs /ua/ and /ua:/. These
should be /a:/ instead. His examples are:

(5) wúata:ꝑ 'August' (I have instead wá:ta:rh. The meaning is
literally 'Buffalo Moon', from wá:h 'moon' and ta:rh/ 'buffalo'.)

(6) tí:ꝑiwua: 'then' (My informants say tí:riwa:h, although the
more frequently used form is híriwa:h).

The second category of /u:/-sounds in Garvin's discussion contains
those which are contracted VwV sequences. This includes the /ui/ diphthongs:
since Garvin finds length is insignificant for the first vowel of a cluster,
he would write both [o:ᵂI] and [oᵂi] as /ui/. But in the examples of
/ui/which he used which I was able to re-elicit, the /u/ was always long.

Phonetically, both [o:] and [o:ᵂI] can be heard. The former may
represent any VwV sequence; the latter will at times be used for Vwi.
This contraction may occur anywhere, regardless of word or morpheme
boundaries. Usually, in careful speech or with coaxing, the informant
can be induced to restore the full VwV sequence--but not always. Garvin's
words in which /u:/ or /ui/ should be reanalyzed as VwV are:

(7) kà:si:kà:kiʔikú:sakʔas 'Sometimes they make some foolish remark'.
This is from the root -wasakʔa 'speak', with the past tense, indefinite

subject prefixes ʔi-ki. Probably the form is ka:si:ka:kri̱ʔikiwasakʔas,
since the -ka:ki- of Garvin's form resembles nothing I have ever seen
elsewhere in Wichita morphology, while ka:kiri- 'something' would be
expected here. A more literal gloss out of context would be 'sometimes
(ka:si:-) something (ka:kiri-) was said.'

(8) á:ku:kʔ 'He said'. The root is -wakʔa 'say': the transcription
should be á:kiwakʔa.

(9) tí:stúicaks 'woodpecker'. I was unable to elicit a name for
this bird, or to confirm this form, but based on the rest of the language,
I would expect *ti:stiwicaks.

(10) a:khiȑcúisk^W 'He arrived'. a:ki- 'third singular subject past'
+ hinca or hinci (meaning not recognized) + wis 'arrive at one's own home'
+ wa 'go, perfective'. The vowel before /w/ is uncertain, but the root
has initial /w/.

(11) ka:kiʔiku:kháȑȑiski 'no idea what was going on'. A better gloss
would be 'something which was going on'. It is composed of ka:kiri-
'something' + ki- 'past' + -wakhánni 'happen, occur' (cf. (12)) + skih
'imperfective subordinate'. The form is an imperfective past participle
(hence the absence of subject markers) with the indefinite pronoun
ka:kiri- prefixed. Transcription ka:kirikiwakhánniskih.

(12) hawaʔu:kháȑȑwachis 'they start all over again'. This is another
example (cf. (11)) of the root -wakhánni 'happen, occur', this time with
another root suffixed and the indefinite subject (tenseless) prefix
ʔi-. Hence the preferable transcription há:wah ʔiwakhánnwachis.

It must, of course, be conceded that this treatment of /u:/ as
phonemically /VwV/ is not a correctly biunique phonemic solution.

-R10-

Grammatical or other evidence must be elicited in order to decide what the vowels around /w/ are--although anyone can read, correctly, the resultant transcription.

Furthermore (and here is the third category of /u:/ sounds in Garvin's data) Garvin has listed a few words in which I was unable to elicit anything except [o:], namely:

(13) kú:s 'eagle'

(14) wíu: 'cat' (Thought by informants to be onomatopoetic, an imitation of meow.)

(15) kú:kis 'rabbit' (Once I think I heard one person say kiwakis, but she later denied it.)

(16) hanc²ak²ú:s 'alfalfa'

Not mentioned by Garvin, but also with unresolvable [o:] are:

(17) [kó:ks] 'crazy'

(18) [tó:rikic²] 'young man'[8]

Hence, in contrast with /u/, which occurs in only one word (hó²os), /u:/ occurs rather more often. Nevertheless, because of the frequency with which it can be resolved as VwV, I feel one must exclude it (and its short counterpart) from the inventory of Wichita surface phonemes. Some plausible, if ad hoc solution can be devised for the handful of examples for which correct information is lacking, and even hó²os could be treated as *haw²as or something similar. Note (1) that 'few' may be either [to:²Ic] or [taw²Ic] and (2) that vowel assimilation is frequent when two short vowels are separated by the glottal stop. These two observations make the proposal for 'soon' seem reasonable.

The other alternative, the purely biunique solution, is to restore /u/ and /u:/ to the inventory. Even if one prefers the latter, however,

a statement about the very limited distribution of these two vowels is

in order. In addition to the limited environments, we would also have

to note that no /u::/ ever occurs, and that almost all words with /u:/

(and, incidentally, hó?os, too) have a high pitch on that vowel, implying

a nearby consonant loss in the underlying form (see below, section 2.2).

2.1.3. /y/. Each of the vowel clusters Garvin describes as sequences of

front /i/ or /ɛ/ followed by another vowel is said to have a non-phonemic

[y] glide between the vowels (1950:182). In fact, this [y] is phonemic,

although its distribution is limited to intervocalic position--no examples

of [y] in consonant clusters occur.

Definite proof of this without eliciting grammatical evidence comes

from the word ka:si:?áre:ye?es?i 'I don't know where; the place is

unknown', where [y] between two identical vowels could be 'phonemicized

out' only by setting up /e:e/ as a cluster, contrasting with /e::/.

Furthermore, there are examples of [y] between phonetically non-front

vowels, such as [hir?e:stó:yɒ:s] hir?i:stiwiya:s 'mountain boomer'.

This should be evidence enough even for classical phonemicists.

But if we permit grammatical information to enter the picture, the case

for /y/ becomes even stronger. A morphophonemic rule

$$y > h \ /\# \_\_$$

must be set up to account for the following:

he:c 'fat but tihe:c?i 'It's fat.' (either noun or adjective).

he:c?a 'fire' but tiye:c?i 'It's fire.' (In both examples, the

nominal is incorporated in the verb ti?i 'it is'; the -?a of 'fire'

is a noun-forming suffix used only in non-incorporated forms.)

Without this rule, we are faced with two /h/'s, one of which 'disappears' (becomes non-phonemic [y]) in incorporated position and one of which remains [h]. The simpler solution is to make [y] phonemic.

Moreover, once we discover that [y] is sometimes significant, we have no choice but to make it phonemic everywhere it occurs: there is no phonetic distinction between [VyV] with grammatically justified /y/ and the same [VyV] where the grammatical evidence is inconclusive, as in niye:s 'child'.

Hence all of Garvin's vowel clusters must be reanalyzed. The /u/-initial clusters were discussed above; the i- and ε- initial clusters are not clusters at all, but sequences of /VyV/.

2.2. Prosodic features.

2.2.1. Length. Garvin's data apparently did not include evidence for the distinction in Wichita between long and extra-long vowels. Note the following:

>   ni:chí::ʔih 'the strong one'
>
>   ni::chí::ʔih 'the strong ones'
>
>   he:hirʔí:ras 'Let him find you.'
>
>   he::hirʔí:ras 'Let him find it for you.'
>
>   hárah 'there'
>
>   há:rih 'Here it is.' (Said as you hand something over.)
>
>   há::rih 'that one'

Moreover, it is not true that length distinctions are regularly neutralized or partially neutralized anywhere. Garvin's environments for variable length, with contrastive pairs as counter-evidence, are resolved as follows:

-R13-

(1) V: ~ V as first member of vowel clusters. There are no vowel

clusters (see 2.1.3) and quantity does vary before /y/:

　　　　niye:s 'child'

　　　　i:ye:ʔi 'It was the place...'

　　　　nareʔeya:ʔih 'his child'

　　　　te:ya:h 'cedar'

　　　　kiyáta:w 'eight'

　　　　hí:ya:kha:rʔa 'tall grass'

(2) i ~ i: in final syllables:

　　　　acs tiʔi 'He is good.'

　　　　acs ti:ʔi 'They are good.'

(Recall that Garvin considered the final voiceless vowel non-phonemic,

so this length contrast is in what for him would be final syllables.)

(3) short vowel lengthened before /ʔ/:

　　　　hitacíʔi::s 'We (du. excl.) are looking at it.'

　　　　hitací;ʔi;;s 'We (du. incl.) are looking at it.'[9]

2.2.2. <u>Pitch</u>. Furthermore, Garvin analyzed the distinction between high

and low pitch as one of primary stress,[10] and then thought he heard primary

stress in every word. His examples of 'variable' stress are forms which

have all low pitches; it is therefore natural that he would record now one,

now another syllable as stressed. But in words with one or more high

pitched syllables, Garvin (1950) always marked stress on the high pitches.

His minimal pair for stress is really one for pitch:

　　　　　　　　titeʔe:cʔi 'He is a thief.'

　　　　　　　　títeʔe:cʔi 'They are thieves.'

This pair illustrates a morphological contrast which is frequently marked by pitch contrast only: the third singular definite will show a low pitch on the vowel; the indefinite (often used for subject plural in intransitive verbs, or for focusing attention on the object and therefore for translating the English passive with transitive verbs) will have high pitch. Note in addition to Garvin's examples:

      né?ah ti:?i 'He is no good.'

      né?ah tí:?i 'They are no good.'

      ka:kintika?acs 'He is eating something.'

      ka:kintíka?acs 'He is being eaten by something.'

It is highly probable that at the systematic phonemic level even pitch is insignificant and predictable. Wichita phonological rules are characterized by vowel syncope followed by consonant cluster simplification, usually by eliminating some consonants and replacing them with pitches on preceding or following vowels. Note, e.g., in section 2.1.2 that many of the VwV clusters result not simply in [o:] but in high pitched [ó:]--the pitch marks the loss of the consonant. Cf. also ka:hi:rá:i:c?a from ka:hi:ra:w?i:c?a (see 2.3). Nevertheless, since the details of these processes are still obscure, we must frequently recognize inherent high pitch in some morphemes, and a description of surface phonology cannot avoid discussing phonemic pitch.

2.3. Clusters. All Garvin's vowel clusters have been reanalyzed (see 2.1.2, 2.1.3). The only example I have of two vowels together is the word for 'old woman', ka:hi:rá:i:c?a, which is a contraction from an older pronunciation (volunteered by Mrs. Provost) ka:hi:ra:w?i:c?a. This older pronunciation corresponds to the component parts of the form (as analyzed

by the native speakers) more closely: ka:hi:r- 'woman' + ne'eriya:w'i:c'ah
'one who is wrinkled'. A strict description of surface phonology would
have to list this one example of /á:i:/ as the only vowel sequence in
the language (it is clearly two syllables, hence not a diphthong); but
a systematic phonemic transcription will probably be able to eliminate
even this sequence.

Consonant clusters are basically as Garvin described them, except
that a few additional environments have been found. This would be expected,
of course, with more data. Thus áracc 'I shot it' (phonetically [ʼɒrɒtsts]˳)
shows that /cc/ can occur in final position. Similarly, /rh/ occurs
initially in rhi:'a 'dough', rhinc'a 'trousers', etc., where /r/ is
phonetically voiceless [r̆]. This necessitates a new description of the
word-initial allophones of Garvin's /ř/: they are [n] before a vowel, [r̆]˳
elsewhere.

Furthermore, I have found the four-consonant cluster /ncks/ in
/tihi'incks 'He is sleeping.' This has the structure $C_{II}C_{II}C_{I}C_{II}$, which
is not anticipated in Garvin's description except that it is a sequence
of two of his two-consonant cluster types. Likewise, nahi'inckskih
'while sleeping; the one sleeping' contains a five-consonant cluster which
follows the pattern described for two-consonant clusters plus one of the
ones for three-consonant clusters. So, in effect, Garvin has supplied us
with an accurate framework within which all Wichita consonant clusters
can be accommodated.

One correction does need to be made in the detailed lists of clusters,
however. Garvin posited the cluster -wt- medially in ta:wticaré:s'

'thir-(teen)'. There is a word boundary between the /w/ and /t/ in this
example, (tá:w 'three' + ticaré:s'i 'They are lying on top.') and no
other examples of /wt/ within a word have occurred. Consequently, -wt-
must be removed from the list of possible clusters.

2.4. <u>Additional discrepancies</u>. Garvin's transcriptions thus omit several
distinctions which his data led him to believe were absent in the language:
/y/, extra-long vowels, final voiceless vowels, and word final /h/; in
addition, he writes one sub-phonemic distinction, /u/ for /a/. There are,
besides these, a handful of real or apparent differences between some of
the examples he cites and the equivalent forms as used by my informants.
In this section I will discuss those forms about which I have different
information, omitting forms in which Garvin and I agree on the transcription
(except for the discrepancies just listed) or forms which I do not recognize
and could not re-elicit. The order used is that in which the forms
appear in Garvin's paper, and the initial transcription is his, except
that r and n are used for /ř/, e is written for /ɛ/, and /k^w/ is written
kw.

(1) na'a:skíc ~ na'á:skic 'blue' is na'a:skhic, with aspirated [k^h].

(2) ïarhachàki'ihá:s'arih 'When there were many people.' iyarha-
'many, plenty' is followed by -c, an inflection for animate pronoun forms.
haki'ihá:s'arih is a past subjunctive form of the verb -'ari 'be a number'
with 'iha:s 'people' incorporated. A word division occurs between iyarhac
and the rest.

(3) ki:ckhárikwitàt 'Village with a Lid on' is the name given to me
by several people for Wichita, Kansas. I have also heard it glossed

-R17-

'round hats' or 'round-topped houses', but I have been unable to analyze it completely. It is a past participle with -khá- 'house' incorporated and -ri- 'patient is plural', but the root -kwitat has not recurred in my data.

(4) kéta:w 'eight'. Phonetically [k^{I}yáta:W], with [I] so short as to be nearly absent. Cf. further discussion at example (14) below.

(5) kinne:sa:khír?i 'Monday'. Literally 'the one which is not his day'; Mrs. Provost says that while this is comprehensible, the 'correct' form in her opinion is kíriwaré:sa:khí?nnih 'when it is no longer his day' --cf. 'Sunday' ná::sa:khí?nnih 'When it is his day'. Actually, since these are all verb forms, the tenses, moods and aspects will change with the context; eliciting an isolated name is therefore artificial anyway. Mrs. Provost's form is a present participle with a locative suffix; Garvin's lacks the locative ending and omits the -wa- 'perfective' marker.

(6) nac?isk?ík?íh 'my hands'. More likely nac?isk?ikih without the third /?/, since 'be plural' is -?iki and possession of body parts is marked by incorporating the name of the possessed object (here -?isk 'hand') in the verb 'be', with possessor as subject (here -c- 'first person').

(7) cí?as 'one' was given me as chí?as, with aspirated [ts^{h}]. Cf. also ci?asskínnti:? 'nine', literally 'one is not there', chí?as kínti:?i.

(8) iskìrie?wá:s 'ten' is, in my data, iskhiri?awá::s.

(9) cir? 'flame' was dictated to me as chir?a--another example of aspirated initial [ts^{h}]. Cf. nos. (7) and (10).

(10) ché:c 'dawn' is better glossed 'morning', since it covers most of the forenoon. 'Dawn' is translated by various forms meaning roughly 'when the sun is just coming up'.

(11) nirhé:ssa:khir? 'Thursday'. Mrs. Provost gives two forms, ni?irhé:ssa:khir? (probably the same as Garvin's) and ní:c?arhi?irhé::sisah, both roughly 'the day they go to stay overnight', referring to going to collect government issued rations which were allotted on Fridays.

(12) ichirisé:cke?ek? 'redbird' is probably the same as my ichirissé:cke?e:k?a, with geminate /ss/ and final long /e:/. Literally it means 'ember bird', with 'ember' a compound of ye:c 'fire' (se:c in this position) and ke?e:k?a 'lump'.

(13) k?i:schakia:s?a:ki:? 'he was a young man' lacks proper word boundaries and is misleadingly glossed. k?i:s 'young, small' and chah 'yet, still' are separate words. kiya- is a prefix meaning ' subject is human' and is followed by has?a 'narrative' and aki:?i 'third singular past tense of verb be'. kiya+has?a is regularly contracted to kiya:s?a in rapid speech. The three words, better glossed 'he was still young', are then k?i:s chah kiya:s?a:ki:?i.

(14) the numbers from six to eight are compounds, a fact which is not apparent in Garvin's transcriptions. kiyah- precedes the morphemes for 'one', 'two', and 'three' respectively to form kíyehes 'six', kiyáhwic 'seven' and kiyáta:w 'eight'.

3.0. <u>Conclusion</u>. The preceding lists and descriptions have been presented solely in the hope of providing scholars with accurate published information about the surface phonology of Wichita. I have presented data which call into question Garvin's report with regard to final voiceless vowels, pitch, length distinctions, and the phonemic status of /y/, as well as with regard to certain specific transcriptions and translations of

-R19-

individual forms. I have also expressed doubt about /u/ and /u:/,
although others may prefer to keep Garvin's system intact.

It should now be apparent that Wichita has an unusual surface
phonological system--no phonemic nasals,[11] very few consonants
(including no labials),[12] a vowel system which does not use the
opposition front vs. back,[13] and a three-way vowel length contrast.[14]
The underlying system is still being analyzed, and will be the subject
of later reports.

-R20-

FOOTNOTES

1. I would like to thank my colleagues Luigi Romeo and Allan R. Taylor for reading and commenting on earlier drafts of this paper.

2. Wichita, a Caddoan language, is now spoken by a few dozen people in the vicinity of Anadarko, Oklahoma. My main informant (among several) was Mrs. Bertha Provost, in her early 70's, a fluent speaker of both English and Wichita (although occasionally unable to recall specific Wichita plant and animal names). Mrs. Provost is well respected as a good speaker by other Wichitas, and is in addition a most patient and coopera-tive person. I shall always be grateful for her help and her friendship.

3. This work began in the summer of 1965 with a grant from the Phillips Fund of the American Philosophical Society, and continued during the academic year 1966-67 with the aid of an ACLS Fellowship for Advanced Graduate Study in Linguistics. Additional short trips to the field in Nov. 1967 and April 1969 were partially financed by research travel grants from the University of Colorado Graduate School. All of this assistance is herewith gratefully acknowledged.

4. See Garvin (1950:179, footnote) where he suggests that there are age dialects.

5. In later work (Garvin and Hill 1962) Garvin recognized the existence of a phonemic pitch distinction, too, but apparently felt that both stress and pitch were significant.

6. Deleted.

7. Plus two which I cannot analyze at all, namely sù:hahi:cá'a 'Let it be for now' and u:ná'as 'people'. hi:cá'ah might be the third singular

-R21-

imperative of a verb form, but if so, it is a root I do not recognize.

Likewise, su:hah or recognizable variations of it is unparallelled in my

data.

The word for 'people' in my data is iha:s?a, which occurs twice in

incorporated position in Garvin's paper, viz. iha:sk^{w}ha:c 'Indians'

(literally 'red people') and łarhachaki?iha:s?ari (see section 2.4, no. (2))

'when there were many people'. I am at a loss to explain the discrepancy

between incorporated and citation forms in Garvin's records.

8. In this connection, a recording by Marcy (in 1852) reported by Taylor

(1963) of this word as two-bear-e-kéts-ah is interesting. This almost

certainly indicates that modern [o:] was at that time a -VwV- sequence.

9. Garvin never distinguishes inclusive from exclusive in his glosses

in the article, though he does have both forms in Garvin and Hill.(1962).

10. Cf. footnote 5 again. Even in these paradigms, though, the three-

way length distinction was not marked, resulting in the necessity for re-

eliciting all the forms in this collection.

11. Trubetzkoy (1958:160) remarks that he has heard of only one language

with but a single nasal (Tlingit) and never mentions the possibility of

no nasals. Jakobson, Fant and Halle (1963:40) remark 'the opposition

nasal vs. oral is nearly universal in consonant patterns, with isolated

exceptions such as Wichita.' Hockett (1955:119) does not list Wichita

among the three languages he found without nasals, although the section

is supposedly about phonemic systems. A bit later, however (122) he

includes Wichita with Hidatsa and possibly Winnebago as among the 'few

languages [which] have well defined sonorant systems which cannot be

divided into a nasal system and an oral system.'

Charles A. Ferguson (1963) suggests (footnote 8) that Hockett's analysis of Winnebago is unusual and that other analyses treat /m/, /n/ and /r/ as phonemes. In Hidatsa /w, r/ are sometimes [m, n]. Note, however, that the discovery of /y/ in Wichita makes this sonorant system unlike the others Hockett discussed.

Haas (1969:112, footnote) lists seven languages of three families in the northwest coast region which have no nasals, and states 'this is clearly an areal feature.'

12. Hockett (1955:102) discusses obstruent systems of his 2:1:1 type (although an apparent misprint says 2:2:1, the descriptions are of 2:1:1 systems), and states that they are rare, but lists Wichita and Cuicateco as examples. Languages without labials are certainly not unknown: Hockett (1955:119) mentions Tillamook and most Iroquoian languages. If, however, /k^w/ is treated as a labial, the Wichita phonemic (not phonetic) system becomes less unusual (cf. Hockett 1955:102).

Nevertheless, the sonorant system (see note 11) remains strange, and Hockett (108) notes that Wichita is one of less than two dozen languages with no symmetry between its sets of stops and spirants. In this category, it is one of four languages with four obstruents (t c k k^w) and one spirant (s), but is unique with regard to the positions of the stops involved (whether /k^w/ is treated as a labial or not).

13. Trubetzkoy (1958:87-88) discusses 'linear' vowel systems (those with height contrasts only) and mentions three languages of the Caucasus ('das Adyghische, das Abchasische und das Ubychische') which have these systems. All, however, are described as having central norms (ɨ, ə, a) and rounded, unrounded, fronted and backed allophones in various environments.

He concludes 'Somit wären die Vokalphoneme mit phonologisch bestimmten

Schallfüllgrad und phonologisch irrelevanten Eigenton eine

Eigentümlichkeit der westkaukasischen Sprachen. Ob solche "lineare"

Vokalsysteme noch irgendwo anders vorkommen, lässt sich bei dem heutigen

Stande der phonologischen Erforschung der Welt nicht sagen.' Hockett

(85) mentions only Adyge as having a system of this sort (1 x 3) and

cites Trubetzkoy as his source. Hence the Wichita system appears to

be unusual indeed, if the absence of /u/ is accepted as presented above.

14. Hockett (1955) does not mention this as a possibility, at least not

in section 2431 where it would be expected. Note that some of the

alternatives one might consider for phonemic analysis are excluded: /h/

occurs as [h] in pre-consonantal position after long vowels (niyá:hkwih

'tree') and cannot represent length; and combinations such as /aa:/ or

/a:a/ are unparallelled by /V_1V_2/ sequences of other types. Furthermore,

the choice of /aa:/ or /a:a/ in this situation would be completely

arbitrary.

Lehiste (1970:45-9) reviews several studies which claimed overlength

for vowels in Estonian, Lappish, Hopi, Mixe, and even standard German.

Of these, the German has apparently been refuted, the Lappish data are

inconclusive, and the Hopi data are scanty, leaving Estonian and Mixe

the only well-documented cases. In Estonian, consonants may also be long

or overlong, so the domain of the contrast is probably the syllable rather

than the vowel. Moreover, the contrast holds only for the first syllable

of polysyllabic words. In Mixe, overlong vowels occur only in stressed

syllables, and the extra degree of length can be treated as an allophone

-R24-

Cook (1971:165) discusses studies by Sapir, Li, Hoijer and Joël in which Sarcee was described as having three degrees of vowel length. Like Wichita, this seems to be a surface phenomenon, however, resulting from morphophonemic processes. But in Sarcee, tones are part of the problem, too.

The Wichita system of vowel (but not consonant) length of three degrees, occurring in any syllable, and independent of stress or tone thus seems to be very rare, if not necessarily unique, in languages of the world.

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