Northern Paiute Historical Grammar

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Preface

Research into the history of any Amerindian language necessarily involves reliance on both original field work and later published analysis -- much of it generally unavailable. I was especially fortunate in enlisting the aid of many people in accumulating the data cited here. Sources for the individual languages are listed in Appendix I, and the various unpublished manuscripts are included in the bibliography, but the generosity of original researchers and organizations deserves special acknowledgment and special thanks.

Michael H. Czepo, Jon F. Davley, Catherine S. Fowler, Jack R. Miller, Pamela Musro, Margaret L. Press, Judith A. Shapiro, and Maurice L. Zigonni provided manuscripts or access to their files for various languages, and consented on parts of the draft. Other unpublished manuscripts came from R. Joe Campbell, Jeffrey Heath, Hoderick A. Jacobs, William H. Jacobsen, Jr., Ronald W. Langacker, Susan Steels, and the Uto-Aztecan Seminar at the University of California, San Diego; and numerous other participants in the Conferences on American Indian Languages: San Diego 1970, New York 1971, and Toronto 1972; the Great Basin Anthropological Conferences: Eugene 1970 and Salt Lake
Northern Palute Historical Grammar

Abstract
Michael J. P. Nichols

The discussion of Northern Palute historical grammar has a twofold purpose: (1) to present phonological and grammatical information on Northern Palute, one of the least well documented languages of the Uto-Aztecan family; and (2) to place this information in the proper historical perspective in relation to Proto-Music and, where possible, to Proto-Uto-Aztecan. Rather than a complete description of Northern Palute, selected problems are presented, in which the relationship of Northern Palute to Music, or of Music to Uto-Aztecan, is particularly important. Since the phonologies of the Music languages are more complex than that of most Uto-Aztecan, the Northern Palute and Proto-Music sound systems are analyzed in detail, with appendices of Music sound correspondences and Proto-Music reconstructions. Nouns in Uto-Aztecan take on a particular grammatical function only through position in the phrase or by the addition of marking suffixes. The relationship of noun class markers, absolutes, and verbal suffixes is described, and the question of instrumental prefixes examined in the light of new information from Northern Palute and Music. The deictic complex of pronouns, demonstratives, and adverbs shows striking differences among the Music languages, but the common system reconstructed for Proto-Music resembles closely that of other Northern Uto-Aztecan languages. The divergent phonological reflexes and semantic developments of some of the old Proto-Uto-Aztecan clitics in Music illustrate the great age and pervasive influence of these elements. Two examples of language-and-culture investigations include the analysis of the Northern Palute color system in relation to Music, and illustrations of punning and word play from texts.
City 1972; and the Uto-Aztecan Working Conference (I), Reno 1973.

The loan of the Marsden and Natchez manuscripts from the collection of the Department of Anthropology, University of California, Berkeley, made possible through the interest of Robert F. Heizer, initiated my work in Northern Paiute and the other Numic languages.

The Survey of California and Other Indian Languages, University of California, Berkeley, directed by Mary K. Haas, provided financial support for my field work on three Northern Paiute dialects, 1968-70. The Survey also supplied manuscript material on the Numic languages in its collection. Mary K. Haas and the other members of my committee, Madison S. Beeler and Margaret H. Langdon, have offered welcome comment and guidance.

Sven Liljeblad, whose study of Northern Paiute language and culture has been a continuing source of inspiration, has provided me with a system of transcription; important field data; notes, manuscripts, tapes; and, above all, patient encouragement and detailed comments on earlier projects. This study is dedicated to Sven in gratitude and affection.

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I. Introduction

The widespread Uto-Aztecan (UA) linguistic family consists of several clearly related languages and groups of languages. The family relationship can be demonstrated conclusively by comparison of cognate sets illustrating largely regular sound correspondences. In fact, although the vowels show a certain amount of variation, most consonant correspondences are ones of identity. This apparent simplicity has often lulled linguists into reconstructing proto-forms for Proto-Uto-Aztecan (PUA) before solving the problems of the non-identical correspondences or evaluating completely the conflicting evidence from the different languages and subgroups. As a result there is no general agreement on the reconstruction of PUA phonology, nor therefore on the exact phonological shapes of lexical items. It is not surprising, then, that there also exists no firm description of grammatical relationships. Very little has been published of the work currently being done in UA and PUA, although the comprehensive treatments of Voegelin, Voegelin, and Hale 1962 (abbreviated VVH) and Miller 1967 (UACS) have recently provided at least a point of departure for comparative studies, a common basis for discussion not given in comparable detail in earlier publications. However,
Despite these treatments, virtually all of the original problems in the reconstruction of UA remain unsolved, although attempts have been made through changes in terminology or notation to give the impression of at least partial solutions.

Some of the problems involved in reconstructing UA will probably be clarified in the course of reconstructing the protolanguages for those subgroups within UA which comprise several languages. In general, the availability of data on languages south of the U.S.-Mexican border has lagged behind that of languages spoken in the U.S. Of the latter, Hopi and Ti'batualbal are isolates within the UA family. Although Papago is well known, other members of the Pinic group extending well into Mexico are less well attested, which defers reconstruction of Proto-Pinic. Takic (Southern California Shoshonean) is well attested through work on Luiseno and, increasingly, on other languages of the group, which suggests that Proto-Takic could be reconstructed within the next few years. However, Takic appears to have more internal diversity in both phonology and lexicon than the other northern UA groups, and correspondingly more problems in reconstruction. Part of the difficulty lies in the early extinction of some of the languages in the Takic group, which has forced reliance on what early recordings are available, regardless of their quality. In contrast to this situation we have the Ictonic group, which is internally very close in phonology and lexicon. Further, although the languages are not holding their own against English, all of the known Ictonic languages are still spoken, and most still have a sufficient number of speakers to permit some dialect study within the individual languages.

A few Proto-Music (PM) reconstructions have appeared in UAOS and in Nichols 1971, but no systematic treatment of this intermediate protolanguage has been attempted. The only adequate published study of a Music language is still Sapir's major work on Southern Paiute (1930-31), and no comparable treatment of any other language has been published, although several exist in manuscript form and a great deal of new material has been circulated informally.

The present study has a twofold purpose: to present phonological and grammatical information on one of the least well-documented Music languages, Northern Paiute (NP), and to place this information on Northern Paiute in the proper historical perspective in relation to PM.

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1 Langacker (1970) has made a good start on the Takic vowels (see II.4.1), and the work by Hill and Hill (1958) on Cypian stress provides a basis for further investigations now underway.
and, where possible, to PUA. In order to facilitate systematic inclusion of information relevant to both purposes, no attempt has been made to offer a complete analysis of Northern Paiute morphology and grammar in this study. Rather, I have selected a series of particular problems in which the relation of NIPE to other Nuiic languages or to UA in general is important. Because the reconstruction of NIPE and PUA is incomplete and subject to disagreement within the field, it should be remembered that citation of reconstructions for these stages must be considered tentative, pending completion of the analyses of various missing languages or intermediate stages of the reconstruction.

NIPE was spoken along the western edge of the Great Basin in northwestern Nevada, southeastern Oregon, and neighboring strips of Idaho and California. The dialects are divided into two main groups, north and south, roughly along a line from between the Surprise and Honey Lake valleys in the west, through the Black Rock Desert, and south of McDermitt, Nevada and the Owyhee drainage in the east. These dialect areas are here labeled Oregon Northern Paiute (ONP) for the northern group and Nevada Northern Paiute (NNP) for the southern.  

2 Individual dialects within each area are given geographical designations to avoid confusion by the use of popular or ethnographic names which do not reflect the linguistic affiliations of the dialect groups: eastern (E), western (W), northern (N), southern (S), central (C), southwestern (SW), etc.  

Thus, ONP is the dialect of the group of ONP speakers living along the Shoshone to the east of the main ONP area in mixed bands, and known in the literature as Bannock or Bannack. The Haney Valley Paiute of Burns, Oregon are the OWP; the Surprise Valley Paiute of the Cedarville, California area are the SWONP. The Honey Lake Paiute of Susanville, California are the NNWP, and the Pyramid Lake Northern Paiute of Nixon, Nevada are the WNNP. A group of NNWP dialects here labeled collectively as WNNP is exceptional in having an additional series of stops, but in other respects are clearly NNWP dialects. There is no parallel division of ONP, as the ethnographically distinct ONP are linguistically very close to the other ONP groups.

The speakers of NNWP are frequently referred to in the literature as Paiute, which is often suggested as a label to replace Northern Paiute; the same suggestion has been made for Bannock. In view of the specific meanings these terms already have, the term Northern

2 Jurski (1923) first used the term Oregon Northern Paiute to refer to the language of his work on the Burns dialect.
Paluwe is preferred here despite the risk of confusion with another Nuic language, Southern Paluwe, now frequently called Ute or simply Paluwe.

The NP language is most closely related to Mono (Çh), which is itself made up of several contiguous dialects straddling the Sierras just south of the NP area. NP and Ñn together form the Western Nuic (WN) subgroup, one of the three main divisions of Nuic. The other two Nuic subgroups are each made up of a number of closely related dialects or languages whose exact internal relationships are subject to dispute. For this reason I refer to them here by their current ethnographic designations, pending reassessment of the linguistic relationships. Central Nuic (CN) comprises Pamunkey or Koko (Pn), Shoshoni or Shoshone (Sh), and Comanche (Çm). Southern Nuic (SN) consists of Kawaiisu (Çn), Chemehuevi (Ch), Southern Paluwe (SP), and Ute (Ut). The classification of the Nuic languages into three subgroups is accepted by all UA investigators. However, there are no individual sound shifts or lexical isoglosses which neatly separate the three groups. Instead we must rely on the sum total of dozens of criteria. Some of these do in fact distinguish one subgroup from the rest, but the intensive interactions of neighboring groups have blurred the isoglosses to the extent that language-internal and language-external differences are of equal complexity (see Crapo 1971, and the charts in Appendix II below).

Recent work by Miller, Tanner, and Foley on CN (1971), utilizing lexicostatistic methods, has shown the validity of a tripartite division of CN along the lines of the three groups listed here. However, since SN is geographically isolated while the other two CN languages are in direct contact, and since the date of SN separation from the main body of CN speakers is known from historical records to be recent, the Sh-CN division is given less weight in internal subgrouping than is the Sh-CN-Cn division, although the divergence in phonology and lexicon is quite marked in both cases.

On all of the maps below CN is returned to its presumed original position in CN. Goss (1966) has shown for SN that SP, Ut, and Ch probably comprise a single language which he calls Utä, with Ka retained as a separate language. The precise roles of neighboring non-Nuic and non-UA languages in the divergences of SN, PN, and Ka from the other languages in each group (or vice versa) are as yet unclear. Areal diffusion in this region and the influence of unrelated languages cannot be ignored, but the Nuic languages, except for CN, form a continuous geographic area and the boundaries of the subgroups do not appear to have been rigid. Thus conflicting and competing influences are
frequently to be noted. The relative positions of the Musc languages are illustrated as Map 1.

The Musc group was formerly considered (Kroeber 1907, VVH, etc.) to be one of four divisions of a larger Shoshonean grouping, and was called Plateau Shoshonean. The other three divisions were Hopi, Tuba-tulabal, and Takic. Although the Shoshonean grouping, as well as a parallel grouping of some of the southern UA languages into Sonoran, is now no longer considered secure, in many respects it is still desirable to talk about areal features of these groups, especially in phonology (as in Miller 1966). Some scholars merely redefine the old labels as strictly areal rather than genetic, but this has led to confusion. I will use the terms northern and southern UA (NUA, SUA) to separate these areal classes whenever necessary. Each of the former subdivisions Shoshonean and Sonoran is now considered to be a separate division of UA, without the intermediate level of classification. UA as a whole is now believed to be related to another linguistic family, Kiowa-Tanoan (Ki), which has two divisions: (1) Kiowa, a single language of the Plains, and (2) the languages of the Rio Grande Tanoan pueblos (see

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4 Heath (as.) reports morphological evidence for the bipartite division of UA into NUA and SUA, and gives this division full genetic status.
Hale 1967a,b. The degree and mechanisms of the UA-KT relationship have not yet been worked out. For UA and KT, taken together as Aztec-Tanoan (AT) or as separate families, a wider relationship to Penutian and other groups in a Macro-Penutian stock may be possible but has not yet been demonstrated.

II. Phonology

0. Introduction. The Nuu-chah-nulth languages and their several dialects all have highly similar phonological systems, a similarity which is even more striking when underlying rather than surface representations are compared. Reconstructions of PN sounds therefore have a higher degree of phonetic accuracy than might be assumed for languages with more phonological disparity. From this strong point the subsequent development of NP and the other modern Nuu-chah-nulth languages can be traced clearly. Unfortunately, the complexity of the PN reconstruction is not matched in the simplicity of previous reconstructions of NUA, and the precise phonological relationship between PUA and PN is the subject of considerable controversy. Since a

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Abbreviations follow Hale 1967a,b: Tosa (Ta), Towa (Te), Jecz (Je), Kiowa (Ki). The division between Kiowa and the other Tanoan languages is strictly geographical, since the groups along the Rio Grande are linguistically no closer to one another than to Kiowa. Morph and Trager's original separation of Kiowa from the Tanoan languages has been discounted on the basis of more recent evidence.

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1 The phonological notation used in this and succeeding chapters is modified from that used for NP by Lilljebjörn in his personal notes and is similar to that of Labov for Welsh. Both systems share the use of ə for [ə], i for [i], u for [u], o for [o], a for [a], a for [æ], and ɔ for the current final feature; the use of ɔ for another final feature is from Lilljebjörn. (2), (2) refer to an optional or variable final feature over narrow boundaries. Where no ambiguity could result, the recordings of all the other Nuu-chah-nulth languages have been transcribed to this system. There has been no reanalysis unless mentioned. The following distinctions of abstractness are used here: underlying representation; the root abstract phonological transcription, prior to the operation of phonological rules; surface representation; a broad phonetic transcription indicating that all phonological rules have operated, and enclosed in square brackets.
systematic reconstruction of PN has never previously been available, an evaluation of various theories about PUA in the light of the implications and requirements of PN is included as a start toward a complete revision of PUA.

Appendices II and III are actually part of this section, but since the reconstructions of PN form the basis of argument in several other sections as well, supporting forms have been collected into appendices to the general text. Appendix II lists the PN sound correspondences and includes sound inventories of NP and PN; Appendix III lists the cognate sets and reconstructions mentioned throughout the text. Several hundred additional sets are available, but a complete compilation is still a task for the future.

1.0. **Morpheme-final features.** In initial position nearly all consonant correspondences are ones of identity, but the systematic alternation of distinct series of consonants in word-medial position presents one of the most problematical aspects of the Muziki languages. All of the analyses advanced so far are descriptive rather than either historically or synchronically explanatory, and several competing systems are still current. Because the conditioning features for consonant alternation must often be segmented as part of the lexical or phonological marking of the morpheme preceding the affected consonant, none of the current analyses of PN sets up multiple underlying series of simplex consonants. The conditioning (actually, the labeling) feature is usually written as the final element of a morpheme, and is defined as affecting the following consonant. For this reason, these conditioning features are here called **final features**. An illustration of the action of final features on a following consonant across morpheme boundaries occurs in possessive pronominal paradigms in most of the Muziki languages (see below, and IV.1), e.g.

\[ NP \quad \text{1-\textit{kuma} [\textit{iyusá}]} \quad \text{'my husband'} \]
\[ \text{n'-\textit{kuma} [\textit{ak'usá}]} \quad \text{'someone's husband'} \]
\[ (PN \text{ *kuma} \quad \text{'husband; male'}) \]

Although the majority of these final-feature alternations occur at morpheme boundaries, some parallel contrasts are synchronically if not diachronically morpheme-internal, e.g.

\[ NP \quad \text{ky'as} \quad \text{'edge, rim, border; beside'} \quad \text{PN *ky'as} \]
\[ \text{ky'as} \quad \text{'other, different'} \quad \text{PN *ky'as} \]

Except for the presentation of practical orthographies (e.g. Miller 1972 for Sn), these morpheme-internal alternations are treated in the same fashion as those occurring at morpheme boundaries, i.e., they are
written with the same symbols used to depict the final
features even though there may be no evidence to indi-
cate that a morpheme boundary is, or ever was, present.
In some cases it is possible to reconstruct the prior
existence of a morpheme boundary, and some grammatical
alternations involving changes in manner of articula-
tion must be infixed (or interfixed). Some of these
alternations are accompanied by onomatopoetic or affect-
tive reduplication; all vary greatly from language to
language (see e.g. neath [m.], where several types
are surveyed). Other infixation is not characteristic
of these languages and the processes is needed only to
account for alternations of the type that final fea-
tures impose at morpheme boundaries. Given the imper-
fet knowledge of the historical antecedents of the
final features, at this point the choice of marking is
largely a matter of taste rather than of scholarship.

The final features are neither true consonants
nor true vowels or glides, and, while there have been
successful attempts to pin labels to them (e.g., Sapir's
terminology), such labels have been misleading because
a single final feature will have different phonological
effects on different articulatory classes of conson-
ants, as will be shown below. Since these segments
are typologically anomalous, some attempts have been
made to link them organically to preceding vowels.

Liljeblad (p.c.) maintains that there exist parallel
series of vowels which generate the different series
of consonants from following simplex consonants; and a
similar interpretation is implied by the notation used
in VWH (in which vowel series are lexically marked) and
by Joss (1966, 1970a), who adopts phonetic voiceless
vowels to predict one series of consonants. Actually,
there is not the least shred of evidence to link the
final features organically with any vocalic segment in
the underlying representation. Sapir apparently agreed,
for he was careful to state (1931:163) that the final
features were an 'inherent power' of the 'inner form'
of the preceding stem or affix, in other words a charac-
teristic of the lexical labeling of individual morphemes.
This attitude is reflected in his choice of notation.

1.1. Series one, two, and three. Table 1 illus-
trates some of the competing notational systems which
could be applied to other languages or to a general
Nemic orthography. The descriptions of Ch, su, and ka
use symbols based on the surface phonetic result of
the final feature operation. this becomes unwieldy for
comparative purposes and will not be dealt with here.
Ch systems present additional problems because of the
incomplete syncretism and major reanalysis of a portion
of its series, and have also been omitted from Table 1.
Table 1. Final feature analyses.

<table>
<thead>
<tr>
<th>Series 1</th>
<th>Series 2</th>
<th>Series 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liljeblad</strong></td>
<td>lenis</td>
<td>(unmarked)</td>
</tr>
<tr>
<td><strong>Nichols</strong></td>
<td>fortis</td>
<td>(')</td>
</tr>
<tr>
<td><strong>added features</strong></td>
<td></td>
<td>voiceless</td>
</tr>
<tr>
<td>for SNIP</td>
<td></td>
<td>foris [-voice]</td>
</tr>
<tr>
<td><strong>Lamb</strong></td>
<td>(unmarked)</td>
<td>1972: (h)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1970: (')</td>
</tr>
<tr>
<td><strong>Sapir</strong></td>
<td>spirantized (-S)</td>
<td>nasalized (-n)</td>
</tr>
<tr>
<td><strong>VVT</strong></td>
<td>suspending (V_s)</td>
<td>'nasal + V_u or other change'</td>
</tr>
<tr>
<td>Dayley</td>
<td>(unmarked)</td>
<td>gminated (G, or consonant written double)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nasalized (N)</td>
</tr>
<tr>
<td>Miller (early notes) (unmarked)</td>
<td>gminated (G,')</td>
<td>nasalized (N)</td>
</tr>
<tr>
<td>Miller 1972 (unmarked)</td>
<td>gminated (consonant written double)</td>
<td>nasalized (N)</td>
</tr>
<tr>
<td>final (') (nouns) (G) (verbs)</td>
<td>nasalized (n)</td>
<td></td>
</tr>
<tr>
<td>Harms 1966 (unmarked)</td>
<td>(Y-)</td>
<td>(-n)</td>
</tr>
<tr>
<td>Chossky and Halle 1968 (unmarked)</td>
<td>[-son]</td>
<td>[nasal]</td>
</tr>
</tbody>
</table>

Two secondary interpretations of the final feature question, included in Table 1 because they are frequently cited, are the restatements of Sapir's SP phonology (1930, 1931) by Harms (1966) and Chossky and Halle (1968). Both suffer from misunderstanding of the primary data and have only limited use as a result.

Harms adopts the voiceless vowel alternative (see Goss 1970a for additional references) to predict components of series two but uses °β, a final general nasal, to mark series three, thus disguising the essential parallelism in the operation of the two series. Not wanting to sacrifice economy in distinctive feature specification by setting up [pN] as a cluster of p and m, he posits (228-9) a unit phoneme m̃ which under 'unknown' non-phonetic conditioning factors appears initially as m or w. In fact, Sapir (1930:591n) explicitly stated the relevant conditioning:

Palate -gw- goes back to either m̃ or m̃-. Most stems beginning with -g~w- can be found under one or the other of these. A certain number of cases are here listed apart because of my inability to infer from the available material whether they originally began with m̃- or g̃-.

It is clear that we have here a case of intervocalic merger of two well-established phonemes rather than the mysterious initial split of an otherwise unnecessary third nasal.
Chomsky and Halle follow Harris in including \( \epsilon^w \) as an independent phoneme without comment, and become involved in an additional difficulty. Their decision to 'interpret Sapir's \( \ddag \) and \( \ddagger \) as respectively the voiced and voiceless variants of the back glide \( [\epsilon^w] \) (1963:145) ignores the existence of a phonetically similar but distinct glide \( \gamma \) which does not participate synchronically in the variations of the bilabial stop \( p \) as \( \ddag \) and \( \ddagger \) do, and which participates in still other alternations, e.g. with \( p \) (see above). Their interpretation is therefore not acceptable. Chomsky and Halle revised the series-two marker as a final obstruent parallel to the nasal final of series three, and predicted voiceless vowels from the consonants and accentuation as Sapir originally did. Their description is probably as close as we should come to a phonological specification of final features, since the Musl final features may have had several sources.

With the exception of VVH, comparativists since Sapir have written series one as a plain consonant in intervocalic position. The effect on the consonant is described as intervocalic lenition rather than as the result of conditioning by a special final feature.

The terms plain and lenis will be used interchangeably here for this series. The need for accurate, phonologically revealing labels to characterize the various series has been complicated by the practice of arbitrarily selecting a characteristic of only part of the affected set of sounds, such as spirantization for the first series, or of such optional and sporadic characteristics as gemination or preaspiration for the second. Arbitrary labels are inappropriate where they evoke special meanings or interpretations of their own, contrary to the intended sense of the categorization. For example, in SP the spirantized version of \( p \) is \( [\ddag^w] \), which is not a spirant, and in NP the spirantized version of \( p \) is \( [\ddagger - b] \), spirant and stop in free variation, both nondistinctively voiced.

\[ \begin{align*}
\text{PD} & \quad *a1-p1 \quad \text{'white paint, chalk'} \\
\text{NP} & \quad 1 \quad p1 \quad [\bar{\ddagger}1] \\
\text{PD} & \quad *\text{hu-pa} \quad \text{'soup'} \\
\text{NP} & \quad \text{hu pa} \quad [\bar{\text{h}}\text{\text{u}a}] \\
\text{PD} & \quad *\text{soke} \quad \text{'earth' etc.} \\
\text{NP} & \quad \text{soke} \quad [\text{so}\text{\text{ko}}] \quad - \quad [\text{so}\text{\text{ko}}]
\end{align*} \]

For the final feature representing the second series I will use fortis, a term with only the vaguest phonological definition which sidesteps the conflicting implications of various phonetic results of the operation of the final feature and yet provides a clear contrast to the series termed lenis, with which it is in
morphophonological opposition. The labels favored for these two series in VWd carry an unfortunate implication: an unaltering or preserving feature of the second series is removed or suspended in order to produce the first series, which misleadingly implies that the 'unaltering' series preserves the original shape of the consonant. For some sounds this is indeed apparently true, e.g., SP series one [०], series two [m̥] (underlying and PN *m, *m respectively); but the shifts involved are late and superficial in all these cases. The opposite, however, is true in SP and PN, in which ड and ध are productive members of the class of true consonants. Here the plain series is 'unaltered' and the combined fortis and prenasalized series is 'altered'; e.g. ONP ड [०] (*j), * ideologies [०]; PN ध (०, [०] (०, [०]) (०, [०]) (०, [०]) (०, [०]) (०, [०]) (०, [०]), see below.

PN *ty'ka 'eat'
NP ty'ka [tik'a]

PN *ka'my 'jackrabbit'
NP ka'my [kes'i]

PN *a'p/wo 'container'
NP o'p o [op'o]

Lam's use of ड for the series two marker was confusing from the first. It was chosen because preaspiration may accompany series two stops in Ks. However, in Ks, NP, Ks, PN, and Sh there are obligatorily preaspirated sonorants which contrast with the series two sonorants. This problem was not evident at first because the PN preaspirates are rare and include only ह and ह्य. No counterexamples were presented in the previous descriptions of SP, where preaspirated sonorants do not occur; nor in that of Cn, where the series two final feature is reflected as [h - ?] and the distinctness of the other preaspirates is therefore concealed. Preaspirated sonorants and other preaspirates will be further discussed in II.1.2 and II.2.

With data from the additional languages in hand, Lam now uses for series two, as originated by Liljeblad and also used here. The use of (a short, straight vertical line, not a raised comma) as a final feature marker for series two has gained favor mainly on the negative grounds that it does not already imply any particular phonological process. Miller's recent choice of for series two (1972) is unfortunate because of the ready confusion of Liljeblad's and my use of that symbol for series three.

Series three was probably reflected as prenasalization in PN, but both for the languages which do not now reflect it as prenasalization, and for FUA, where
other factors may have been involved (see II.4), it is preferable to choose another arbitrary symbol such as \_ used here to mark this series. If the discussion were confined to PM there would be no disagreement about the use of some sort of general nasal to mark series three. In fact, in Sh and Pn \_ appears regularly as n before a vowel.

PM *pu'ku 'pet'
nSh pu'ku [pu'ku]

PM *na'ka(-1) 'ear; hear'
nSh na'ka [najka]

PM *tapu 'cottontail'
nSh tapu", acc. tapu'a [ta'una]

1.2. Series four: preaspirated and preglottalized sonorants. Many of the Numic languages have sounds which have been described as preaspirated or preglottalized. If the consonant is an obstruent it has generally been considered a more or less free variant of what is otherwise gemination from series two (fortis). On, where series two is marked by [n - t], provides support for this analysis, but is ambiguous as mentioned above. Preaspirated and preglottalized sonorants, contrasting phonetically with the other medials, have been noted in many of the languages. However, in SN and WI the analysis of these morpheme-internal medial sounds as the result of the operation of a final feature is discouraged by the lack of any evidence that p or t could be segmented as a final feature of a preceding morpheme. Another problem is the relative rarity of these sounds in cognate sets. For example, in SN there are very few cognate sets in which even one of the languages shows one of these sounds. Text frequency is not a good indication of their rarity in SN, since they are common in non-Minic loan words in WI and occur in a very few common affixes of native origin (see IV.2), but even when text frequency is taken into consideration only p, t, and n occur in significant numbers. Most of these show variation with /p/ or, less commonly, /t/ in the cognates of other languages or in related forms in the same language; e.g., coq pu'ni - pu'ni 'to see'. Only two examples showing identical developments in both WI languages have been found: \(WI\ k\acute{w}\text{tna(a)} 'golden eagle (Aquila chrysaetos)\', and \(WI\ p\text{nah}a 'father's sister'. Since the Numic languages are so close, the disparity in the cognate sets is

\[ 2 \] Heath (ma.) traces these glottalized elements in verbs to an iterative marker found also in SN and SP. If this is the correct etymology, the force of the process has been largely lost in these languages and it has spread to non-verbs as well, cf. 'golden eagle' in the next sentence.
unusual and suggests that these exceptional sounds are not of FA date but might be explained away if more data were available.

The first three final feature series have been known since Sapir’s publication of his SP material and can be identified clearly in most of the languages. They have also been used in determining FUA reconstructions (e.g., VVH and Death, ss.). However, the existence of a series four went unreported until Miller (1969a) noted a full final feature series based on pre-aspiration in Gosiute (here eeSh). Later confirmation from Lijieblad, Dayley, and other Sh workers, and reports of a precisely similar system for Pn by Dayley and Miller (all p.c.), require setting up a series four final feature h, at least for CN, and probably for PN. The Cs system is compatible with this hypothesis -- in fact the h series has the added advantage of predicting voiceless vowels in Cs -- but the origin of the distinctions has been partially obliterated by wide-ranging regularization of paradigms. A considerable amount of regularization also characterizes the operation of this series in Pn and Sh. Following the general practice for the other final features, the CN preaspirated consonants which occur morpheme-medially have been aligned in notation with this series. Series four has been marked with h here because it appears as h before a vowel in Sh and Pn. The effect on a following consonant is charted in Appendix II. Miller calls this series aspirated and first marked it with H (1969a); in 1972 he used h with nouns and H with verbs; Dayley uses h for both.

The following examples from Sh and Cs are Miller’s (p.c.), and represent his generalization of the correspondence between the two series in each language. He explains that regularization has distorted this pattern in both languages.

**Sh**
- ty’kahpy’ni
- hili’py’ni

**Cs**
- ty’kahk’wa [tikhak’wa]
- hili’k’wa [hipink’wa]

In both Sh and Cs the root ty’ka ‘to eat’, with a fortis medial, takes verbal suffixes with a preaspirated form of the suffix initial, but the root hini ‘drink’, with a lenis medial, takes verbal suffixes with a fortis initial. The suffixes here are -h’py’ni ‘interrupted action’ and -h’k’wa ‘rapidly completed’. Note that in Cs original h’ falls in with the plain h after devoicing the preceding vowel, but h’ is reflected as [h’]. Determination of the shape of the suffix initial by the form of the root medial is an old Pn tendency, but has
been variously regularized in all the languages to the point of unpredictability. Verbal classes based on this original distinction form the basis for much of the discussion of Heath (85.), who attributes the distinction to a fortis vs. lenis ablaut for punctual vs. non-punctual verbal stems in PUA. The situation is no longer this neat in any Nunic language.

Miller presented data at the 1972 Great Basin Anthropological Conference indicating that the preaspirated series four may be the result of earlier patterns of alternating stress and/or final feature assignment in pre-CN, with a resultant split of original PN series two into the modern CN series two and series four. Unfortunately, too little is known about PN stress or accent placement to evaluate this theory in relation to PN. A brief summary of the Nunic stress patterns appears in 11.3.1.

Analysis of new data sources unavailable before 1973 permits the reconstruction of morpheme-medial preaspirated sonorants, well attested in most of the Nunic languages, and possibly of preglottalized sonorants as well. Attempts to link these regular correspondences (presented here for the first time) to similar correspondences for the other CN preaspirates or to the final feature series four have been less successful. Most of the medial occurrences of CN preaspirated stops do not have good PN cognate sets. Those few we do have will be listed with the discussions of the individual sounds, and some of the problems discussed, in II.2.

In any case, there is insufficient regularity to establish many correspondences with the degree of security we have come to expect in Nunic. In Appendix II these less frequent correspondences are listed in full for each cognate set.

The possibility of course remains that the various preaspirated and preglottalized articulations of series two stops and affricates in several languages might be the residue of a merger of earlier PN series four (and series five?) into PN series two. If this is the case, then Miller's postulated pre-CN stage for the split of series two may in fact be pre-NA, with a merger in pre-CN and pre-NS except in the medial sonorants. The present distribution of preaspirated and preglottalized sounds in morpheme-medial position is illustrated below in Table 2. Since information from all Nunic dialects is not available, the chart below is only a partial list. Although it has all the consonant types listed, C3 has been omitted from the chart because, as has been noted, its series two reflex makes its form ambiguous.
Table 2. Distinct morpheme-internal variants.

<table>
<thead>
<tr>
<th>Preaspirated stops and affricates</th>
<th>Preaspirated sonorants</th>
<th>Preglottalized sonorants or glottalized sonorants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph, Sh</td>
<td>NP</td>
<td>dP, wC, hC, hSh, Ka, Ch, SP</td>
</tr>
<tr>
<td>wKh (glides only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.3. Other problems with final features.

Reconstructing the consistent association of a morpheme with particular final features has frequently been very difficult where the same lexical morpheme is marked with different final features in the same or in different languages. For example, in Ni the so-called instrumental prefixes (see III.2) may be marked for either series one or series two effects on the following elements. Some of the resultant alternation types become lexicalized with a meaning difference. In Nichols 1971 I mentioned several of these: e.g., Nd *sakl 'tule', Pd *sa'kl 'tule boat' = 'boat'; Pd *typi 'earth, ground', Pd *ty'pi 'rock'; others will be noted where appropriate.

An especially interesting alternation occurs when more than one consonant series is associated with a particular form, and the series markers are metathesized in different languages or dialects. Metathesis as a morphological device carries no reconstructable functional load in these languages but is not uncommon and is occasionally lexicalized with semantic distinction in a single paradigm, e.g. Ecsh 'to crack, split' mə'kəl- (intransitive), məkkəl- (transitive, singular object). Other examples noted for Pd include the widespread QA set for 'pine tree':
PJ "woko"—(AP, wîn (compounds), SP, Kh, Ch)

wo"ko—(wîn, nêdî, Sh, Pn)

Note that wîn has reflexes of both forms. To align with the first reconstruction, but Ch, Hp, and the SVA cognates listed in UACS 320 are ambiguous. Other alternatives appear in PJ sets for 'small bird spp.', 'cukki - 'cuk'kh, and 'heel', "ta"pi - 'ta'pi'; see also other alternatives listed in Appendix III.

This type of alternation reinforces Smit's claim that the final feature represents a lexical marking on the entire form (see quotation above, p. 15); and in the SP grammar (1930:59-62) he shows that glottals and other features vary in placement throughout the form. Thus it appears that the presence of the required feature somewhere in the form is the relevant marker, and the precise placement is not historically as important. This, of course, complicates reconstruction. There is also some evidence for the mobility of features such as nasality: see in this connection the set PJ "soko 'lungs', where prenasalization (') appears finally, with the medial nasality lost, leaving medial H, in one form nwxh sabo".

Another problem involves the syncretism of particular series in individual Muju languages. Partial syncretism will be treated in II.2 under the individual types of sounds involved, but some major series syncretisms should be mentioned here.

In all of the Muju languages series one and series two are kept distinct, but the phonetic value of the sequence of final feature plus consonant varies from language to language, and also within each language. The series two feature (') syncretizes completely with the following consonant and need not be phonetically separable from it in the surface representation. Where the optional or obligatory consonant of fortis articulation is gemination, prespiration, or preglottalization, the resultant phonetic form may be pronounced non syllabically. However, this does not affect the unitary analysis of the amalgam. This is also true of the other prespirated or preglottalized medials. It is not possible to find an obligatory common difference which would serve to consistently distinguish series one (lenis) and series two (fortis), but in every instance a relative difference is present, and the confusion of the two series by native speakers is less than might be expected. For example, in SP the systematic difference between lenis [ŋ] and fortis [m] may be represented in the speech of a single individual by either [ŋ][ŋ] or [m][m], where an identical phonetic value [m] may represent either the lenis or the fortis series depending on...
the opposing sound. Despite the lack of confusion in the modern dialects, the amount of syncretism between individual members of the three series in the various basic languages and in individual cognate sets indicates that the differences between the series sometimes lapse.

Series three merges completely or partially with another series in several of the languages and dialects (see map 2), and is specially modified in some dialects. Of the well-reported JI groups, only the sAP dialects preserve three distinct series in the stops and affricates. Here the series three marker (') has shifted from the original prenasalization to voiced fortis, in opposition to the original fortis series two, now redefined for that group as voiceless fortis.\(^3\)

Voicing as a distinctive feature is not required in any of the reconstructions of PN or KUA, although it does appear from time to time in daughter languages, e.g., JI and JIC (see II.4.2). In the other JI dialects, series three (') has merged into series two (').

Since the sAP area separates JI from sAP and OAP (see map 1), languages with parallel mergers are not contiguous. Thus it seems most plausible that the

\(^3\) And appears similar to sAP in the only example for this series: en'n'yu [en'yu] 'dog, pet'; but evidence for other sounds is lacking. The special case of en'n'yu will be treated in II.2.3.
Mergers of series two and three were parallel but separate. Elsewhere in Hunic we have the example of *s/t, which also exhibits the same merger and is geographically even more distant.

For Na Sigmond has documented the gradual erosion of the series three distinction. In the 1930's he recorded a free variation [mb - b] for *m and [nd - d] for *n, although presumed earlier variations for *m and *n were by then recorded only as [z] and [s - h], without parallel prenasalized alternants. Forty years later, recording of *m and *n as only [b] and [d] indicates effective completion of the merger of series three into series one. If even today consonants of the original *m series tend to be stops rather than spirants, still they are not phonetically distinct.

In Na we have another partial merger of series three into series one. As in Na, it is the consonants produced at the front of the mouth which have maintained the series distinction longest. Na [p] from *p vs. [b, s] from *s are still phonetically distinct, although the series three marker *s has disappeared as a separate final feature and some sporadic shifting of final feature series has occurred. The original distinction between [t] from *t and [r] from *t has been reanalyzed so that only [t] and not [r] occurs after *t. In all cognate sets cited here, Na forms have been transcribed as though the mergers had been completed, since they are no longer safely separable in the historically correct way. Thus *p reflects original PN *p, *t, *t, and *n reflects original PN *t, *t, in the notation used here. Since in most cases the correct CN form can easily be derived from the Sh or CN form, no information is lost and the Na form need not be critical for the CN reflex of a contrast of series one with series three. In any event, the merger is complete at the other points and manners of articulation. The distinction is maintained, however, in the sound charts of Appendix II.

Some mention should be made of the operation of series four in CN. In Pn and SH, series four stops and affricates are generally voiceless spirants, while sonorants are preaspirated. In Cs, series four is reflected primarily by voiceless vowels with a following plain medial stop or affricate resistant to intervocalic lenition. In other words, the h final feature affects the preceding vowel in Cs and serves to insulate the following consonant. The insulating quality of final features is also noted in II.3.1 and in the reflexes of preaspirated and preglottalized sounds in Appendix II.

If series four (h) can be extended into PN, the mergers of this series into the other series in Sh and
Sn will need to be carefully investigated, but at present the direction of merger is unclear. Potential cognates and problems are discussed with each of the sounds in II.2.

Table 3 charts the mergers of stop and affricate series in Music. In the table, consonants are marked to indicate whether they are fortis (+) or lenis (-) relative to the general articulations of the other series in the language. Here $\gamma$ stands for a stop or affricate; phonemes incompletely merged are separated by a slant line. The order of the series is adjusted (one, three, two, four) to plot the mergers more clearly.

2.0. Development of the Sn sounds in the modern languages. In this section the Sn reconstructions are outlined in relation to the correspondences which determined them. The patterns of individual groups of sounds are partially indicated by the system of presentation. The effects of final feature operation are also noted where they are interesting or unusual.

2.1. The vowels: "i, "a, "u, "u, "g, and "ai. The Music languages have phonetic voiceless vowels which are predictable from stress or accent (see II.3.1) and the surrounding consonants (as with Cs; see II.1.3). No underlying voiceless vowels are required in the analysis of final features preferred.
here. Vowels are often influenced by coloration from the neighboring consonants, e.g. rounding from labials or labiovelars, nasality from nasal consonants (see H *yk* 'smell', *sogo 'lungs'). Most of these developments occur synchronically, but the variations in the cognate sets indicate that similar processes have been in operation throughout the history of the languages. Unrounding of some *u* and *o* to *i* and *e* is observed in many sets in Bt, but the conditions are unclear.

Music vowels also determine allophony of various adjacent consonants, notably rounding of velars after round vowels in Sa (cf. H *tuka 'dark; night'), and palatalizations (see charts in Appendix II and, for Hr, II.3.2).

The restrictions on the occurrence in underlying representation of round vowels and labiovelars, and of palatals and *j*, will be noted below (II.2.3). A strong tenacity for harmony of vowels is also present in the Music languages, and is easily visible in at least one language in nearly every cognate set listed in Appendix III. It is nowhere obligatory or systematic, however.

All of the Music languages have identical correspondences for five vowels after the superficial assimilations noted above are undone, and H *i, y, a, u,* and *o* are obvious reconstructions. Hr, Sp, Ch, and Ut have only these five vowels in their inventories at present. The range of phonetic variation for all Music vowels is wide, with considerable overlap in pronunciation, especially involving vowels differing only in height, and with *y* participating in sporadic interchanges with all of the other vowels. In general, neighboring vowels on the Music vowel chart overlap and interchange sporadically.

Sa, Sa, and all of Sa have a sixth vowel contrasting with the five common to the other languages (see Map 3). This sixth vowel is usually written *g*, but in most of the languages the actual phonetic value varies among [a] - [e] - [e].

Some of these vowels have sources in native Music sounds; however, in Sa we find in addition a significant number of loan words with an original *a(e)* vocalism. These are usually from (or via) the neighboring Penutian languages, Southern Sierra Atwok (S31) and Chukohansl Yokuts (CH), and frequently show other non-Music features. Other Music languages have only a very small number of loan words from any non-Music

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4 For Sa, Miller (1972) wrote /ty/ for those sounds which are always [a], /ay/ for those which are always [e], and /ay/ for those which are variable. This distinction does not hold throughout Sa, where nearly all yield /ai/, and close lineages cannot be drawn. I have therefore retranscribed all Sa entries here as *ai*, ignoring Miller's three-way distinction. (See Graso 1971 and Miller 1963b.)
source prior to the introduction of English, and the presence of words with e-sounds is negligible. I know of no words in NP which have been incorporated into the language with an e-vocalism, even in the post-English period. Some examples from WN include:

\[\text{WN: so'me'nee'na?a < SS: soileela, sumaeno,}\]
\[\text{< Sp. sombrero 'hat'}\]

\[\text{WN: je'nipa?a < SS: jenpa- 'poison' (n)}\]
\[\text{je'nipa?n} \quad \text{jenpa-'i} \quad \text{id. (v)}\]

\[\text{WN: wihes'ii'ti < CY: weheeslit? 'mountain lion'}\]

Rather than reconstruct *e* for the native sixth vowel sounds, a reconstruction which implies a full vowel on the same level as the other five, I have chosen the symbol *ei*, which more accurately reflects the developments within WN: original *æ* or *æ* (WN *a* or *æ*) assimilating to other sounds in the word exactly as other vowels do; original *æ* (or *æ*-i) sequences across morpheme boundaries; and original *æi*, where the medial consonant has been lost. Note that none of these explanations requires a single vowel.

---

5 Mobility within the root of such features as vowel length, consonant length (i.e. fortis), and preglottalization is typical of WN loan words compared to the form in the original donor language -- a trait noted elsewhere in Jisco as well.
reconstruction different from the basic five. A small group of regular correspondences, which I strongly suspect to be ultimately from one of these sources in PN or pre-PN, requires a reconstruction for PN which I have chosen to label "ai," emphasizing its similarity to the secondary sources rather than to the simplex vowels. Acoustic similarity of the secondary vowels to early "ai has aided in the preservation of the latter and has resulted in identification of the two.

Although written here as two vowels, many of the "ai sounds count only as a single mora. These are assumed to represent either a single underlying vowel ə or ɪ, or else early two-mora sequences that became lexicalized as single moras before the modern mora count for stress or accent placement in the modern languages became fixed (see II.3.1). The two-mora "ai sequences, or vowels that vary between one and two moras, are assumed here to be more recent. Similar a-ı sequences are produced synchronically even in the languages which do not have a sixth vowel. Examples of long medial [e], etc., are here transcribed ael.

Since Sh is the most copiously documented language having a sixth vowel ael, the following sets are presented to illustrate how many of these vowels are traceable to PN "a" or "ı. The rules producing the shifts of ə and ɪ to ael are optional and sporadic in their application. Many of the shifts are associated with neighboring velars (including labiovelars), apico-frontal, and ı, but there are many exceptions.

E > ai

<table>
<thead>
<tr>
<th>PN</th>
<th>&quot;pa'wi&quot;</th>
<th>fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wn, Jp</td>
<td>&quot;pa'kwi&quot;</td>
<td></td>
</tr>
<tr>
<td>Cn, Rh</td>
<td>&quot;pa&quot;wi</td>
<td></td>
</tr>
<tr>
<td>Sh</td>
<td>&quot;pa'i'kwi&quot;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PN</th>
<th>&quot;na'ka-i&quot;</th>
<th>&quot;ear; hear&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jn</td>
<td>na'ka</td>
<td>&quot;hear&quot;</td>
</tr>
<tr>
<td>Sh</td>
<td>&quot;na'ka&quot;</td>
<td></td>
</tr>
<tr>
<td>Jp</td>
<td>&quot;kwa'si&quot;</td>
<td>&quot;tail&quot;</td>
</tr>
<tr>
<td>Sh</td>
<td>kwa'si</td>
<td></td>
</tr>
<tr>
<td>Jp</td>
<td>&quot;saj'a&quot;</td>
<td>&quot;mother' &lt; *&quot;sak-i a (q.v.)</td>
</tr>
<tr>
<td>Sh</td>
<td>saj'a</td>
<td></td>
</tr>
</tbody>
</table>

The following forms are parallel to the first group, but other irregularities (including a limited geographical distribution) have made a PN form doubtful, and they have been omitted from Appendix III.

<table>
<thead>
<tr>
<th>Jp</th>
<th>pa'ciko-</th>
<th>&quot;cama&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sh</td>
<td>pa'siko</td>
<td></td>
</tr>
<tr>
<td>Jp</td>
<td>tapa'siko</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Jp</th>
<th>maju'kwi</th>
<th>&quot;hand gaze&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sh</td>
<td>majo'kwi</td>
<td>&quot;hand gaze&quot;</td>
</tr>
</tbody>
</table>

---

6 Sh should show ı for "ı across morpheme boundary. There are few other sets showing these reflexes in morpheme-internal position. This set is further peculiar in that the Sh form *muki is close but not directly cognate; see also Jp forms.
1 > al
PN *pahi 'three'
Sh pahai

PN *maniki 'five' (cf. K. n. ka manyki)
NP maniki
Sh maniki

PN *kohei 'belly, guts'
Sh kohei

a > hai and i > al (eosh)
PN *kawal 'back' (body part)
Sh, C. kawal
PN kawal

Below are some of the al forms in which a source in *a followed by *i across morpheme boundary (a-i) is probable. In the first two illustrations, a synchronic NP vowel cluster al corresponds to an optionally two-sound sequence in the other languages, which is indicative of the recent formation of the sequence. That of the third set seems older, but the aP form is ambiguous and may reflect only PN *pa. There are numerous other examples for this type of correspondence; most of them are recent formations.

pre-PN *ka - *ka-i, a predicative element (see IV.2)

PN *ka-i negative (see IV.2)
NP ka
Sh ka

PN *-pa(-i), a noun class marker + an accusative suffix (see III.2, IV.1)
NP -pa
Sh -pa

One of the forms in which al occurs as a two-sound sequence morpheme-internal, and for which a source in *aCl is posited (with loss of the medial *C producing an al cluster), is NP, SP kawi, ka kawal 'mountain'. The two-sound correspondents in these three Jicu languages suggest late loss of an intervening consonant or a morpheme boundary. Unfortunately, ka and the C. languages have a different construction, PN *toja-pl, but Takic reflects *kawi 'mountain'. PN medial *w is preserved regularly only in en and PN, and would be lost in SP, K. a, and probably SP (see II.2.3); thus a late loss in the individual languages from a *kawi- could be justified: all the attested forms are the expected ones. A form with an earlier loss of the medial consonant would be PN *zaki 'tule' and its derivatives (see the variant developments in Appendix III). Not many such remain.

In several sets for al there are no indications of recent loss or of earlier compounding, and some reconstructions of PN *al appear necessary. There is only
a handful of sets, several of them etymologically related. A large percentage of the potential PN *ai sets is reported here.

Two of the best examples, sets which have long been noted as problematical for reconstruction, are repeated here.

<table>
<thead>
<tr>
<th></th>
<th>'bow'</th>
<th>'daughter'</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>aty?</td>
<td>paty</td>
</tr>
<tr>
<td>Sh</td>
<td>ati, aty</td>
<td>pati, pati</td>
</tr>
<tr>
<td>AN, Fm, C2, Ca</td>
<td>aty</td>
<td>pati</td>
</tr>
<tr>
<td>Ut, Ch</td>
<td>acy</td>
<td>pacy</td>
</tr>
<tr>
<td>SP</td>
<td>aty</td>
<td>paty</td>
</tr>
</tbody>
</table>

Several of these forms have other affixed elements, irrelevant to this discussion, which have been omitted.

To explain the SP medial ŋ, Sapir reconstructed the second vowel as *i, which palatalized the preceding *t and subsequently changed to ŋ (1930:50). Actually, contemporary palatalization rules in those languages tend to be progressive, affecting sequences of e.g. *it more regularly than *ti; and the final vowel shift proposed for SP would also be irregular. The Sh alternation of ŋ with ŋ in final position is late and due to

Unfortunately, *pati is not attested outside Numic, but *alty is part of one of the most widespread and problematical UA sets. Below is a very tentative reconstruction, including a new pre-PN reconstruction that relies on the other UA languages for its expansion. Note the parallelism to the set for 'mountain', PN *kawi, although the loss of syllial consonant in 'mountain' is quite late while that in 'bow' had occurred by PN times.

the influence of the accusative case forms in -ί, a typical synchronic process in a particular class of nouns (see IV.1).

The reconstruction of PN *alty and *pati permits explanation of the SH consonant palatalization and the vowels in all the other languages. Interestingly enough, the languages showing ŋ in these forms are just those in which ŋ functions as a sixth vowel, while ŋ appears in the languages lacking a sixth vowel. Thus those languages which maintain the vowel contrast in the phonological inventory as a whole maintain it also in these forms in a predictable way (see AS 3).

7 The Mansian manuscripts usually agree with the current pronunciation, but there are a few recordings for 'bow, sun' of [nidi], which could be read either ati or ati and could reflect either a personal idio- synca of Mansian's informant or a Shoshonean parallel to the sporadic occurrence of AN ko'go 'white' (from Sh) beside regular kono (see VI.1).
The disparate **ai** and **ar** reflexes are distributed as follows:

| **NP** | 'bow', 'daughter'; 1 elsewhere |
| **Ka** | 'bow', 'daughter', 'hook', 'tongue'; 2 elsewhere |

Sporadic irregularities of course occur in these sets as in others, but two particular odd correspondences should be mentioned here. I have reconstructed both of these next sets without the **ai** vowel because, although both show **ai** in Sh and **em** and (in one case) in **en**, none of the other languages having the sixth vowel shows **ai**. In any event, the **ai** should not modify the **k** to **q** in **em**, either synchronically or diachronically, and it seems best to posit some sort of sound symbolism, especially in the second example below. For the **ai** in **em**, it is interesting that again a velar follows (cf. p. 43 above).

| **Nm** | *pa* **'ka' 'to kill' (sg. obj.)** |
| **Nm** | *pa* **'ka' |
| **Sh** | pai'kah |
| **Co** | pai'ka |
| **Pn** | pa'kah |
| **Sw** | pa'ka |

---

8 In the **NP** word for 'tongue' the pronunciation is *tongue*, which I interpret as lowering of **i** before **ko**, parallel to Sh **ai** from **i** before a low vowel through **i** but see note above.
2.2. \( h \) and \( z \). The laryngeal glides \( h \) and \( z \) are distinctive in important respects. They pattern as consonants, as opposed to vowels, in terms of canonical restraints, but unlike the true consonants they are unaffected by preceding final features, which disappear without surface results. Both can precede sonorants, and \( h \) patterns as a final feature in at least \( c_9 \). Both alternate as reflexes of the series two final feature in \( c_9 \).

On first inspection it appears that both \( h \) and \( z \) can be generated whenever two vowels need to be separated, either at morpheme boundary with a vowel initial second element, or in cases of intervocalic consonant loss. However, increasing knowledge of the Nuxic languages suggests rather that \( z \) performs this function while \( h \) is usually a direct reflex of an underlying segment or final feature. Because some segmental \( z \) may occur as the reflex for preglottalized sonorants, and because \( z \) is lexicalized in individual morphemes, I have reconstructed \( *j \) for \( k \), but it must be noted that even these lexicalizations may not stem historically from an underlying segment. In other positions I prefer not to write \( *j \) or \( z \); thus, forms with initial vowels are understood to permit an initial glottal, and it is likewise omitted at productive morpheme boundaries. This makes the statement of two CN
rules easier. In WN and SN, so far as we now know, final features disappear before vowels, but in CN *₃ (preaspiration) becomes ₃, and *₃ (preaspiration) becomes independent ₃, before a vowel.

One example where ₂ always appears in WN is the use of -₂ İ (where İ is a vowel identical to that of the preceding syllable) to mark a noun as a term of address (either a kin term or a proper name), or to convert a common animal name into the name of a mythological character.

\[ \text{WN: } \text{İna- 'coyote'; } \text{İna₂ 'coyote'} \] (see FN
\[ \text{İna/İn} \]
\[ \text{-haza₂ 'older sister'} \]

In some music sets it cannot be determined whether ₃ or ₂ derives from an underlying segment in morpheme-medial position. In these cases the reconstruction of PN *₃ and *₂ is to be understood as tentative. Initial *₃ is well reflected as ₃ in all of the music languages and dialects except some SN, SP, and UT dialects, including Sapir’s SP where medial ₃ is usually dropped, especially before ₃ or ₂. Medial ₃ is generally variable in preservation, with PN showing the greatest tendency for erosion. In most of the languages, all of the glides *₃, *₂, *₃, and *₃ have poorer rates of retention than other plain medials (see II.2.3). Medial ₃ is nevertheless not uncommon in WN, since WN ₃ can be a reflex of PN *₃, *₂, *₃, *₂₃, *₂₃, *₂₃, as well as *₃, and may correspond to CN *₃. Other music languages show ₃ from these as well as from PN *₃, *₂, *₂₃, *₂₃, and *₂₃ (see following sections, and charts in Appendix II).

2.3. ₂ and ₂. All of the music languages have a palatal glide ₂ and a labiovelar glide ₂. In some of the languages these sounds are produced with a marked degree of friction or even with a stop component. In UT, ₂ is often recorded [₂], and for Ca Higgs (1949: 229) reported idiolectal intervocalic variation of ₂ as [₂ - ₂₂], ₂ as [₂ - ₂₂]. Given this consonantal quality, which will be noted again in connection with other UA languages, it is not surprising that ₂ and ₂ pattern as true consonants in terms of the morpheme canon (see II.3.0) and in reacting with the final features.

The occurrence of preaspirated and preglottalized sonorants, including ₂ and ₂, has been mentioned above; the complete sets for these reconstructions for PN appear in Appendix II. Synchronously, most of the languages no longer treat ₂ and ₂ as active members of the class of consonants, although in WN, SN, and PN ₂ and ₂ do behave as full consonants (see map 4). In these three languages, series one yields a plain ₂ or
\( \breve{m} \), which contrasts with a merged series two and three. In ONP, ON, and NNP (except for eNNP), series two and three have merged into series two (\(^1\)). In eNNP and Pn, series two and three have rather merged into series three (\(^2\)). We lack ean data, but at least for \( m \) a series three survival is indicated, as in this strictly \( \breve{w} \) set:

\[
\begin{array}{c}
\text{ONP, ON, NNP (exc. eNNP)}} & \text{noty}'\text{wa} & [k'\text{w}]\\
\text{eNNP} & \text{noty}'\text{wa} & [g'\text{w}]\\
e\text{an} & \text{noty}'\text{wa} & [\text{g}']
\end{array}
\]

In Table 4, material from the charts in Appendix II is modified to show the series mergers among the consonantal glides. In the first group the consonantal glides occur with the only final feature preserved in those dialects. In the second group, either final feature produces the merger product, identical to series three.

In the other Nortic languages, final features drop before \( \text{\textipa{a}} \) and \( \text{\textipa{e}} \) just as they do before \( \text{\textipa{e}} \) and \( \text{\textipa{e}} \), but enough clues remain to indicate some participation of \( \text{\textipa{a}} \) and \( \text{\textipa{e}} \) in alternations similar to those produced by final features. For SP, Sapir (1930:49) noted:

When an initial \( \text{\textipa{e}} \) comes, by derivation or compounding, to stand after a vowel, \( \text{\textipa{e}} \) regularly becomes nasalized to \( \text{\textipa{ew}} \). ... This rule does not operate, however, when \( \text{\textipa{e}} \) becomes intervocally by reduplication.
### Table 4. Merger of final feature series: \( \ddot{\lambda} \) and \( \ddot{\eta} \).

#### A. Series three merged into series two

<table>
<thead>
<tr>
<th>Underlying</th>
<th>ONP</th>
<th>mWNAP</th>
<th>WNAP, WMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>( *j )</td>
<td>( \ddot{\lambda} [\ddot{\lambda}] )</td>
<td>( \ddot{\eta} [\ddot{\eta}] )</td>
<td>( \ddot{\eta} [\ddot{\eta}] )</td>
</tr>
</tbody>
</table>

What has apparently happened here is a generalization from those instances in derivation or compounding where a morpheme with an initial \( \ddot{\eta} \) was preceded by a morpheme with the final feature \( \ddot{\lambda} \) (or possibly also \( \ddot{\lambda} \)), to all such operations with \( \ddot{\lambda} \); the alternation has been retained despite the fact that \( \ddot{\eta} \) is no longer a productive participant in the final-feature system in \( \varepsilon \). This would place \( \varepsilon \) in the second group on Table 4. \(^9\)

In \( \rho \) and \( \varepsilon \) there are a number of initial \( \ddot{\lambda} - \ddot{\eta} \) sets, most in words referring to body parts, kin terms, or other items normally possessed. In these two languages a postposed \( \ddot{\lambda} \) serves as a possessive marker (see III.0 and IV.1). Before a vowel, \( \ddot{\lambda} \) becomes \( \ddot{\eta} \) in these languages, and stem splitting could have served as the original source for this type of alternation in early \( \rho \), as in:

- \( \rho_{\alpha} \) “\( j/ny'ga(\ddot{\alpha})py \) 'chest' (\( **jy'ga-? \))
- \( \varepsilon \rho_{\alpha} \) “\( j/ny'ka'py \)
- \( \nu_{\alpha} \) “\( ny'gsa'py \)

In several of the other languages there exist parallel \( \ddot{\lambda} - \ddot{\eta} \) sets, e.g.

---

\(^9\) Other interchanges of \( \ddot{\eta} \) with velar nasals will be noted in II.4.2.
PN "jahi 'in-law, usually parent-in-law'  
PN "tahi 'in-law, usually co-in-law'  

Both variants occur in at least NP, Sh, Sn, and Ka, and thus both must be reconstructed for PN. In the first set Sh jahi and Sn tahi add another example of the j - h pattern.

Similar alternations also occur morpheme medially, some may be old reduplicates, e.g. the j - g in 'move'. For others, the diachronic motivation is less apparent. 10

PN je'ei 'to fly, go up, rise' (sg. subj.)  
SP no'ei 'to fly'  

PN pata'ei 'foom' ("water"-'rise')  
Sn saa'ei 'foom' ("boll"-'rise')  

PN jy'eyga 'to move, stir, shake'  
Sn jy'eyga l.  
Pc p'ity eyga 'rattles of rattlesnake' ("behind")  
SP ny'iy- 'to shake'  

When other cognates are taken into consideration, the above sets become especially problematical, and have not been reconstructed in Appendix III, although except

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10 The j - g alternation may be very old; cf. PN "myha with either SUA "myca or (other) NUA "myja 'moon, month' (UASS 295). L. Kaufman (n.d., 1965) noticed a j - g interchange in other SUA sets, but his interpretation differed from what I suggest here.

PN "pi'juhuh (?) 'buttocks' ('back, behind') = eONP, Sh pi'thuu"  

Alternate interpretations could be argued for this set, but in view of the other alternations listed here this analysis seems the most reasonable. Other forms with alternations of this type will be noted as they occur.

In morpheme-medial position and after a vowel at morpheme boundary two distinct patterns of distribution emerge for the sounds reconstructed as *j and *s in general terms, one where the medial is lost in most of the languages and the other where the medial is retained. Whether these sets represent two different medials, i.e. a plain vs. some feature-insulated sound (see II.3.0), or perhaps are conditioned in some way not immediately obvious, is at present unclear. The scarcity and insecurity of the sets provisionally labeled "hj, "*j, and "*s may indicate that one of these might better label one of the two better-attested glide sets. However, a split in reflexes of medial "h, similar to that of "j and "s, indicates that caution is necessary. (See examples of "s, "j in Appendix III.) Absence of any other alternations in these sets makes other reconstructions difficult. It is my
working hypothesis that accent placement at an earlier stage may have had something to do with this distinc-
tion in medial reflexes. In Ka, Ch, and wän, a lenis
medial ʔ loses all nasality and appears as ɣ; in wän
this ɣ behaves according to the canon restrictions
(see 1.3.0) and drops out between round vowels: of.
PN "lono 'winter, year'. It is possible that similar
shifts could have established a contrast among the
glides, but other possible explanations should be
looked for.

Some examples of medial glides may not represent
underlying segments at all, but may be conditioned by
the surrounding vowels. The most frequent rules are:

1 (and sometimes ɣ) before a non-identical vowel
with a more retracted articulation condition
generation of [ɣ].

ɣ before a vowel other than ɣ conditions generation
of [w].

These openthetic glides can occur wherever two vowels
come into direct contact. The same environment con-
ditions generation of a laryngeal, although the latter
is not restricted by vowel quality. The examples
below, from Nichols 1971, illustrate this practice in
NP and wän. All consist of root morphemes followed by

a single suffix *-a, which is sometimes classed as an
agentive but actually means 'possessing the charac-
teristics of; in characteristic association with'.

PN *pi-a 'mother' < *pi 'suckle'
NP *MITa
wän píja

PN *tu-a 'child, son, offspring' < *tu 'give
birth'
NP tu a
wän túwa

In each instance the ʔn glide is generated by the
qualities of the surrounding vowels, rather than being
present in underlying representation. The glide in NP
is an optional insertion (see II.2.2).

Some initial and medial 1 and ɣ derive from
underlying 1 and ɣ respectively. Sequences of vowels
where 1 or ɣ may convert to consonantal glides are
varied. Unlike 1 and ɣ from PN *j and *w, these glides
are maintained medially in most of the sets.

PN *saki-a 'mudhen, coot'
NP sája

Loss of the medial ɣ resulted in an impermissible
vowel sequence a1u (see 1.3.0), which was resolved
in NP and other Sinic languages by conversion of 1 to
1. A similar shift occurs initially in synchronic derivation in Mv; both of the following forms are based on the same deictic morpheme (see IV.1).

comp 1su [1's'ū] 'this'

1·a [yā] 'here' (see II.3.2)

where 1 and a are adjacent, there occasionally exists the option of converting either one to a glide. The following example is extreme, but the procedure is not uncommon (see especially the sets with PN initial *kW and *ku).

NP Kujul

NSH kWiwi

PN *kujul is reconstructed here to provide a better link with the Tb and Tekic forms (UACS 177).

These same glides and vowels participate in a series of other alternations. In each case below, comparative evidence both within Mnic and in the other UA languages suggests an initial PN *j or *w, the form listed in Appendix III. Several other examples of these alternations have been omitted here.

ki - mu

PN *wi'ci female kin term (various meanings)
CN, KJ *hu'ci
SN *wi'ci

PN *wici 'bird, bird sp.' (cf. CN forms)
NP hu'ci
SN *wici

ju - (h)ik /_V

PN *ju-a affective term; object of endearment or affection (originally 'that which is soft') 11
Mv jowa 'bunny, baby rabbit'
NP jwa 'fawn'
Sh a'wa 1ad.
Kv jawa- ju'a 'doll'
Kiwa 'parent'
Ch biwa 'parent; doll'
SP [lja] 'parent'

ju - (h) /_C

PN *ju-ju'ka (?) 'soft, easy'; cf. PN *juka 'mucus, slime', etc.
NP ju'so ka 'soft'
I ca ka (old recordings)
Mv ai'sa ka 'to be soft'
Sh jo'ca- jo'sa- 'soft, spongy'
CN jy'ju'ka- 'soft'

A similar interchange affects PN *s in SV. Note that SP and Ut are ambiguous in the following forms, since both *w and *h would drop before a in these dialects. Reflexes other than k in the second two sets are not regular.

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11 *ju is a very old root and also occurs in other partial sets not included here, with meanings like 'gentle', 'fawn' (CN), 'soft', and 'weak'.
3. Independent nasals, or nasals which occur intervocally, result from underlying PN plain, pre-aspirated, and preglottalized nasals as well as those in the regular final feature series. In PN and Sh the series three final feature (\(\tilde{u}\)) before a vowel is reflected as \(\tilde{w}\), as has been mentioned.

Distinguishing in the field among the systematically distinct series of nasals is one of the most difficult problems of Numic phonology. Reports of particular languages are not reliable where these sounds are concerned. Killion (p.c.) reports now that the Shoshoni Dialect Survey has found that Ca has a distinction between \([n]\) and \([\tilde{n}]\), never previously reported for Ca but typical of Wi and the other CN languages. It is uncertain just how many of these distinctions in the nasals may also be present in the other languages.

The series based on \(\tilde{w}\) is exceptional, since series one lents \(\tilde{w}\) is often reflected as \([\tilde{y}, \tilde{w}, \tilde{\eta}\]) or as nasality on neighboring vowels, especially on round vowels, while both series two and three often yield \([\tilde{n}]\). As has been noted above, this is not as ironclad distinction in NP and the Ca languages, but the tendency is clearly present in Nucki as a whole. For example, Ch, Wi, and Ka medial \(\tilde{w}\) is usually \(\tilde{w}\).

It is generally assumed that there has never been a meaningful distinction between nasals of series two.
and three, and in all of the Jivaka languages preserving
these separate series their effect on nasals is identi-
cal. It was primarily the contrasts between series one,
series two/three, preaspirated, and preglottalized
nasals in word-medial position that required establish-
ment of the preaspirated and preglottalized sonorants
in PN reconstructions. Some asymmetry in the system
remains, however, when the distribution and frequency
of nasals in PN are contrasted.

Numerous sets exist for PN initial *m and *n, and
for medial *m, *mb, and *m. WN and CN languages show
many examples across morpheme boundaries, but *m
is not found morpememedialey except in verb stems where
medial of series one and two alternate in the verbal
paradigms. Although they occur across morpheme bound-
aries in WN, medial preaspirated nasals are less common
in PN, but PN *mn and *n are well established and
*m, though rare, is highly regular in its correspondences;
as has been mentioned, the preglottalized series are
all rare and uncertain (see Appendix II). 12 An inter-
dependent velar nasal g series is lacking in WN, CN,
most Sh dialects, Ka, and some Ut dialects, in all of
---

12 Miller has suggested (p.e., 1973) that the common
*m and *mn medials may have attracted occurrences of
*m and *n respectively, which accounts for the
rarity of the latter two. If so, the conditions for
the mergers or retentions remain unclear.

which it has merged with the g series; and in none of
the languages does g occur word initially -- the only
true component so restricted. This is undoubtedly why
the g-series cognate sets are less common at present than
might be expected (see Map 5).

Interchange between the m and g series is common
after round vowels, presumably influenced by a re-
interpretation of a [qN] sound. This is an old problem
in UA as well (see PI *kusa 'husband, male'). Spar-
dioic m occurs in g-series reconstructions of PI *pasa-
'salt', PI *oqa 'baby', *sogo 'lungs', and probably
in PI *puqal (I) 'mouse'. Nasality and rounding probably
lie behind the sporadic m in PI *oqa 'yellow',
etc., and the shift to the g-series of UN pologi (I)
(other UN pologi) from PI *pohni-a 'skunk'.

Similar factors may be responsible for the m -- g
interchange noted below in 11.4.2. The relationship
of [qN] to SP m and its function in the final feature
series have been mentioned in the previous subsection.

2.5 *s and g. None of the Jivaka languages
preserves a reflex of *s distinct from *m; in fact,
most of the languages also merge *s into *m, leaving
m as the only medial reflex and thus showing no con-
trast from the operation of final features. WN and
several KN dialects (including eon and nein but not
mono) preserve a distinction between g and *m, and are
thus critical for this distinction (see Map 6). There are some indications of sporadic occurrences of *h from *s throughout the group. Sapir noted that the lenis series one reflex of *s may once have been *h in Nunic (1930:64). One of the sets in which *h appears is P 1 *tosa 'white', for which the normal NP form is *tosa; the same recording occurs sporadically in SP. The expected form in NP would be *tosa (see also IV.2).

In Ka a binary [z]/[c] contrast, similar to that originally maintained by *'s and *s, has re-emerged. Ka [z] is in fact from *'c, while [c] reflects the merged *'s, *'s, and *'s. All of the Si languages have merged *c and *'c to [ts], and the strict series separation between [ts] and [z] is no longer clearly maintained. In the other languages, the normal series contrasts typical of stops are maintained, and in general in the Nunic languages the affricate series pattern as stops.

The interplay between *c and *s is found at all stages of the UA languages, but each stage has sets in which no variation occurs, so that *c and *s must be reconstructed separately. Confusion of the two probably came about through the resemblance of their series one lenis variants [g] and [z] respectively. In Si, for example, both often merge to [z] idiomatically, but are generally kept apart in careful speech. In SP, g
generally undergoes palatalization (see below), while $g$ never does. Lamb notes (1958:32) that because medial $g$ in $w$g is always ‘g, there is no loss of contrast in the modern languages, even though $g$ frequently loses its stop component. In the $m$ dialects where plain $g$ is preserved, contrast in the two sounds is maintained because $g$ is dental and $g$ is post-alveolar (ibid.). Despite the synchronic separation, the many $g$-$g$ interchanges indicate that the distinction was not completely stable diachronically. In section 11 the relationship of $v$ to *s and the shift in $p$: of *$h > y$, *$s > h$, *$c > s$ is noted in this connection. Some examples of $g$-$g$ interchange are based on sound symbolism, and these and others have become lexicalized with one or the other variant. Examples:

NP plua 'good, pretty', etc.  FN *pli/sa  pikapli 'to like'

See also the alternation in a possibly related form:

FN *pli/sa 'to paint; red paint, red ochre'

FN *kwa'si  'tail'

w:li kwa el

NP kwa'si
The stops. The Numeic stops are generally conservative, and the regular correspondences are reasonably straightforward (see Appendix II). Several of the sporadic, non-systematic interchanges have been mentioned in previous subsections. A few more variations need to be mentioned because they intersect with other classes of sounds.

\( p \sim \theta (-kW) \). Lenis medial \( p \) is often [f], close or identical to some pronunciations of \( y \), and interchanges have occurred, including minor recordings of [v], often interpreted as \( kW \), which shares several features with variants of both \( p \) and \( y \). See \( p \) *sip/wa 'such, many'; *a('p)/wo 'container'; *p/wonko 'large container' (the last two probably related); *p/wonko('p) 'big, thick'.

\[ \]
\( \kappa - \eta \) (and CN "hk"). Lenis medial \( \kappa \) has variants \([k]\) which overlap those of \( \eta \). In several Wk and SN sets an \( \eta \) appears where CN has reflexes of "hk. The CN reconstructions not based on other Numic groups usually reflect CN "hk for \("\kappa - \eta \) in any combination, and therefore there is a disproportionate number of "hk sets in relation to the other potential preaspirated stop series.\(^1\)

Since there is an alternate explanation for the \( \kappa - \eta \) interchange, it seems likely that many of these sets are in fact not justifiable as PN "hk until we have enough data for the other correspondences to permit some parallelism to emerge.

The \( \kappa - \eta \) interchange in Numic is reminiscent of the development of Ls \( \kappa \) from *k and Tb \( \eta \) from *q (originally NUA *k) (see II.6.1). Some of the \( \kappa - \eta \) sets are listed below.

---

\(^1\) The single good set which may reflect PN "ht is PW "ants(y)" 'jaw': Sa "anta", Wk, Nk, Ns, nSh, nSt, Cn, nSt, nSt, "anta", Cz "anta" ("anta"); there are no others. For PW "hp" the best we can find is a medial southern set for "pasta"; PW "hap(s)" in phal, ka, Cn. The "pasta". In contrast, there are several potential "hk sets, none are secure for "ho or "hk. If these correspondences are not listed below for PW "hk(y)" are correct, then \( \kappa - \eta \) as \( \eta \) and \( \kappa - \eta \) are needed in the "ho, with only "hk well attested. Several other sets may eventually fit here.
The following rules and restrictions also apply:

\[ f > ʃ / _ - f, x \]
\[ / x, y _ \]

where \( x \) is a word boundary and \( y \) a stem-initial juncture.

Within root morphemes there is a constraint against the occurrence in underlying representation of certain sequences: *1 j, *ji, *w, *wu, *ow, *uk, *km, *ok, *kwo. Note that the occurrence of *wu is permitted: this is probably the result of early pre-Nuic

\[ *a > o */w_ \] in some forms or dialects, a process continuing in the modern languages. The presence of a preceding final feature, \( b \) or \( 2 \) was sufficient insulation that the prohibition against sequences of similarly articulated vowels and consonants could be partially skirted, permitting sequences such as *ji, 1012, \( \text{w}_2 \), etc. There is also a constraint preventing both round vowels \( y \) and \( o \) from occurring within a single root morpheme, a restriction which, in various dialects, can be extended to longer morphological strings and also to other vowels (see below).

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14 Most of these are possible as surface phonetic variants due to assimilation: e.g. \( \text{c} \uparrow \text{p} [\text{m} \text{i}]{\text{y}} \) for \( \text{m} \downarrow \text{p} \) 'soot', [\( \text{w} \text{ja} \) for \( \text{w} \text{ma} \) 'sirly bear'.
From the restrictions placed on the underlying representation, it is clear that no true consonant clusters could occur anywhere and no vowel clusters, including both diphthongs and long vowels, could occur except across morpheme boundaries. Secondary, surface diphthongs and vowel clusters appear in all of the Mische languages following the erosion of intervocalic consonants. Additionally, the etymologically valid morpheme boundaries may not be psychologically salient in the attested languages, which seems to necessitate underlying diphthongs and long vowels. Given the common occurrence of diphthongs and long vowels in all of the Mische languages from multiple sources, only the overwhelming testimony of comparative evidence makes the stringent requirements of the canon obvious.

The restriction against final consonants or consonant clusters is still relatively intact. Occasional surface consonant clusters are usually due to transparent elision of voiceless vowels which in other situations are still present. Recent reports on Ch indicate that most final voiceless vowels have been elided. However, these vowels re-emerge in compounding (Lounro 1973; Press, p.c.).

Comparison of the Mische canon to that of some other UA languages is presented in II.4.3.

3.1. Accent. The major patterns of pitch or stress accent noted in some representative Mische languages are presented here. All of the languages have a pattern of alternating accent which falls on every other mora, each vowel having the value of one mora. In a sequence of two immediately adjacent vowels in the surface representation, one of the vowels would be accented by this alternating stress rule. Either a glide is generated to maintain hiatus between the vowels or, most commonly, the stressed vowel contaminates the unstressed one and both receive stress. Late adjustment rules usually preclude the sequence of two fully stressed syllables in the surface structure. These patterns are common to all of the Mische languages, but the specific details vary. Essentially, there are two competing rules: one to assign accent to alternate moras and the other to devote certain unstressed vowels. These rules are applied in different orders and different directions in the various Mische languages. In ST, for example, the final vowel is always unstressed and devolved, regardless of whether the stress rule would have stressed it. The alternating stress rule accents the second mora in the word and each alternate mora from left to right.

15 Stress in foreign words borrowed into Mische languages is often rendered as vowel length in the assimilated forms, but these are usually obvious loans.
Additional vowel devoicing occurs on unstressed vowels before a series one (') consonant, a trait found also in Oa and Ut (Coninge 1957, Oss 1970a) and other Nauru languages (see a more complete discussion in Sapir's classic demonstration [1933], [1969:48-52]). In N, the alternating stress rule is identical to that of SP, and as in SP if the final vowel is unstressed it can be devoiced. If, on the other hand, the last vowel is stressed, then it remains fully voiced. In N and N, the alternating stress rule operates in the opposite direction, from right to left, with the first stress falling on the second mora from the end. Thus the last vowel in a word is always unstressed and usually devoiced. A final devoiced vowel in the Nauru languages often causes devoicing of the preceding consonant as well. This effect is most striking with the sonorants, which are normally voiced.

3.2. Root extension. Although root morphemes of only one mora are common in Nauru, independent stems, morphemes capable of acting as separate words without

Further grammatical additions, must have at least two
mora. Any process of derivation or compounding will
serve to provide at least the minimum for the one-mora
root morpheme, but these processes may include the
often undesirable side effect of changing the meaning
of the root morpheme. If necessary, however, a sur-
fixed extension which echoes the vowel of the root mor-
pheme may be added. Frequently these echo vowels will
be preceded by a laryngeal. In a similar fashion, A
or 2 may be used to mark a morphe boundary between
two vowels (see 11.2.2).

In most instances of root-extension long vowels
there is no evidence that the second vowel is present
in underlying form. These extensions are most common
in pronouns e.g. NP *pa(y), first person singular, and
*pa(y), second person singular, assume the longer form
when used as independent subjects (see IV.1). In some
reconstructed forms, alternate stress show the presence
of extension vowels accompanying the conversion of a
vowel to the corresponding glide, e.g. PA *po=1 - *pojo
'throw', *ma=1 ( = *me=1) - *ma 'hand' (see 11.2.3).

3.3. Juncatures and late rules. Variation in the
point of articulation of velar, and sometimes labio-
velar, stops conditioned by the qualities of the sur-
rounding vowels is a common feature in the UA
languages, in 1b and some of the Tahitian languages (see Voegelin
1935, Langacker 1970), subsequent loss of some or all of the conditioning vowels has necessitated recognition of systematically distinct front and back velars (e, a, Ę, Ą) where the point of articulation was previously predictable. These Slavic languages, including wu and a, which show positional variation in the velar stops, retain all of the conditioning vowels; hence the variants are synchronically predictable.

Table 5 below, showing velar variation in wu, is from Lamb 1958:37, with the substitution of ą for the angling. Lamb used to illustrate the extreme back velar position symbolized in the text by e, and the use of ę in place of the symbol Lamb used to initiate a word-initial boundary. The numbers 1 through 4 indicate the relative front to back positions of ę as affected by the neighboring vowels.

The circled position 2 values represent the morphophonemic processes of only two wu roots which by other criteria are probably loans. If these forms are disregarded, then the suggested formal identity of wu [e] and a general Slavic ą as further substantiated, since [e] is equal in allophonic effect to ą in position after a velar and is equivalent to ą preceding a velar (see II.2.1). Absorbing [e] with ą and ę in these positions makes it evident that front velars and back velars overlap only in one restricted phonological

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>y</th>
<th>u</th>
<th>e</th>
<th>a</th>
<th>o</th>
</tr>
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<tbody>
<tr>
<td>ñ</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>(2)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>ñ</td>
<td>1</td>
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<td>3</td>
<td>1.5</td>
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<td>y</td>
<td>2</td>
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<tr>
<td>u</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4.5</td>
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</tr>
<tr>
<td>e</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>(2.5)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>a</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>(2.5)</td>
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<td>5</td>
</tr>
<tr>
<td>o</td>
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Revised:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>y</th>
<th>u</th>
<th>ą</th>
<th>a</th>
<th>o</th>
</tr>
</thead>
<tbody>
<tr>
<td>X,Y</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>(2)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
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<tr>
<td>u</td>
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<td>3</td>
<td>4</td>
<td>(5)</td>
<td>5</td>
<td>[ - ]</td>
</tr>
<tr>
<td>ą</td>
<td>1</td>
<td>3</td>
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<td>5</td>
<td>5</td>
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<tr>
<td>a</td>
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<td>3</td>
<td>5</td>
<td>5</td>
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</tbody>
</table>

Square brackets enclose conjectured positions not attested in the data.
environment, after the high vowels $\ddot{a}$, $\ddot{u}$, and $\ddot{y}$ and
before $\ddot{a}$. As Lamb correctly noted in his section on
morphophonemics (1958:91-9), the overlap is the result
of the pronunciation of a proclinal proclitic and the
immediately following stem as a single word. These
proclitics are the normal way of marking possession on
noun stems and direct and indirect objects on verb
stems, and are therefore frequently used (see IV.1).
In spite of this pronunciation of proclitic and stem
as one word, the articulation of a stem-initial velar
is governed only by the following vowel, in exactly
the same fashion as that of a word-initial velar. In
order to predict pronunciation from a phonemic level
of representation, it is necessary to preserve the boundary
junctures as independent phonemes or, alternatively, to
set up the front vs. back velars as separate phonemes.
Lamb chose the latter alternative and added $\ddot{u}$, $\ddot{u}$, $\ddot{t}$ to his inventory of phonemes. The addition of four
extra consonants to the phonemic level of W is
merely a notational convenience which was not at all
misleading in its original context.

To apply the same type of solution to $\ddot{c}$, it
would be necessary to set up, in addition to the four
back velars, phonetically distinct palatalization
products of $\ddot{a}$ (\v{a}, \v{\d}). $\ddot{u}$ and of $\ddot{e}$ (\v{e}, \v{\i}) together with
a complete series of voiceless vowels (\v{a}, \v{e}, \v{i}, \v{u}, \v{o}) parallel and otherwise identical to the voiced vowels
-- an addition of 13 extra phonemes, all of which are
predictable from junctures. The effect would be to
eliminate any meaningful distinction between phonetics
and broad phonemics. The alternative of postulating
phonemic junctures eliminates any meaningful distinc-
tion between morphophonemics and phonemics. In both
cases we have just two meaningfully distinct levels,
one more abstract and containing grammatical informa-
tion such as junctures, and the other containing pro-
nounceable phonetic information. Where adherence to
three distinct levels on theoretical grounds has been
arbitrarily imposed on a two-level phonetic language,
the assignment of the relevant rules to a morphophonemic
level or to a phonemic level is essentially a matter of
taste and not a requirement of the language. Since the
theoretical bias of the linguist may or may not be
evident from his preferred transcription, comparison of
these transcriptions in typological studies such as the
WD report of the win consonant inventory (13-14) and
the discussion of the phonemic status of lusit voic-
less vowels in Gess 1970a can be very misleading. 17

17 Retaining \v{a} vs. a implies that this distinction, as in Takic and V*, is no longer predictable, which is
clearly not the case. Another non-parallel is $\ddot{e}$, which
occurs in \v{e} only in loans or from voiceless $\ddot{e}$, often
written $\ddot{e}$ (see 'elderberry', P. 22 above) and in\nIs from $\ddot{e}$ after $\ddot{e}$ according to WD 73.
The word material used here is reanalyzed to emphasize the similarity to NP and the other Nucic languages.

In order to predict the aforementioned alternations it is necessary to describe the nature of certain junctures. The operation of boundary markers in the Nucic languages is very complex, and the total number of distinct junctures needed to differentiate various grammatical and phonological operations, including intonation, is high in any analysis. For clarity in citation of examples where the object is only to show the segmentation or constituency, all word-internal junctures have been arbitrarily marked with a hyphen (-); further, where the discussion below concerns the operation of phonological rules, the hyphen has been used to indicate lesser internal boundaries whose presence does not affect the rules. The typical word formula appears below. The symbols $\mathcal{Z}$, $\mathcal{X}$, and $\mathcal{Y}$ have been chosen to indicate the relative strengths of the insulating qualities of the junctures, with $\mathcal{Z}$ representing the strongest and $\mathcal{Y}$ the weakest. These juncture symbols are actually over symbols for related classes of junctures whose further differentiation is beyond the scope of the present study.

Nucic word formula:

\[ \mathcal{X} \text{ (pronounal proclitic) \ Y \ Stem \ Z \ (suffix(es)) \ A \ (,)} \]

where

- $\mathcal{A}$ = utterance-final boundary
- $\mathcal{Y}$ = word boundary
- $\mathcal{X}$ = stem-initial boundary
- $\mathcal{Z}$ = stem-final boundary

The stems and the suffix string may be complexes of root morphemes with various other internal junctures; for instance, compounding is indicated by a $\mathcal{Y}$-like juncture, regular inflection and derivation by $\mathcal{Z}$-like junctures. In terms of constituency, the relationship between the stem and its suffixes is closer than that between this unit and the pronounal proclitic. These degrees of relationship are shown by the following rules.

1. The fortis feature $\mathcal{Z}$ becomes zero before $\mathcal{X}$ (word boundary), a vowel, $\mathcal{Y}$, or $\mathcal{Z}$. The fortis feature amalgamates with a following consonant through $\mathcal{Y}$ (stem-initial) or $\mathcal{Z}$ (stem-final), or within a root morpheme.

2a. After $\mathcal{Y}$ (word boundary) or $\mathcal{X}$ (stem-initial), allophones of Nucic velar and labiovelar stops are conditioned only by a following vowel. Through $\mathcal{Z}$ (stem-
final, or root internally, they are conditioned by both the preceding and the following vowel. If the environment labeling on table 5 is changed from 2 to X or Y, then the duplication of values after a high vowel is resolved.

\[
\begin{align*}
\text{ty'ka} & \quad \text{to eat} : \quad \text{X} /\text{ty'ka}/, \quad \text{COMP} [\text{tká}] \\
\text{t'k̪̠a} & \quad \text{your rat} : \quad \text{X} /\text{t'k̪̠a}/, \quad \text{COMP} [\text{qawá}] \\
\text{COMP} & \quad \text{COMP} [\text{qawá}] \quad \text{rat} \\
\text{ty'k̪̠a} & \quad \text{COMP} [\text{tká}] \quad \text{rat} ('\text{rock}'-'\text{rat}')
\end{align*}
\]

2b. In COMP, sibilants and plain velar stops palatalize after \(1\) through \(2\) (stem-final) or root internally, except before \(2, Y\).

\[
\begin{align*}
\text{i'sa} & \quad [\text{iš-a}] \quad \text{wolf} \\
\text{i'sá} & \quad [\text{išá}] \quad \text{my stomach} \\
\text{išu-[h]u} & \quad [\text{išū[h]u}] \quad \text{entered} \quad \text{(perfective)} \\
\text{išu-[h]u} & \quad [\text{išū[h]u}] \quad \text{my rat}
\end{align*}
\]

but:

\[
\begin{align*}
\text{ikó} & \quad [\text{eyó}] \quad \text{tongue} \\
\text{ikó-[a]yó} & \quad [\text{aiyó}] \quad \text{to slip, slide}
\end{align*}
\]

3. Root-internal round-vowel harmony is obligatory and frequently extends rightwards, applying to round vowels in suffixes after an immediately following \(2\) (stem-final) boundary. The tendency toward vowel harmony does not apply through \(2\) (word boundary) or \(Y\) (stem-initial). Occasionally, other root vowels will also induce harmony in suffixes after \(2\) (stem-final).

4. An independent word must have at least two moras. If a one-mora stem is bounded by two \(1\) (word) boundaries, an extra vowel, harmonizing with the original vowel, will be generated (see example below of [yá] 'here', and discussion of root extensions above).

5. **Reduction** is a term used here to describe COMP centralization of vowel height; leveling of extreme positions of consonant allophony (e.g. plain velars range from \(2\) to \(Y\) instead of \(2\) to \(2\)), shortening of long vowels, consonants, or clusters; leveling of pitch-accent contours; and devolving of normally voiced segments. Phrase or utterance finally in strings of suffixes, reduction approaches the status of an obligatory rule. Strings of segments usually reduce from \(X\) (word and utterance boundaries) leftward up to but not including the first accented vowel to the left of \(2\) (stem-final). This rule follows accent placement.

---

18 Palatalization rules still apply under conditions of reduction. In fact, some palatalizations permit correct reconstruction of the shapes of affixes in reduced suffix strings, e.g. with color terms (see V.1).
rules and will not apply to the first vowel to the right of a Z boundary if the primary word accent falls after the latter.

\(4 \text{A} \text{I} \text{Z} \text{A} \text{Z} \) [yaʔa] 'here' (no reduction)

\(4 \text{A} \text{I} \text{Z} \text{A} \text{Z} \) [maʔa] 'tomorrow'

\(4 \text{A} \text{I} \text{Z} \text{A} \text{Z} \) [gaʔikI] 'cause to cook in hot coals' (cf. Pl *sawa 'to cook, boil')

(All examples are Cu.IP.)

4.0. **Proto-Uto-Aztecan.** The relationship of Pl to PUA, and the degree to which the complex reconstruction of the Pl medial consonant series should be carried over into PUA, are still uncertain. However, the correspondences for initial consonants and for vowels present relatively few difficulties. VWL grappled with the problem of the Pl-PUA relationship, but most other reconstructions, including the labeling conventions of UACS, list forms with the medial consonants specified only generally. Thus, UACS *k includes all medial velar stop correspondences. Table 6 presents a traditional reconstruction of PUA; contrast this with the P1 chart in Appendix II. In the following subsections Pl is related to the general PUA reconstruction, and to particular alternations which lead at least

<table>
<thead>
<tr>
<th>Table 6. PUA phonological inventory.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional analysis of PUA consonants</strong></td>
</tr>
<tr>
<td>*p  *t  *k  *kw  *t</td>
</tr>
<tr>
<td>*v  *s  *h</td>
</tr>
<tr>
<td>*a  *o  *o</td>
</tr>
<tr>
<td>*i  *u</td>
</tr>
<tr>
<td>*e  *a  *o</td>
</tr>
</tbody>
</table>

**PUA vowels**

**NUA and Pima (SUA)**

| *i  *y  *u |
| *a  *o |

**Other SUA**

| *i  *u |
| *e  *a  *o |
typological support to the application of many PN elements to the reconstruction of a new FUA. Though it would be desirable to chart the sounds of a revised FUA at this time, such a feat will not be possible until we know more about the interaction of PN and FUA, and UA and SUA.

4.1. UA vowels. A typological examination of the vowel systems of the UA languages reveals that nearly all of the languages have five or six systematically distinct vowel qualities, excluding considerations of length, stress, and final feature analysis. There are some languages with fewer, notably the Aztec group with four, and the special case of Serrano which has six plain vowels plus three of these retroflexed for a total of nine. An examination of correspondences indicates that there are five for which FUA reconstructions can be made, matching the five primary vowels in Nuuja (see II.2.1). Attempts to add a sixth FUA correspondence using those languages which have six or more vowels have been unsuccessful, since the cognates are not sufficiently widely attested to establish correspondences beyond the subgroups or beyond neighboring languages (see for example the discussion of the Nuuja sixth vowel).

19 For complete charts of UA vowel correspondences see Nuuja and Langacker 1972. In Appendix II only the Nuuja correspondences are given.

Of the five basic sets, two are retained in all of the languages identically as 1 and 2 respectively, and hence we are secure in reconstructing *1 and *2 for these two correspondences. Two other correspondences require a few easily motivated rules of quality shift in some of the languages, but the reconstructions of *3 and *4 for these are also secure. The high degree of certainty about the phonetic nature of these four vowels reconstructed for FUA has made the assignment of a similarly revealing symbol for the fifth vowel the subject of one of the most long-standing controversies in UA studies. Reconstructions of *5 (*4) based on some northern languages, *6 based on some southern languages, and *7 as an orthographic compromise between the two, have been proposed as labels for the following correspondences: Nuuja, 4s, Tr, Sr (Takic), and Pielc 2; Ca (Takic) and all of the southermost languages, Tr, Vr, 4y, 4t, Cr, 4c, and Az gr. Other Takic languages show different reflexes, notably 4s 5 and Ca 6. The variation in Takic has been especially troublesome since until recently these languages have been poorly known to Uto-Aztecoanists, and the individual languages paint variously to both major alternatives as well as in other directions. A further problem is that we suspect that a good deal of this variation is late, since Bright and Hill (1967) have shown the validity of a takic
subdivision, Capan, consisting of Ls, Ca, and Cu, which are demonstrated to be on the whole highly similar, their differing reflexes for the fifth vowel notwithstanding. The major contribution of Langacker 1970, where the history of the controversy is reviewed, is the presentation of sufficient data from Taklo to show that when the other shifts in the Taklo languages are added to those for the fifth vowel, the shifts arc more satisfactorily explained if the fifth vowel in proto-Taklo is *y rather than *e. Langacker also demonstrates how the shifts from *y may have occurred in the languages of the Isan group. The alignment can thus be simplified, with all of NUA and the northeastern Si class, Isan, indicating *y and the rest pointing to *e. The problem has been compounded by the fact that *y is found in the *e area as the reflex of *u (Cr, Ho), and *g or something similar occurs as the sixth vowel in Nua (Sm, Ph, Sh, Ca, Ko), Hs, Yh, and Pindo (X., Si). This would seem to indicate factors assignable only to drift, which favor both vowel qualities, since the forms involved are rarely cognate between subgroups. A still further indication of drift in regard to vowel systems is noted in IV.1, where developments of vowel sound-systemic locative-demonstratives are contrasted.

4.2. Final features and Nua medial series. The clearest evidence for Nua final features comes from Nua, where the system is well developed. However, reconstruction of something resembling the Nua final feature alternating explains two widespread patterns of UA alternation discussed below, and finds seeing parallels in other alternations in the Nua languages, which in the future may provide additional support. It should be noted that segmentation of final features does not seem possible in the other UA groups except insofar as medial morphological alternations may indicate an infixed feature.

n-iteration. Traditional analyses of Nua list *v (*j) distinct from *p on the basis of the following set of correspondences: *g - *v in Hs, Ls, Ca, Pq, Yq, and *y; *p - *h in Cr and Ko; and *g - *g in the Aztec group. This is a morphological alternation in most of these languages, as indicated by the presence of the alternation in reduplication. Preservation of a distinction between lenis and fortis series only among consonants.

20 Serious objections have been made to Langacker's hypothesis that the Rua fifth vowel was *y, both in the paper at the LSA annual meeting, San Francisco, 1969, and in subsequent correspondence. William H. Jacobsen, Jr., has collected several additions and corrections, which have been informally circulated. However, there has been wider acceptance of Langacker's conclusions about Rua vowels. His use of *y for the fifth vowel in the text is not intended to imply acceptance of Langacker's exact hypothesis.
articulated in the front of the mouth has been noted for Ca and Ka within Nusa (II.1.3); and something similar may be involved in the non-Nusa languages just cited.

\( \emptyset, \emptyset^w \), and \( \emptyset \). There is a recurrent pattern in the UA languages on the whole supporting an interplay of velar nasals, labiovelar nasals, and labiovelar glides. This interchange has been noted in several connections above for Nusa. There is one good cognate set for UA in which a labiovelar and a nasal quality need to be combined. I prefer \( \emptyset^w \), parallel to the Nusa solution, rather than the \( \emptyset^w \) glide often reconstructed, but this is merely a notational device unless we can use the comparative evidence to support a final feature or series alternation of prenasalization in PA, or, alternatively, find another explanation for the data.

\[ F:\emptyset^w(x)w \quad \text{"name" (Vvh 20, UACS 200a)} \]

\[ Dp, Tb \]

\[ Lw \]

\[ Sr, Ca \ (Pg \ g, \ see \ below), \ Tr, \ Yq, \ Nw, \ Ks \]

with a probably Nusa cognate in

\[ S\emptyset F \quad \text{mu-tyn-wa-}\emptyset \quad \text{"to call by the proper kin term"} \]

There are PUA sets for both \( \emptyset^w \) and \( \emptyset \) which do not generally show this type of alternation. PUA \( \emptyset^w \) implies no nasal reflexes and PUA \( \emptyset \) is based on the correspondence NUA \( \emptyset \) : SUA \( \emptyset \). In Nusa and \( Tb \) \( g \) is limited to medial position in a word, although it may initiate a suffix. No such restriction applies in dp and Takic, but unfortunately none of the initial \( g \)-forms has a secure Nusa cognate.

In \( Tb \) PUA \( \emptyset^w \) and \( \emptyset^k \) have merged to \( Tb \ \emptyset \). The effect of this merger on earlier \( \emptyset^w \)-sets is unknown.

\( Hp \) has two potentially complex sounds in addition to \( g \):

\[ [g^q] \quad \text{in the set above has no clear explanation, but} \]

\[ [g^p] \quad \text{seems to be from} \emptyset \ \text{with neighboring high vowel (Vvh p. 51). Recently another example of a labiovelar nasal has emerged from an unexpected area. Campbell (1973 ms.) posits for Kayapan and Zepotlan (two modern Nahual dialects) an underlying} \emptyset^w \ \text{which appears as} \]

\[ [q] - [w - v] - \emptyset \quad \text{in certain verbal constructions.} \]

The rules he sets up parallel those determining the behavior of \( \emptyset^w \) and the other velars, and seem well justified. The relationship of this construct to other UA languages is as yet unresearched.

The \( Lw \) form for the above set is \( mu-\emptyset^w \) "name", cognate to other Takic forms with \( \emptyset \). There seems to be a frequent \( \emptyset - g \) interchange in Takic. In 1971, Munro and I independently remarked on the diachronic
alternation. The forms listed below are from my presentation to the American Anthropological Association (New York, 1971). Anuro's evidence has recently been published (1973). Most of these sets unfortunately lack secure Anulo cognates.

'eagle' (UACS 147)

\[\begin{align*}
\text{ib} & \rightarrow \text{a}h\text{aw}-t \\
\text{Ls} & \rightarrow \text{q} \text{wa}-t \\
\text{Ub} & \rightarrow \text{a}h\text{aw}-t \\
\text{Sr} & \rightarrow \text{hy}q-t
\end{align*}\]

'snake; snake sp.'

\[\begin{align*}
\text{Ls} & \rightarrow \text{p} \text{ow}-t \\
\text{Ub} & \rightarrow \text{q} \text{e}-t \\
\text{Ub} & \rightarrow \text{q} \text{e} \text{wa}-t \\
\text{Sr} & \rightarrow \text{hy}q-t \\
\text{Gb, Fn} & \rightarrow \text{h} \text{ow}-t
\end{align*}\]

I assume that \(\text{Gb, Fn}\), Ch ny(y)ga, both 'king snake', are loans into these SW languages, and originally from Naka, primarily because of the abnormal vowel length in Ch. Still, the \(\text{q} \rightarrow \text{h}t\) alternation in this set is strengthened by their inclusion here. Potential cognates in In, Fn, and Ib show \(\text{q} \rightarrow \text{h}t\) medial -- an interchange familiar and equally troublesome in Anulo (see 11.2.4).

In the following set the elements cited with asterisks in some cases represent morphemes no longer segmentable in the languages, rather than formal reconstructions.

*woman, wife' (UACS 470)

\[\begin{align*}
\text{w} \text{a} & \rightarrow \text{s} \text{y}a \rightarrow \text{'girl'} \\
\text{Hp} & \rightarrow \text{s} \text{y}a \rightarrow \text{'girl'} \\
\text{cy} & \rightarrow \text{'little girl'} \\
\text{pre-}\text{ib} & \rightarrow \text{so a} \\
\text{pre-}\text{hp} & \rightarrow \text{sm} \\
\text{gp} & \rightarrow \text{si} \text{ma} \rightarrow \text{'younger sister' or 'daughter' (diminutive suffix here removed)} \\
\text{ClA} & \rightarrow \text{si} \text{ma} \\
\text{pre-}\text{nh} & \rightarrow \text{si} \text{ma}(a) \\
\text{pre-}\text{ng} & \rightarrow \text{sy} \text{wa} \rightarrow \text{'co-wife'}
\end{align*}\]

\[\begin{align*}
\text{Ls} & \rightarrow \text{qu} \text{ja} \rightarrow \text{Na} \\
\text{Jn} & \rightarrow \text{gy} \text{u} \text{m} \rightarrow \text{Na}
\end{align*}\]

If proto-Pilo *\text{t}m\text{iw}\text{v} is included, then the Ls and Jn forms could be related either to that form or to those in the first group. Without considering the Naka or proto-Pilo forms, a PUA reconstruction *\text{sy} \text{wa}() might be suggested.

An interesting adjunct to this set is base \(\text{li}x\) < PUA *\text{xi}w(\) (see date 1957a,b, and below).

\[\text{PUA }\text{t} \text{ and }\text{u}].\] While not yet directly relatable to the question of final features, these sets suggest for PUA has often been questioned. On the basis of sets from SuA, a PUA *\text{t} is reconstructed; unfortunately, no definite cognates exist in Anulo (\(\text{ap} \text{[s\text{ort}]}\) 'bean' is usually taken as a loan). Some of the SuA languages show \(\text{t}n\) and some \(\text{p}\) for the *\text{t} sets. Not uncommonly, lenis medial \(\text{t}\) in the Naka languages may be recorded as a flap or tap which has been symbolized \(\text{t}n\).
but since there is never any systematic opposition between the etymologically correct $\tilde{t}$ and [t] in this position, there is no need for a separate symbol. Loan words with $\tilde{t}$ in the source language are alternately pronounced with [t - d], i.e. $\bar{t}$, or with $\bar{t}$, in Amsoc.
A Fua $\tilde{t}$ is reconstructed in a number of cognates throughout the family, with many of the Sua languages showing $\bar{t}$, Amsoc showing $\bar{t}$, and other Sua languages $\bar{t}$ or $\bar{t}$ in a few mixed sets. Amsoc has no lateral sounds at all, and loans with $\bar{t}$ in the source language usually appear as $\bar{t}$, but may behave like borrowed $\bar{t}$. An almost always substitutes $\bar{t}$ for $\bar{t}$ in Amsoc loans. $^{21}$

Some of the classic Fua $\tilde{t}$ sets which have LF reflexes are: *kali, PA *kahi, occurring in NP *ka(a)ni, 'house' only as a Sh loan; *kula, PA *sana, NP sana, 'pitch; sticky'; *kula, PA *kuna, NP kuna, 'firewood' (also 'fire' in other UA); note that Fua $\tilde{t}$ is usually reflected as FV $\tilde{n}$, but in 'house' it is $\tilde{m}$. The only occurrences of either UA $\tilde{r}$ or UA $\tilde{t}$ are cultural, with the exception of the problematical but widespread set for 'tongue', WH *lui, which is not attested for Amsoc (cf. FV *laka" - 'tongue').

$^{21}$ In Sh and in Aztec, *t has acquired a partial or complete lateral pronunciation in some environments; cf. Sh $\bar{t}$, As $\bar{t}$ (t$^2$), discussed with absolutes, III.1. See also the discussion of La below. No evidence for any such variation is available from Amsoc.

T. Kaufman has suggested (p.c., 1965) that both *r and *t were in some fashion sound-symbolic derivatives of Fua *n, which would explain the restricted distribution and link to $\bar{t}$ without recourse to final features, and also their relative rarity in cognate sets. While it is true that sporadic instances of sound symbolism are needed to explain other alternations in Amsoc and Fua (see below), this is not a common process. In addition, the semantic bases of a proposed UA *n-$\bar{t}$-$\bar{r}$ symbolism are unclear, which provokes skepticism among Uto-Aztecanists, although no more acceptable explanation for the rarity of the liquid sets has been presented.

Typological investigation of some of the other UA languages indicates several resemblances to FV, but cognates are seldom sufficient to set up any direct series comparisons.

Fidatiab. The closest parallel to the final feature reconstruction of FV is in neighboring Sh, which has three series of stops resembling closely the reconstructed FV series one, two, and three, although not all members of the Sh series have cognates in FV (as is especially true of the $\bar{t}$ series). The parallelism with Amsoc is emphasized in table 7 by reclassifying the Sh voiceless initial series with the plain voiced medials as $\bar{t}$ rather than with the voiceless medials,
which are rewritten as $^q$. The reanalysis is a minor one, since either series is in complementary distribution with the initial. The medial prenasalized series is written $^q$, as in PW. Medials in the $^q$ and $^w$ series, excluding the laryngeals $^h$ and $^l$, are voiced.

Comparison of $^h$ with $^w$ and other Vh alternations and cognates (see especially Wv 17, 18, 43, 44, 63-6) shows that $^h$ has undergone some special modifications. The participation of $^h$ in the initial feature system is easily accounted for; as happened in many languages of the family, pre-$^h$ *k split into *k before high vowels vs. *q before low vowels, and subsequent vowel loss eliminated the predictability of the alternation (see 11.3.3). In $^h$, however, all *q from this source became $^h$, and, since all earlier *h had disappeared, all modern $^h$ stems ultimately from *k and continue to behave, systematically, as stops. Other comparisons indicate that $^h$ *g could match *g *s and that PUA *k* has been absorbed by $^h$ *k in all series.

The sources of $^h$ *l and the *l-series are unclear, but some instances of *l reflect PUA *e* before *l (see Wv).

**Penace.** $^g$ presently has a voiceless vs. voiced distinction in its stop series, in addition to the $^p$-$^v$ alternation noted above. $^g$ *l, k contrast with *h, *d, *g in all positions, initial as well as medial.
Table 8. Development of Papago consonants from PUA.

Papago consonants inherited from PUA

<table>
<thead>
<tr>
<th>PUA</th>
<th>Papago</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>ʔ(ʔ)</td>
</tr>
<tr>
<td>b</td>
<td>d(ʔ)</td>
</tr>
<tr>
<td>v</td>
<td>(g)s</td>
</tr>
<tr>
<td>m</td>
<td>n(ʔ)</td>
</tr>
</tbody>
</table>

PUA to Papago

*p* → *p, v*
*t* → *t*
*c* → *s*
*k* → *k*
*kʷ* → *b*
*p* → ʔ (?)
*s* → *h*
*m* → *m*
*n, *q* → *n*
*i, *r* → *r*
*j* → *d*
*w* → *g*
*h* → ʔ, *ʔ*

Examination of UA cognates shows that these voiced stops derive from PUA *kʷ*, *j*, and *w* respectively.

It seems probable that after the pre-Pg stop series had almost entirely merged (leaving only ʔ distinct from ʔ), a general family tendency for multiple series was reinserted secondarily. Note that the ʔg facts provide further evidence for the consonantal quality of *j* and *w*, claimed above also for Pg.

Because the sound shifts are so dramatic, the Pg consonants directly inherited from PUA and the shifts which produced them are charted in Table 8. The parenthesized sounds occur before high vowels, and are allophones of the dental-alveolars. Note the presence of some consonants identical to those reconstructed for PUA, which have tended to re-emerge in Pg after loss of the original segments.

Luiseño. In Table 9 the sounds of modern Ls are rearranged to show an earlier pattern assumed to be typical of pre-Ls. The sounds separated by ʔ are no longer in neat complementary distribution, but clearly once were (Brinton 1969:2; Vida). The sound ʔg does not have any obvious PUA correspondences, and is parenthesized to set it apart from the others.

Ls presents morphological 'processes of consonant mutation which occur irregularly in conjunction with reduplication', which can be explained only
Table 9. Luiseño and Pre-Luiseño.

\[\begin{array}{cccccc}
 p & t & \delta & \tilde{q} & k & \tilde{q}^w \\
 v & r & s & \tilde{q} & x & (x^w) \\
 m & n & l & j & q & w
\end{array}\]

Changes from PUA to Luiseño

\[\begin{align*}
*p & \rightarrow p, v \\
*t & \rightarrow t, l \\
*c & \rightarrow \delta \\
*k & \rightarrow k, x \\
*l & \rightarrow n
\end{align*}\]

diachronically (Sanzro and Benson 1973:18). The shifts include:

\[\begin{align*}
p & \rightarrow v \\
t, \delta, k, \tilde{q}^w, q & \rightarrow l \\
t, \delta & \rightarrow \delta
\end{align*}\]

The \(p - v\) alternation has been noted above; and \(k - \delta\) seems parallel. Some \(LS\) reflect earlier \(t\) after \(\delta\) (see IV.1.1). The omnibus shift to \(l\) is less securely linked to changes in other languages, although the \(\tilde{q} - \tilde{q}^w\) change has appeared elsewhere in SA (see above).

The sets showing PUA *\(k\) \(\rightarrow\) Lu \(\delta, x\) have not been adequately explained, but they appear to have been conditioned by a different process from the morphological one noted above for \(p\) and \(\delta\).

\(\text{Appl.}\) In addition to \(\text{Appl.}\) and the \(p - v\) alternation mentioned above, there is other potential evidence for final feature series. One of the differences between the three Ap dialects is manifested respectively as preaspiration of consonants, vowel length, and pitch accent (examples courtesy of E. Kennard, p.c.):

\begin{itemize}
  \item Mishongnovi: p\(\text{hoko}\) 'dog'
  \item Oraibi: p\(\text{hoko}\)
  \item others: p\(\text{hoko}\)
\end{itemize}
The correspondences Aishangnovi ṣ̀x, Orelbi ṣ̀x, other ṣ̀x is attested in numerous sets and helped to give rise to the assumption of three vowel lengths reported in Short 1946a, Voegelin and Voegelin 1957, and elsewhere. Both Zennari (p.c.) and Heath (as.) report that one of these lengths is predictable from the alternation illustrated here, leaving ṣ̀x with the long vs. short vowel contrast found in other UA languages. The set given above is cognate to Pa "pu"xu 'pet; dog'. Note that in both ṣ̀x and ṣ̀x 'final features' are present in the same position. Short (1946a) also reported the behavior of ṣ̀x with pronouns as a final feature of sorts alternating with nasals. Identification of ṣ̀x and ṣ̀x as the same segment seems possible (see IV.1, Tables 12 and 17).

One of the most persuasive arguments for historical affinity of various alternations attested in several languages is that they appear in the same types of morphological operations. In addition to occurrences within root morphemes, revealed in cognate words, these alternations generally appear throughout the family in reduplications and compounds, situations where a plain initial consonant is placed in medial position. It must be noted, however, that the directions of regularization are not precisely parallel in all members of the family, just as they are not identical even within a closely related group such as Neric; thus the morphological evidence, although more pervasive, is less secure than the little lexical evidence available. Also, it is possible, if not probable, that (as Siller suggests) one or more of the Pa series is not of Pa date but instead represents Pa innovations conditional either by vowel loss and subsequent assimilation of medial consonants, or by unspecified accent shifts.

Although Aishang words with final features may have cognates in other UA groups, we have almost no potential sources for final features as earlier true segments -- far too few to account for the widespread productivity of final features in Neric. Also, the equation of some non-Neric medial segments with final features involves the unexplained loss of a final vowel in a few convenient cases but not elsewhere. In the following two examples, widely recognized as the best evidence for that hypothesis, we must assume final vowel loss in Neric, while in other phonologically similar sets -- Pa "sala, Pa "sana 'sticky; pitch'; Pa "taw, Pa (and all AUA) "tana 'tooth'; Pa "rqa, Pa "n̞a 'liver' -- no such loss occurs.

Pa "taw 'rock' (UACS 35a)
P n̞ "ty"-p1
S P "ty"-p1
S P "ty"-p1
Sh ty-p1
4.2. A UA canonic? Examination of canonical restraints among the UA languages suggests overwhelmingly a \( CV \cdot CV \) sequence with the bulk of reconstructable morphemes having the shape \( *CV(CV) \); unanalyzable longer forms are restricted to single language groups. Including all the extended evidence for final features, there seem to be three main morpheme cosas required for UA (or possibly pre-UA):

\*CV reflected in all languages

\*CV* reflected in \( Ap \), \( Ib \), and \( Sp \); also \( [q^\ast] \) in \( Ap \), \( Tb \), \( Takl \), and \( Nh \). The alternations of the UA languages can be accommodated by any single final feature; and since regularization has taken place that feature could be the source of the strengthened medials (i.e., those not having undergone lenition) in \( Takl \), etc. Note that none of the language groups except \( Ap \) and \( Ib \) requires more than one final feature to account for its medial series.

\*CVV / \*CV* / \*CVh This includes the \( Ap \) series two and four, presumed to have a common origin and to have been strongly affected by accent. Recall that the \( Ap \) languages with several final features do not have
underlying vowel length, and the SUA languages with vowel length require only one additional final feature. In Ḥṣ, which has vowel length, preaspirates are intimately connected with both vowel length and long vowels at a very shallow time depth, echoing the link proposed for PA. Furthermore, death (etst) traces many instances of Ḥb vowel length to accent placement, a possibility which weakens the strongest exception to the above generalization ( Ḥb has three series and vowel length). The most important association occurs in Taka, where many L verbs mark durative aspect with a long vowel and momentaneous aspect with a short vowel (Austrer and Grace 1990:170, Bright 1969:12). In Ẓ, the momentaneous aspect was frequently marked by an interposed "fortis feature, and durative by its absence. Although overt marking affects opposite members of the aspect correlation in Ḥs and Ḥw, the occurrence of inflexion in the same grammatical category is at least suggestive.

Whether these two facets of the same semantic and morphological process will ultimately be attributed to a single cognate segment is uncertain, but the possibility must be considered. We might trace both manifestations to a segment entirely different from either fortis or vowel length, which in Ḥṣ affected the following consonant and in other languages the preceding vowel. It would also be possible to treat vowel length as some sort of consonantal segment, such as Haas has done for Auskogau (class lectures), an analysis which would increase the similarities between length and final features. Another approach would be to consider vowel length as a final feature in itself. (See also the alternation in case markers, IV.1.1 and IV.1.2.)

Forcing the UA languages or Ḥṣa to adhere to a strict canon like the Nasu languages may be stretching the evidence somewhat, and certainly my suggestions about the three types of coda will meet with considerable disagreement. However, rigidity of constraints facilitates explanation of numerous troublesome areas, particularly the identification as loan words of unanalyzable words too long to be native UA forms. This approach has proven particularly useful in Ḥṣ, and has wider application in Auskogau.

Another case where restrictive canon statements have proven useful comes from Ḥale 1970. The presence of otherwise inexplicable long vowels in Ḥs led dale to posit the presence of an intervening laryngeal to break up an unexplained sequence CVT into a "CVCV form,
where the medial $G$ is an unknown laryngeal. The presence of consonants or root extension vowels with intervening glides in all of the secure Nuu cognates shows the validity of his assumptions, although Hale (p.c., 1971) has subsequently abandoned his synchronic application of CVV canonical restraints to what is frequently CV or CVV in modern PG. Below are PG forms in which Hale posited a laryngeal. Note that in these cases a ready Nuu cognate is available, with the proposed laryngeal corresponding to a fully specified segment.

PG pooga < *poGo-wa 'road', PA *po-i - *poja
wan poja (UACS 350)

PG siiia < *ciiCi-ca 'elbow', PA *kihi - *siihi
de cu-tihi (see III)

PG toobli < *toGo-KMI 'rabbit', PA *tupu
'theottam' /kI/ tapu
(UACS 333, 324a)
(if "b" > "w-n")

hence the question about the reconstructed form for 'woman, wife' (above). It is not difficult to find multiple examples where the initial consonants agree in point of articulation, but variation in manner of articulation, without ready explanation, at once inflates the number of individual correspondences and reduces the number of potential cognates for each correspondence. In addition, the unfortunate preponderance of short CV or CVV morphemes in both FUA and KMI increases the chances that accidental resemblances are mixed with possible cognates. Not the least among the problems is the uncertainty over which of the alternative reconstructions for the FUA and KMI sound systems is correct. Hale’s revisions and corrections (1967a,b) of the short- Trager KMI consonant reconstructions are presented here as Table 10 without modification other than rearrange- ment of the charts from Hale 1967a:115 to match the format used above in the UA charts. No satisfactory reconstruction of the KMI vowels has yet appeared, although Hale (1967a) does list a total of 16 recurrent correspondences, 10 for plain vowels and six for nasalized vowels. Most of the Ki languages have symmetrical five- or six-vowel systems with each vowel occurring short and long, plain and nasalized. Since disparate lengths and qualities are included in most vowel correspondences, Hale gave his vowel
Table 10. Reconstruction of *Pkt consonants (after Hale).

<table>
<thead>
<tr>
<th>*p</th>
<th>*t</th>
<th>*c</th>
<th>*k</th>
<th>*k'</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p'</td>
<td>*t'</td>
<td>*c'</td>
<td>*k'</td>
<td>*k'w</td>
</tr>
<tr>
<td>*ph</td>
<td>*th</td>
<td>*ch</td>
<td>*kh</td>
<td>*khw</td>
</tr>
<tr>
<td>*b</td>
<td>*d</td>
<td>(*g)</td>
<td>*g'</td>
<td></td>
</tr>
<tr>
<td>*m</td>
<td>*n</td>
<td>*s</td>
<td>(*w)</td>
<td>*h</td>
</tr>
</tbody>
</table>

reconstructions numerical labels in preference to implying a particular vowel quantity or quality, where the multiplicity and diversity makes any such assignment dubious. The possibility of a link between *Pkt nasality and *Pkt nasal vowels should be explored, since *kt languages show vowel plus velar nasal as an allophone of vowel nasality. Unfortunately, cognate sets are not available for evaluation at this time.

Although all of the *Pkt consonants may occur at.

internally, some sounds are paired systematically when they occur as the initials of verb stems. In the following lists of alternations the first consonant is replaced by the second when the verb stem occurs as the first member of certain compounds, is nominalized, or is de-transitivized.

*voiced stop - *voiceless (plain) stop
*glottalized stop - *plain stop
*n - *gh
*? - *k

Many of the changes proposed by Hale served to make the generalized statement of the voiced-voiceless shift possible. Actually, the generality of the state-

ent obscures the different origins of several alter-

nations. *kt *b - *p and *d - *t are straightforward, although all of the *kt languages reflect the *kt
voiced stop as a nasal. *g - *k is unknown in the
Incan languages and the evidence comes only from
Khwa, although Hale points out that there are very
few sets of any kind for *g in the Incan languages
(for that reason *g is parenthesized in Table 10).
Both *g and *k are artificial constructs designed to
fit into this series. The most frequent reflexes of
these sounds are [y] and [w] respectively, which alternate
with *e and *kw. This situation is highly reminis-
cent of Pima and Jicarilla, especially of UAP, where
the alternation of consonantal glides with the corre-
sponding affricates is productive (see II.2.3). Hale
observes that the *w he reconstructs is poorly attested
in the AT cognate sets, and a glance at Table 10 shows
the systematic anomaly of *w without a parallel *j. It
should be preferable to sacrifice the neatness of the
reconstructed *w voiced series for a set of more re-
vealing, but less neat, partial series which might have
further parallels to FUA and hence implications for
FAI. I would prefer reconstructions of *j and *w for
these, and consider Hale's *w a later development.
The other possibilities include reconstructing for FAT
prenasalized rather than voiced stops for *b and *d.
This choice would be guided by typological resemblance
to FUA rather than by any direct evidence from AT or
cognate sets.

A further possibility suggested by the last two
isolated alternations listed for PAT (*h - *w, *t - *k)
is a *h/*k distinction of the type occurring through-
out UAP (cf. 1.6, above). The development of the UAP
/k/ distinction is motivated originally by the sur-
rounding vowels and becomes systematic only after erosion or mod-
ification of the original system, and a similar con-
ditioning might have been present here. Keager (1944)
traces the later alternation 2 - *k to a PA: *q' - *q,
which could be subsequently the alternation of glot-
talized and plain consonants. This still would leave
*h - *w in an anomalous position in the system.

In investigating the FAT hypothesis it is of
Of course necessary to entertain revisions of the inter-
mediate protolanguages FUA and PAT which could con-
tribute to the naturalness of FAT and yet yield the
expected attestations just as easily, and the following
remarks are presented in that spirit. FAT final fea-
tures could be traced to (now lost) proposed elements
in PAT, which might have produced the varied series for
PAT by a process other than direct inheritance of func-
tionally unrelated series: this would make the *w
variations in manner of articulation the systematic
analogue of similar variations in PAT. The reversion
hypothesis, that FAT lost but regained through drift
the various consonant series, also merits considera-

Either of these approaches would have the result that manner of articulation would not present the barrier to comparison of PAT and PUA that it currently does. Since there is no initial variation in PUA it has been the practice to simply reconstruct the PAT initial for PAT. If it is in fact the case that PAT variation was only non-initial at an earlier stage of the language, then such a facile reconstruction of PAT is worthless, and the actual evidence is of even greater value in tracing parallels to PAT than it has proven to be for PUA alone.

III. Form classes

0. Introduction. The classes $A$, $X$, $Z$ of boundary junctures treated in II.3) are each composed of several different junctures which often mark final feature variations. The complications presented by the final features are junctures have produced analyses utilizing proliferation of the number of junctures and/or modifications to the expected shapes of morphemes. A general grammatical classification of the juncture subtypes guided by the operation of phonological rules is nevertheless possible, with phrase and word boundaries grouped under $A$, compounding and enclitic boundaries under $X$, and what would be termed inflectional and derivational boundaries under $Z$. In all of these groupings, modifications to the expected final features not covered by the general classification rules (i.e., occurrence of the same root with different associated final features) require specific rules and markers to guide their operation. These complications are present in all of the Nuic languages.

Sapir (1930) sought semantic conditioning factors to explain the final feature variation in Sp, but he was only partly successful. He did set up several distinct roots based on these criteria; however, it was necessary to set up most roots with more than one
possible associated final feature, in effect creating several morpheme alternants for a single morpheme, e.g., K[+] - K[+][+] - K[+][+]. Additionally, a number of noninitial elements (his suffixes) require a particular preceding final feature regardless of the final feature associated with the preceding morpheme, thus roots of the shape -K[+] were set up. Supir's analysis implies the final feature precedence rule $f_1 + f_2 \Rightarrow f_2$ noted in II.3.2. In his lexicon Supir marked both the elements -K[+] and those from K[+][-] (i.e., those affected by the final feature of a preceding morpheme) as K[+], so the implications of his system are not immediately obvious. By positing morpheme alternants wherever they were necessary, Supir sidestepped the question of what might be causing the variations.

For an, Lamb (1957, 1958b) chose to avoid Supir's morpheme alternants and to set up unique forms for each morpheme. His analysis resulted in roots of the forms K[+] and K[+], and utilized the same implicit final feature precedence rule. Lamb was able to work out his system largely because an has only one final feature in addition to the plain series. However, he still had to set up a sort of parajunctional feature which deleted a preceding final feature without replacement by another final feature. All of his internal junctures could be marked with this deletion option, which in effect created two sets of junctures, fortis-deleting and non-fortis-deleting. Although his system works for the an corpus, the complications encountered with the presence of additional final features prevents a similar treatment in most other Asian languages and in an.

The complexity of the final feature variations has not yet yielded to a convincing explanation. Final features written at the ends of morphemes and as distinguishing characteristics within roots of more than one mora are inescapable. Similarly, it is necessary to mark certain noninitial morphemes for a preceding feature. However, the fact that there seems to be a link between junctures, form classes, and final features suggests that a grammatical explanation should be possible. Some final feature permutations are more or less regular, such as the insertion of fortis to signal case of nouns or momentaneous aspect of verbs, but others, such as those listed in II.1, serve to distinguish etymologically related roots with no grammatical function implied.

To a considerable extent form classes in an are delimited by the junctures involved. Some uses of particular roots must be marked as following a $z$ (stem-final) boundary; these include inflectional and derivational 'suffixes'. Others, such as nominal and verbal stems, are marked as requiring a preceding $z$ (stem-
initial) boundary. However, there appear to be specially developed final-feature or junctural markers conditioned by the semantic form classes. For example, nearly all color terms roots in NF require a following fortis marker when compounded. This must be a special development in the individual languages since the color terms roots behave somewhat differently in each of the Music languages (see V.1). Actually, in NF such compounds may frequently be interpreted as requiring an intervening fortis marker (\( \uparrow \)) at the boundary, a marker that is not necessarily a feature of the particular roots or stems involved.\(^1\)

Reasons for preserving boundary junctures until late in the phonological rules have been noted in II.3.3. One possible explanation for the preservation of the \( \overline{X} \) (stem-initial) boundary in derivations may be that the pronominal enclitic position has not remained constant in the Jukio languages (see IV.1). These movements may explain why \( \overline{X} \) (stem-initial) and \( \overline{Y} \) (stem-final) boundaries have shown \( \overline{X} \) (word boundary)-like properties and considerable variation in the respective languages. Reduplication also requires junctural considerations for the accurate application of phonological rules (see e.g. Lab1 1958b).

The form classes of the various morphemes in the Music languages are defined in part by their occurrence restrictions in relation to particular junctures, in part by combination with diagnostic affixes, and in no small measure by semantic domain. In traditional analyses immediate constituency has apparently been given the greatest weight in determining form class membership, and, circularly, form classes are used to describe occurrence. In order to keep this system in operation, it is often necessary to split an etymologically unitary root into several distinct roots, separated by differing privileges of occurrence and thus placed in different classes. The sanctity of form class assignment is an externally imposed distortion and does not reflect a requirement of Music grammar. This misleading situation is often justified by identifying the artificial proliferation of roots with the homonymy that might be expected in a language with stringent limitations on the length of roots.\(^2\) In cases where the phonological and semantic specifications are virtually identical, it seems perverse not to recognize the etymological unity.

\(^1\) Jacobsen (p.c., 1972) suggested something of this sort in connection with both deitics and compounding. See also IV.1.

\(^2\) Bright, in his 1968 review of UAG, remarked on the extent of homonymy in Mill's starred forms, e.g. 10 different roots *na (p. 37).
of the basic root or stem. It is not at all unusual for a root or stem to have more than one grammatical potential as an inherent part of its semantic or lexical specification. For example, the root *ma *MAN 3 is usually separated into several different roots, but this is patently unnecessary for diachronic analysis, and probably for synchronic description as well: NP ma means 'with the hand' as a prefix, 'to touch (trans.), feel (trans. or intrans.)' as an instrumental base, 'to make, do, handle' as a verb stem, 'hand' as a noun stem, and 'with, by' as a suffix to a noun stem capable of having instrumental force. A few additional "elements of uncertain meaning may also belong here etymologically. 4 Steele reconstructs an analogous situation in PUA and 8akle (1973b:1). She assumes that a single reconstructed clitic element takes on meanings of modality, aspect, and tense when it occurs in three different positions in the sentence. Confirmation of Steele's hypothesis comes in the Proto-Upan clitic reconstructions of Jacobs 1972 (see also IV.2). Although some

roots, especially affixes, are now inherently members of one or another form class, most roots, like *ma, take on a particular force only through position and association with other roots.

In the absence of adequate historical analyses of the various forms of word building in the UA languages, it would be premature to attempt what would account to an ad hoc regularization of the operation of final features and form classes in NP, since the problem is clearly an old one common to all of the Uan languages and pervades the entire lexicon. However, there are several self-contained parts of the lexicon that have been seen as characteristic of the UA languages and have previously attracted attention. Taken in isolation, these particular areas seem at least potentially neat and regular, although seen in the context of even a single language these approaches suffer from excessive reliance on lexical definitions or on statements extracted from context, and have misled generations of linguists. I have selected two of these areas for detailed treatment in an effort to place into proper perspective previous treatments and recent advances in information. The first involves the absolutive or noun class marker affixes, and the second includes the question of instrumental prefixes.

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3 The use of capitals for glosses is a shorthand notation for the main focus of the term, which in this case is 'hand', and all its semantic extensions. This convention is adapted from Berlin and Kay 1969, where it is used with color terms.

4 The roots associated with instrumental prefixes are extensively illustrated in III.2, and are therefore not repeated in full form in Appendix III.
1. **Noun class markers and the question of absolutes.** One of the most common methods of indicating class membership is to attach a class-specific affix. The Nure language has developed sets of noun class markers (henceforth, *num*’s) which have been interpreted in part as carrying taxonomic information, but whose major application is in marking a particular stem as a nominal. It is not appropriate to describe the *num* as *shaping* a stem into a nominal where that usage is already specified in the lexicon. Therefore, the distinction between nominals and verbs must often be overtly marked when both types of stem occupy the same immediate-constituent slot. In addition to *num*’s there exist similarly ‘empty’ predicative markers which perform an analogous function (see also IV.2).

Some nominal stems, although they satisfy all phonological requirements, may not stand alone as independent stems without the addition of a *num*. The latter generally conveys no modification in the meaning of the stem. For example, H*₃ /nɔm/ ‘salt’ never appears as an independent stem but must take the *num* -₃₁ in order to stand alone; hence /nɔ₃₁/ is the free form for ‘salt’. However, /nɔm/ is the form used in compounds, e.g. *eNp* /nɔmMɔm/ ‘salt water’ > ‘salt lake’ (with /nɔm/ ‘water’).

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5 This term is also used by Goss (1968).

Similar restrictions in this particular root, PN *-qra*, and several others, occur in all the Nure languages. In earlier literature *num*’s in this usage are called absolutes, and if all occurrences followed the pattern of KP *num*, this would be a satisfactory designation. However, it is clear that more than absolute usage is involved, both synchronically and diachronically, in the area of characteristic nominal suffixes. For this reason I prefer to use *num* as a label since it does not have the connotations of absolute in its established use. Since the SP evidence from Sastr has formed the basis for most discussions of *num*’s, his description (1930:111) is repeated here.

**ABSOULUTE OR CLASSIFYING ELEMENTS.** Many nouns end in a suffix that either suggests classification of the noun under a general category or that has little assignable significance except to render the noun absolute. Some of these elements disappear in composition or when the noun is used with a possessive pronoun as subject, others may or may not. Some nouns appear with or without an absolute suffix, e.g. *nɔm* and *pɾɛ́yɛ́d* *nɔm* [transcription converted to that used here -- KFR].

In his discussion of the SP *num*’s Sastr included the following suffixes, which have been rearranged here according to my analysis; the letters in brackets refer to the original designation by Sastr (111-20).
1.  **pl**, *pl*, *pl*

   [a] 'absolute suffix implying indefiniteness or non-specification of possessor'

   [b] 'classificatory suffix referring chiefly to animals, topographical features, and objects (chiefly movable), less frequently persons'

2.  **kw, kw, kw

   [d] 'absolute suffix ... used in certain body-part nouns, in nouns denoting movable objects, objects in mass ..., and topographical features'

   [e] 'classifying suffix for plants. It may be rendered PLANT, TREE, BUSH. Less frequently it is used with nouns indicating parts of plants.'

3.  **pl

   [c] 'Stud ... classificatory suffix'

4.  **pl, pl

   [f] 'classifying suffix, chiefly for animate nouns'

Sapir noted the difficulty in determining the difference in textual occurrence between type [f] and the distinctive suffix -pl. He also remarked that some of the forms under [f] are in fact probably compounds with the final member *py 'hair, fur, feathers, outer covering, etc.*, whose independent stem is SP pywy, from py which plus a noun -py. Here the SP independent stem pywy, combining form -py(w), indicates a reconstruction as *py(hy), in confirmation of Sapir's hypothesis.

By observing under [d] that some of his examples may actually belong with the 'past passive participle', in -any rather than with the homophone non, Sapir recognized the close kinship between the non constructions and participles, which is of considerable importance to the present analysis (see discussion below).

Sapir also noted that some of the non's can occur in conjunction with other non's, e.g. [d] * [a], and [d] * [f] (the latter combination he entered separately as [g]). His reasons for keeping separate the individual components of his numbers 1 and 2 are not entirely clear, especially since he does mention the possibility of a treatment like that shown here. He was apparently motivated in part by the fact that some of the non's are absent in certain compounds and postposed enclitic constructions, while in others they are present. In addition, some of the non's may carry lexical meaning; given the clear meaning for -**pl** (e.g. *pl* Snake), it was not unnatural to separate [e] as PLANT. However, the situation as Sapir describes it is not a neat one. His [e] is the only set where the non is always present, while in [a], [e] it is omitted in the constructions just mentioned; [b], [d], and [f] are mixed types with some stems showing one alternative and some, the other. Semantic considerations are likewise not adequately met, since [b] and [d] are nearly identical in meaning.
but have different phonological shapes. Similar objections would separate [a] and [e].

It is possible that part of the special meaning noted in [a] stems from confusion of the noun with the indefinite or third person pronounal *py (discussed in IV.1). Possessives in SN are postposed, as are the nouns, and the phonological similarity may have lent impetus to the occasional interpretation of nouns as indefinite possessives, although historically the PN pronounal *py did not in fact occur in this position. It is tempting to identify this *py with the noun's on phonological grounds alone, but such an assumption is otherwise unmotivated.

The variation in the shapes of the noun's in 1, 2, and 4 is caused by the final feature of the preceding stem and is not properly part of the noun at all. Sapir marked the distinction on both the stem and the suffix, but this is clearly unnecessary on formal grounds. The shapes of the suffixes can then be revised to the following: 1. pl., 2. ny, and 4. el. The form of 3 presents special problems, since that noun occurs in only one shape, regardless of the preceding stem, but since this construction is missing in other Ute languages, nothing further can be done to explain the anomaly. The possibility that it is a subtype of 2 will be discussed below.

Since PN *at was not just diminutive but generally affective, there is a strong possibility that noun 4 in its primary meaning is etymologically identical to this element; however, since the phonological shape has undergone some modification by the addition of a final feature, the link is not certain. Sapir noted the difficulty in distinguishing one from the other, although choosing to consider them separate forms. Even synchronically, however, there is some doubt about his solution, since both elements are frequently word final, where the final feature cannot be determined.

Working entirely within the closely related Ut dialect, Goss (1963) chose to avoid reference to the situation in SP. As a result, some of his analyses of Ut, taken in the light of SP evidence, are highly doubtful, especially in view of his own published claims (1965) that the two are dialects of one and the same language.

Goss sets up five major classes of nouns. The first is not overtly marked and consists largely of old nouns with basic meanings, e.g. *xw 'water'. The others are marked with nouns, which are rearranged here to match the presentation of SP (square brackets mark Goss's numbering).
1. nl
   [3] 'includes nouns referring to objects
       normally possessed by actors ... kin-
       terns, body parts, and products of the
       body'

2. ny
   [2] 'general inanimate class ... the "back-
       ground domain" ... mineral and plant
       domains ... as well as most insects and
       some small birds'

3. [not attested]

4. ci
   [4] 'the class of actors (people and animals),
       those animate beings with distinct
       personalities'

   [5] a compound ny-ci with [2], 'the class
       of Supernatural Actors, spirits'

In subsequent discussion Goss states (1968:3):

The meaning of a root is rarely precise until the
addition of one or another of the major noun
class markers. As we saw in the example of the noun
'bear' and the semantic domain assignment carried by that noun,
the same root may carry different meanings in different
domains in a given language, with corresponding adjustments in
meaning.

It is indeed unfortunate for his argument that his
'specially good example', nun 'rat', 'porcupine', or
'pine' depending on the noun, is a case of accidental
heteronymy involving historically distinct roots. This
error is particularly egregious since the SP cognates
are not homonymous. What is actually involved in the
association of these forms in folklore is the common

Musician literary device of punning, for which these forms
do provide an 'especially good example' (see V.2). How-
ever, Goss is able to give less complete sets involving
Ut cenn 'someone's mother's younger brother; wolf,
older coyote' and Ut cenn 'pine nut; pine' which support
his hypothesis. Sapir's analysis, unlike Goss's, does
not delineate a precise semantic domain for each of
the non's; and while Goss is surely correct in his claim
that some assignments of words to seemingly inappropriate
semantic domains in fact have cultural explanations, I
seriously question whether all such anachronisms can be
accommodated under the system as he outlines it, espe-
cially, as will be shown below, in the light of other
potential historical affiliations of the non morphemes.
It is by no means obvious that we should attempt to
ferret out more specific meanings for non's rather than
trying to generalize the wider system of nominal affixes
including the non's. One important specialization in
Ut non's, the supernatural or mythic reference markers,
will be discussed below.

Dayley encountered many of the same problems in
his analysis of nSh. He reports on absolutive nouns
(1970:95):

Many nominal roots require one of several abso-
lutive suffixes when they stand free, when they
function as subjects or objects of verbs, and
when they function as genitives.
He lists the following nôn's (forms in parentheses are objectives, where different from the base form):

1. nô (nô-ta)
2. nô (nô-ha)
3. nô (nô-ta)
4. nô (nô-ta)
5. nô (nô-ta)
6. sô (sô-ha)
7. sô (sô-ha)
8. sô (sô-ha)

Dayley does not attempt to label the meanings of these suffixes or to characterize the types of roots to which they are appended. However, from the examples he gives it is possible to make some generalizations. It appears that types 1 and 3 are etymologically identical and are attached to a miscellaneous assortment of roots with no common semantic denominator. Type 2 is clearly related to 6, since addition of glottal stop plus echo vowel is a common device for personification; all of Dayley's examples of 3 are kin terms or refer to people, including mythical beings such as Coyote (cf. II). The only example of a stem for 2 is Sh nôkô- "berry", which yields nôkô-pî. An alternate segmentation nôkô-pî would provide an exact match for the SP EMâY stem; however, given only a single example, the correct analysis is uncertain. The forms given as examples for 4 and 5 also present difficulties. The two examples for 4, san-mâi 'sun' and tyâpî 'mouth', and the single example for 5, râqây 'foot', appear to go back to a Sh noun (*pa) plus an objective *i, an etymology which explains the identity of objective and nominative forms in this group.

The single form for 7, têkô 'skin', probably does not involve a noun at all: like similar forms mentioned for SP and SJ, this te seems to reflect êt *te (ty) 'hair, fur', etc.

Although Sh, like the rest of CA and like SJ, presents a few forms in -ôî which are not clearly diminutive-affective in meaning and which closely resemble the generalized uses of the -ôî noun of SP and UB, there have been no attempts to treat *ôî as a noun outside of Sh. As was mentioned above, even in SJ the separation of a special noun with this shape is dubious.

In any event, the revised classification of nôn's in nôh is similar to that in SH, and the same numbering

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6 For lack of sufficient examples, I have not redone Dayley's analysis of the objective endings, but instead followed his description. He would now analyze nôh differently (p.67), since the final feature series 4 (p) had not yet been discovered in 1970. The action of this series accounts for the 5 in the objective of 2, 6, and 7, which would now be written sôh, etc.
is used here; old nSh numbers are in square brackets.

1. pl("(1) [1, 2, 3]
2. "ny [6, 8]
3. "pi (1) [2]
4. -pi (not a noun)
5. pəl [4, 5]

The Sh nouns have been included in two recent works by Miller (1972:19-20; 1973); the list below is synthesized from both sources. Miller calls the noun's absolute suffixes but feels that classifying suffixes would be better for the same reasons given here. The noun here labeled 3 was extracted from the dictionary (1972). The forms listed are ecSh unless otherwise marked.

1. pən general noun marker; past perfect participle suffix -- used for deverbal nouns
2. "pi general noun marker; interchanges dialectally with l
3. (p)iθ used with plant names to indicate the fruit of that plant; 'uncommon and formations often irregular'
4. -pl /c/ŋh used to form animate nouns, especially for strange or dangerous creatures
5. lpy used with a handful of human nouns; usually frozen to root

6. -n/n'-ngh instrumental noun formative for deverbal nouns
7. -mə'pih (nsh) agentive (ecSh uses a different formative)
8. -pəl occurs fixed to several old nouns, but no longer productive

The forms in 6 and 7 are compounds of nən's with non-nən's, and the first morphemes will not be treated here. Miller reports that the diminutive in ecSh and nsh θnθ is identical to Pn θnθ, which is both a diminutive and an 'absolute' in that language. Undoubtedly the compound nən in 4 is formed with this element, although the analysis has acquired a special meaning. The Pn noun's are generally the same as those of Sh.

The forms in 3, 4, and 5 have very close parallels in Pn. In fact, most of these forms show alternations which might indicate dialect mixture or even loans. The forms in 3, 4, 5 with highly restricted usage seem especially likely to have been borrowings. In the analysis here the Sh noun's can be reduced to the list below (square brackets for original numbering).

1. -pl [2, 4]
2. pən [3, 4, 7]
3. pəl
4. lpy [5]
3. (4)ph [3] (?)

   -ç1

5. -pal [8] (no longer productive)

Without much support at this time, I assume that the
h ending on some of the nouns results from a regular-
ization of the CL case endings, which are indicated in
some detail in the original sources. The correlation
between the revised forms for Miller's and Dayley's Sh
is nearly perfect, a fact disguised in their original
presentations.

The nouns reported for 9n and 9m are also based
on 21, 22, and 23, essentially similar to those of Sh,
and not otherwise remarkable. The 9n and 9m noun's have
not been described, but are not radically different
from those of the other NH dialects. Zigmond reports
that there is no specific plant or berry affix in 9n,
which uses both 1 and 2 for plants.

NP has essentially the same set of noun's
encountered in SP and Sh. The two miscellaneous
classes are marked with -pl and -pw. Trees and shrubs
tend to be marked with -21, but smaller plants can
take either. There is no WAXM noun, but simply
straight nominal-nominal compounds with the stem pul

'reed, fruit' as second element (see II.2.5). NP
pul(?)a 'wild rose' (*pl SHARP, POINT - 'a -- see II.2.3
and III.2) plus pul yields pulpu 'rose hip', used
without nouns. It is of course equally possible that the
SP butul noun is actually a phonologically reduced
version of this compounded element, or that the influence
has gone the other way.

In NP, -ç1 is not a noun, but clearly a distinctive
affix. NP has a productive noun -m which,
like -ç1 and -cy, marks a class of miscellaneous
nouns. Reexamination of the SP lexicon produces a
number of words which apparently have an old *-pa noun
incorporated and are generally identical to NP forms
(exceptions have been noted below). Euju 'sun' (see *ta,
III.2), ayu 'pine nut', kawna 'mountain'; ñawna 'fruit'
(NP ñawâ), nuwa 'soup' (NP hump), nuwa 'foot' (not
attested in NP, but see Sh nuwa, above), and others.
The reconstruction of *pa as a noun introduces the
possibility of confusion with the reflexes of *pa
WATAI and *pa locative 'up, on', which have their own
specific semantic domains and which are usually easy
to factor out of the noun forms ending in -ç1. The
following forms illustrate the use of the three NP
noun's in WATAI; other examples occur throughout
the text. To avoid confusion, no reference is made here
to the etymologies of the particular forms.
Many examples of non attached to roots with verbal meanings:

k'itina-py 'excrement' (: 'defecated')
wana-py 'cloth, net' (: 'woven'; but cf. kmisil - 'to weave, plait')
ty'kana-py 'food' (: 'eaten')
ty'kisana-py 'fine soil' (: pisna 'good')
paka-py 'shooting equipment' (: paka 'reed; arrow shaft')

Some or all non attached to roots with verbal meanings:

kusa-pa 'cloud'
ko'a-pa 'ghost'
hya'k'ma-pa 'wind'
hucl-pa 'bird; sage hen'
ta'sa-pa 'stocking'
ka'ti-pa 'mountain sheep'
ka'a-pa 'leg'

Just as there is no phonological basis for deciding which stems will take non's in the first place, so the form of the word gives no clue as to whether the non will be retained or lost in compounding. Sapir tried to circumvent this difficulty by grouping his non's into a number of subsets as outlined above, but the problem remained in some of his groups. A possible explanation is that there were different stages in the lexicalization of non's with particular stems. The earliest attached non's might have been reinterpreted as part of the stem in later stages of a language.

This would explain both why some non's are retained in compounding and why some nouns appear to have more than one non (see Sapir 1930:111ff). If lexicalization of stems expanded with non's is still an ongoing process, we have an explanation for observed variation in meanings of suffixed forms, e.g. na'taunu-pi, variously
"charcoal" and "black paint". Support for this notion is readily available in the Nuske languages. At least three non's are attested in all of the languages, *pl, *py, and *pa. Although the first two are productive in all of the languages, *pa is present only in lexicalized form in Sr, Ut, and some Gu. Examination of the forms with a lexicalized addition of a non, i.e., those having non's whose removal would change the meaning of the word, reveals that many of these are very old and very widespread roots in Nuske, and are often of the shape *V. This suggests that an early use of the non may have been identical to that of root extensions, namely to provide an extra mark of length in order to produce an independent normal stem. Many of the forms with *pa fall into this category. Extended forms acquiring specialized meanings as non's would have hastened the process of lexicalization. Forms such as pl *ta-pa 'sun' and *ty2pi 'rock, stone' must date from this early period (see III.2 for the basic meaning of these particular root morphemes). Reinterpretation of final -py sequences of roots as non's cannot be ruled out, although no certain examples exist. Forms whose non's are segmentable without alteration of the meaning of the stem are assumed to be from later stages. The absence of non's in compounds with this set of stems might better be described as exception from the assignment of a non than as loss of the non in compounding, since there is no reason for the first member of a compound to have a non, especially if a non is associated with the second member.

The problem of the meaning of the non's is another area of uncertainty. Do they in fact have specific meaning other than 'noninal'? The semantic domain that is often singled out as a specific meaning for a non, or as falling into the scope of meaning of a particular non. In Sp and Ut tanza belongs with py, whereas in Sh, Ka, and Sp some tree names take pl and some py, while I accept the fact that tree terms tend to require a non in these languages, I seriously question whether it is the non which carries the 'natural' meaning. This meaning is understood as the unmarked sense of the root unless the latter is otherwise compounded or qualified; thus mp t♀ 'wild rose', when provided with a suffix to yield 'mp♀, refers naturally enough to the plant itself and to its parts and products.

In a discussion of Ut sacred language, Joss (1970) singles out one of his non's, py, as part of a system of markers attached to both nouns and verbs to indicate that the sentence refers to myths or to supernatural events, including dreams. The available
examples of nouns all seem to be personified animals, which also have the -em following. Similarly, the verbal suffix string includes -en plus other following suffix elements; since the -en in the verb may convey preterite sense, as mentioned above, with the mythic element expressed by the other suffix(es), the identity of nominal and verbal suffixes can only be regarded as suggestive. It does, however, appear that personification as opposed to simple animacy may be involved in the usage as Doss describes it for the nominals.

Karden (e.g.) tried to show that SP had two genders marked by nos', where mas marked superior gender and me, inferior. Although this system appeared to have some merits, Karden himself later discovered that he had been transcribing both mas and mee (both often [ma]) as me. This, when the system was restated, left no clear divisions on semantic grounds. Trees were usually given ma, erases and similar plants me, and meteorological and celestial forms usually mas, but Karden later abandoned this scheme as unworkable, which it still appears to be. The NP analogue to the

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7. We cannot rule out some phonological interpenetration in these affixes. Sporadic alternations between a and e, and i and e, are common, and by extension interchanges of a with i, through e, would be possible. Therefore, we must allow some latitude in reconstructing the qualities of vowels in nos's occurring with particular roots.

personification-mythic reference in Ut is simply the addition of -em, glottal stop plus echo vowel, which serves also as the vocative and as the marker for proper nouns in general, and has no special mythic connotations.

Although it seems desirable to assign various semantic domains to one or more of the nos's, it appears unwarranted to trace such meaning to the nos itself. It is, of course, entirely possible that analogical extension might eventually have the effect of creating rough semantic domains for the use of nos's, but this is far different from the claim Doss appears to be making. Anomalous words occur in every set if we are at all strict in assignment of meaning to the nos. The potential exception, the SP BEHNY nos, may actually be a subset of the Hidz assignment or have been confused with it, or it may be an old compounded form as suggested above.

Separately from his presentation of what I have called nos's, Sapir (1930:123-32) describes a series of 'nominalizing suffixes' for SP, some of which bear a striking resemblance to the nos's in phonological shape. In fact, Sapir noted that some of his nos examples may actually be participial nouns using these nominalizing suffixes. In order to provide some specific definitions for his nominalizing suffixes, he
factored out particular semantic role such as 'agentive' for separate suffixes, but, as with the noun's, this proliferation of suffix classes does not appear to be justified. Here are the nominalizing suffixes, with Sapir's original numbers in square brackets.

*pi
[1] pi' 'agentive'
[5a] pi' 'passive participle'

*py
[5b, 2] py 'preterite passive participle'

*pa
[4b] pa isolated noun suffix listed with possible other UA cognates; the meaning is uncertain

*ty
[6] ty 'present active participle', and related meanings

*na
[2] na 'verbal noun'

Certain other forms of [4] are not relevant here, since they appear to be specialized forms of other *pa roots (cf. above) rather than nominalizers.

A formal distinction between nouns and verbs in Nuu-chah-nulth is generally an artificial one, since the stems themselves can serve either function in most cases, as has been mentioned. Therefore, instead of distinguishing noun's as noun suffixes from supposedly separate nominalizing suffixes on verbs, when each has the shapes *pi, *py, and *pa, it seems more realistic to set up a single class of noun's, which can be applied to any suitable sites to mark, rather than to derive, a nominal. The reflexes for the verbal usage of our noun's (Sapir's nominalizing suffixes) are essentially the same in all of the Nuu-chah-nulth languages and are thus of at least PN date. The NP 'verbal' forms below and the noun's do not actually have different meanings when attached to nominal vs. verbal stems.

*py (see also examples with noun's, above)

passive past participle

na'piy 'burned'
ri'a'piy 'gone'
muk'a'py 'sharpened'
muno-xi'piy 'twins' ('together'-born')

*ty present active participle (See endings on color terms, V.1, and directional, IV.1; nearly all final -ty elements are instances of this phrase.)

wohoty 'swan' (wohi 'dry, howl, make noise')
m-natu 'marked, drawn'
m-na-waha-ty 'tellers of a tale' (wana 'tell, Repeat')
muya-moo-ty 'old-timers' ('old, before'-'move')

-na general nominalizer; incomplete verbal action

mivale 'going'

na-nifina 'calling; be called (a name)'

ma-pulinma 'middle finger' (hand-'three')

ti-nosina 'their dreams' (nomin 'dream')

Just as the phonological shapes of *py, indefinite pronoun, and *py, noun, suggested a potential, if unprovable, relationship, so *ty, indefinite object (used to provide a dummy object for converting a transitive verb into an intransitive one), and *ty, nominalizing suffix, are alike in form but unlikely to be cognates since their positional occurrences differ and their meanings are not satisfactorily close. A more probable set of cognates for the nia forms appears on the basis of evidence from outside Nuica.

S. Tranel (p.c., 1971), discussing the 'absolutive' markers of Nuica, carefully distinguished between the use of the term absolutive in Nuica for the *py sets which he traced to nominals like SP *py, and usage in the rest of the UA languages, for which he reconstructed a true absolutive, Nuica *t. Under this reconstruction he included the absolutes reported for Uatle (Le, Cu, On *t, *t), Sr *t, *t, Tb (1, 1), and Olax (1, 1). Samir took a slightly different approach, tracing SP *di (one of his nes) together with Takle 1, 1 to a Nuca ('Shoshonean') *ti, *ts, which he considered cognate to the Aztec forms.

I do not believe that there were any Nuica roots of the shapes *C, and I would prefer a reconstruction *ta or *cV; SP *di, as has been stated, is unlikely to belong to this set. As for the 1-1 alternation, it is unclear just when this took place in the Nuica languages. As noted, for example, that 1 was a relatively late development in Aztec, since it is found in some groups but not in their close relatives (cf. the nahual/nahual distinction, present even in the names for these two divisions of Aztec). Yet the same alternation obviously occurred in Takle and Tb; there may thus have been two non-contemporaneous sets of parallel development. If the same alternation affected pre-Nuica, *1 from Nuica *t should fall together with Nuica *1 and be reflected as Nu *1; then we might expect cognates to Tranel's 1 and 1 absolutes to appear in the modern Nuica languages as nominal suffixes of the shapes *C or *C. Exactly this situation seems to hold in the Nu *ty vs. *na (presented above) as verbal counterparts to the nes's; these forms are hitherto

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8. It is not entirely clear whether Takle 1, 1, Sr 1, 1 can be subclassed under Nuica *t. The presence of several different Nuica *o/sV affixes complicates the problem.
unnobtained potential reflexes of the PUA root *tV. The
PUA roots and verbal nominalizers have been placed into
a single category on the basis of phonological identity
and parallel occurrence of the forms *pi, *py, *pm in
each of the classes. On the same basis we can group
the basic verbal nominalizers -pa, -py with the non-
basic PUA *tV and secondary *tv absolutive, again
uniting verbal nominalizers and nominal absolutes
into a single proto-category. Syntactically, if not
synchronically, all of the PA nominalizing suffixes
can be considered a single class.
2. The question of instrumental prefixes. SP,
like all the Kusa languages, employs an active system
of instrumental reference in verbs, which is usually
described as instrumental suffixation; e.g., the instru-
mental prefix pi- 'with the hand' + PTV 'get'
yields #kilya 'finish'; ky- 'with the mouth, teeth'
produces kilya 'carry crosswise in the mouth'. Sapir
(1930) was careful to point out that what he called
instrumental prefixes in SP in fact had other uses and
showed a kinship to particular roots in other grammar-
atical classes. However, his qualification has largely
been overlooked by subsequent writers, who assume that
any instrumental usage is sufficient to classify an
element as an instrumental prefix and then reconstruct
a similar system in PUA on the basis of cognate
relationships between the Kusa instrumental prefixes
and roots in other UA languages. The question of
instrumental vs. other usages is a complex one even
in Kusa; the fault of oversimplification lies not
with Sapir's label but with his interpreters. The
following quotations from Sapir, describing the SP
data, are equally applicable to any Kusa language.

Under this term [instrumental prefixes] are
included a considerable number of elements of
prevailing instrumental significance. They are
used chiefly with verb forms, but not exclu-
sively. In some they may in part be em-
ployed non-instrumentally, and to the properly
instrumental function always appear in verb
forms. Their origin is largely obscure, but
certain analogies suggest strongly that they
are on the whole specialised forms of incorpor-
ated nouns with instrumental function...
to some extent they may be related to verb
stems. (1930:101)

The instrumental prefixes are each more closely
connected with the verb stem proper than any
other element preceding the stem, e.g., a ver-
bial prefix, reflexive pr... or incorporated nouns.
An instrumental prefix comes nearest the
stem, owing to this close connection, the
psychological analysis becomes somewhat ob-
scured at times, so that the notion of instru-
mentality may be obscured in a preceding incor-
porated noun... Sometimes an instrumental pre-
fix is so closely identified with the stem that
it may be preceded by another instrumental
prefix... (1930)

In Sapir's usage, instrumental prefix is a cover term
rather than a complete description of a class of mor-
phemes, since the latter have instrumental force in
only some of their constructions. The analogies to which Sapir refers suggest that this class of morphemes is historically related to phonologically and semantically similar morphemes which belong to other grammatical classes. Even on a synchronic basis the virtual identity of many of these elements in different classes (e.g., the various forms *ma, with different privileges of occurrence, mentioned above) suggests that they are in fact instances of the same morpheme used in different ways. Since membership in a particular grammatical class is rarely exclusive, there is no formal reason for denying several roles to these morphemes, one facet of their use being as something like instrumental prefixes. However convenient it may seem to retain the familiar designation instrumental prefix as a label for the superclass, such a solution may be completely misleading; for example, NF wy(')ma 'to touch (trans.), feel (trans. or intran.),' is composed of two of these elements, *wy and *ma, but by no means is this verb stem a compound of two instrumental prefixes in the usual sense of either compound or prefix.

I submit that there existed in FUA, and to a certain extent still exists in Masi and elsewhere in UA, a set of elements having meanings based on certain salient physical characteristics, which by logical semantic extensions function in various grammatical classes. In addition, they were and are morphologically simple, basic to word building both in the protolanguage and in the daughter languages. Although it would be impossible to eschew entirely the use of the term instrumental prefix, some caution is necessary.

In the proper context these elements had a semantic domain not limited solely to such typical instrumentals as body parts and shape-classified solid objects. It also included such notions as liquid, heat, and cold, as well as such secondary extensions as degree or direction of force, location, transitivity, and also other grammatical features which are not instrumental in any strict sense. It seems likely, however, that the less concrete meanings are in fact secondary developments from morphemes with specific instrumental connotations. If a morpheme did not have a semantic range which could include an instrumental meaning, it would not tend to be used as a prefix. On the other hand, new or modified independent terms for objects which were felt to be part of the domain of instrumentals, e.g., new terms for body parts, would naturally develop into instrumental prefixes through noun incorporation.

The Akan languages have apparently gone the furthest in this last procedure by making the set of instrumentals essentially open-ended. Sh has added
elaborate their system with new or replacement terms is clear from the wide variations in the composition of the prefix classes in each Nixic language. Areal use of instrumental prefixes, widely reported in western North America, is probably also a factor.

Because every writer draws his own line between 'instrumental prefixes' and incorporated noun, the various lists of Nixic instrumental prefixes seldom agree in their constituents. In part this is because some elements are rare or restricted, or occur in only one language or group; most, however, occur in all of the languages, but with differing degrees of productivity, including zero. Thus it is not necessary to go outside Nixic to find examples of so-called remnant forms. It appears that SN developed most of the instrumental prefixes and the daughter languages subsequently expanded or contracted their sets of productive prefixes. The extent to which analyses and productivity of related languages may differ in their instrumental prefix inventories is illustrated by the lists of Miller and Dayley for SN dialects in close proximity. Miller

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9 Lists of instrumental prefixes for the various Nixic languages can be found in several sources. For SF: SAPIR 1930:101-3; SN: Miller 1971, 1972:18; Dayley 1970: 112-14; for general Nixic: Sherzer and Foley 1970; Kroeber and Howe 1950:241. These lists add no new information and will not be reproduced here.
gives 17 instrumental prefixes (1971; 16 in 1972) and Dayley 19, of which only 13 are common to both lists, and even these are not always identically recorded.

The clearest case for the assignment of morphemes to the set of instrumental prefixes arises where the phonological shape of the instrumental prefix differs from that of the semantically identical stem in other grammatical classes, as was noted by Sherzer and Foley (1970); e.g. NP in- 'with the foot' vs. ky'ky 'foot'; or NP ku- 'with the mouth, teeth' vs. ku'on 'tooth', ku'na 'south'. However, the status of forms like NP gu- beside gu'ni, both 'nose', is not as clear, since gu- could be regarded as a noun, and the prefix form giv- as the root losing its root in compounds. In general, though, it is safe to say that differing phonological shape is a valid criterion for status as an instrumental prefix, where differing shape is taken to mean more than simply the affixation of a noun to an instrumental prefix.

The instrumental prefix group is a conservative one, tending to retain forms unaltered when they have been replaced in other grammatical slots in everyday speech. For instance, the SF variants gu- vs. gu'ni 'hand' presumably reflect the same root *ga, with the original form retained in the instrumental prefix, the independent form showing vowel rounding and lengthening with a root extension (see II.3.2). As another example, NP retains go- 'head' in only a few fixed compounds, using waa (NP *wa - *wo 'head hair' + stem extension) elsewhere. Sh retains the cognate instrumental prefix but uses unrelated nati as the independent form for 'head'. Yet the Aztec nominal con-tli 'head' indicates the antiquity of NP *co-. Replacement of an independent nominal form of the *co- root must have taken place in the various NuuMix languages after PN times, with only the prefixed uses still retained.

The extension of a body part name into the instrumental prefix class is the probable explanation of the 'knee' and 'elbow' terms, which act as instrumental prefixes only in CN. The forms for 'knee', etc. come ultimately from *ta 'foot' plus assorted derivative elements, and are included with that form in the lists below; the fact that the dialects of Sh reported by Miller and Dayley have chosen different derivatives suggests that this extension is very late. In fact, the terms for 'knee', 'kiss', 'leg', etc. vary considerably in NuuMix, and the designation of 'knee' by a discrete lexical item may be very late. The reliance on the root *ta 'foot' for the source of many of these terms testifies also to the fluidity of coinage using these basic vocabulary building blocks at a very recent period, and in turn gives more weight to the hypothesis
that the position classes have had more fluctuation in membership than was previously demonstrable.

The brevity of the CV shape of instrumental prefix elements renders it likely that not all of the resemblant forms advanced as possible cognates will prove to be verifiable, but certainly many of them will eventually be proven. The derivatives of these basic vocabulary-building elements are so numerous in Numic that some limitation had to be placed on the examples below. Forms called instrumental prefixes in Sapir's SP, Miller's and Dayley's Sh, Casagrande's Ch, and Lamb's Sh have been listed. Examples from NP are included in lieu of similar forms in the other languages, to illustrate the diversity of utilization of these ancient CV(f) roots. Absence of forms in other Numic languages does not imply lack of cognates, since correspondents to all of the instrumental prefix elements, except for the miscellaneous group at the end, are present in at least remnant form in all of the Numic languages. Most, if not all, of the NP forms have PN origins, but because of the large number of forms involved only those PN forms appearing at the head of each list will appear in Appendix III.

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10 Many of these forms have previously been published, and some are reconstitutions of pre-phonemic recordings. It has not been possible to check all of them. Sources and manipulations will be provided on request.
wy'amuku to sharpen, make pointed
wy(1)na to perform an action involving side-
to-side motion of hand or arm, e.g.
to rub, throw (or throw away), use
use tools, open a door, cast a line
for fish; to bring
wy'na'k1 to run after with a stick
wy'na'ni to dig out with an implement

"ci 'point of long object' > 'stick, thorn; cut'
(UACS 415); cf. PN 'ci-a 'rose', *ci(')a 'thistle'

SP ci'- 'with the point of a long object, stick'
esSh ci'- 'with a sharp point'; 'with a pointed
object (tr)'
nSh ci'- 'by, with a sharp or pointed
instrument'
Ca ci?- 'with a pointed object (knife, pen, stick); direction away from body'
Ku ci'- 'with point, end of a long object'
NP ci('-) - 'with a sharp, pointed object'

ci-a hunger
ci'a wild rose
-ci-pl to pluck, pull out
ci'pi'ma to bury
cittawaka to punch through, make a hold
by poking
city'ma to close or put into with a
finger or stick
ci-tu fingernail, claw (also recorded ci-tu)
ci'ca'ka to poke with a sharp object

ci'k'i?l to slice
ci-ki'sa sword, spear
ci-kwana to point at, indicate
ci-k'qy-(h)u to take up with a pointed
object
ciwy(')ha?l to move, throw, push, shove
with a stick or finger
ci'na to touch with a finger or stick
ci'nano to push with the end of something
ma'cini elbow
ta'wxihi hooves
ci-woni to comb

"mu 'point, sharp' > 'nose, beak > face; head; fly,
mosquito, bee; yuca; shoot' (UACS 31, 162, 180, 218,
368, 373, 482); cf. PN 'supi 'nose'

SP mu-, mu'-, mu" - 'nose'
esSh mu-'with the nose; or front, e.g. of a
car (tn and intn)'
nSh mu- 'by, with the nose'
Ca mu?- 'with the nose or mouth'
Ku mu- 'nose, snout, mouth'
NP mu('-) - 'having a point'; hence also 'nose, beak'

mu-pl nose, beak; the end of something;
prolixeness
mu(4)pli nasal mucus
mu'pu'ga  mosquito (cf. puqwa'ga 'arrow')
-mu'ci'ka(a)  corner: point peak, prementory, rim rocks
-mu'ci'ka  bone nose ornament
mu-ku-  to sharpen, be sharp: stem or brier
mu-ku-pa  mosquito ('stinger')
mu-ku'pa'k'i  sucker fish
mu-ku'dia-pul  gooseberry ('sharp'- 'rose hips')
mu-ku'py  splinter ('something sharp')
mu-suhi  whiskers, beard
mu-nl-pl  housefly
ma-muku  index finger ('hand'- 'point')

*ky  'edge-orifice' 11  > 'edge; beside: rim; bite, chew; with the mouth, teeth' (UACS 42); cf. PN *kywa, *ky'wa

SP  ky'-  'teeth'; ky'ty  'to bite'
ecSn  ky'-  'with the teeth or mouth (tr. and intr.)'
nsn  ky-  'by, with the teeth, mouth'
Cm  ky'-  'with the teeth, or scissors (extended meaning)'
Mn  ky'-  'by biting'
NP  ky'-  'with the teeth or mouth'

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*ma HAND 'hand; make, do'; general instrumental suffix; used with numbers: 'give, feed' (UACS 103, 156, 215, 233, 269, 466, 512); cf. PN *ma(1), *ma'wa 'hand', *manki 'give', etc., and other reconstructions with *(-)ma(-).

SP  ma'-, ma-  'hand'
ecSh  ma-  'with the hand, not grasping nor with the fist (tr. and intr.)'
nSh  ma-  'by, with the hands'
Cm  ma-  'with the hand, pertaining to the hand'
Mn  ma-  'hands, front paws'
NP  ma(-)  'with the hand', together with the specialized meanings above

11 The conception of the focus of this morpheme is derived from Friedrich's gloss of a semantically similar affix in Narascan (1973).
ma-l hand
ma-li, ma-ni, ma-nai, ma-ha'ni do, make
ma-pa'na stretch something
ma-py'co-sa to wring out, twist to squeeze
ma-pi'wa to make pretty, put in order, fix, clean
ma-pi(')ma to bury
ma-tap'y1i to make, produce; to plan
ma-ta'u1i to slap
ma-taka ring finger, fourth finger
ma-jaka little finger
ma-tu-a id. ('hand'-'child')
ma-tu'p'u1i to fold, fold up
ma-tu'ta to wrap up
ma(1)toko thumb ('hand'-'grandfather')
ma(1)caka- to push over
ma(1)cya' to wipe, rub, or brush off
ma(1)-mu-ki to be added on (to 10 for counting)
ma-citu fingernail, claw
ma-cohi elbow
ma-coha shut hand
ma-ka to give to eat, feed
ma-ka-tu'yu-ky to rub out ('hand'-'nothing'-'cause')
ma-ku'ku'ku forefinger
ma-k'wy to finish ('hand'-'get')
ma-ma to touch with the hand

ma-muku index finger ('hand'-'point')
ma-ni'ka2a finger ring
ma-ni'ki(2)ju five
ma-nohe to push with the hand
ma-ne2ju ten ('hand'-'all')
ma-su'co glove
ma-sa'y1tu to gather ('hand'-'one'-'participial)
ma-wa?lky- to cause to drop in the hand
ma-wa'ka- to coil (e.g. rope)
ma-wa'gi to rub

ku'ca'nu-ma with an axe
ty'pi-ns with a rock

"ca 'with the hand, with force, grasping; toward the body; hold' (UACS 232, 234)

SF ca'- 'hand, indefinite instrumental, to tear or pull with force, etc.'
coSh ca'- 'with the hands, grasping, and toward the body (tr.)'
nSh ca'- 'by or with something grasped in the hand or held in the fingers'
Cs ca'- 'by force, usually with the hands; direction toward the body or upwards'
Mn ca'- 'by pulling; to break a supple object; turn over; shoot a gun, put down a heavy object; tie, etc.'
NF ca'- 'with hand and fingers; with sustained force'
caʔa-na-paʔ- to throw (an animal)
cəʔ to hold
caʔpaʔu- to split
cəʔpya:ca- to wring clothes with a wringer
cəʔpyum2i to twist, lock
cəʔpl-woja to drag in the hand
cəʔpu(-)ni to hold up or out to display
cəʔtawaka to make a hole
cəʔtyːma to fasten, to button, a door
cəʔtuta to lift
cəʔcipi to pull out, take out
cəʔka to handle, manipulate; grip or lead with the hand
caʔkaʔa to break (e.g., string or rope)
cəʔkai’(ty) to take on, catch and keep, take hold of
cəʔko- to break by bending; to bend
cəʔ(1)wə-(ty) porcupine (reference to shooting quills?)
cəʔkəw(na) to shoot
caʔky(e)na to close an opening, a door
cəʔmu to pull, twitch
cəʔma-ha(-)ni to rake, scrape up
cəʔnoju- to pull
cəʔma’ni to handle, take care of; drive; to pull off
cəʔwyna- to throw, shovel
cəʔ-wəni to scratch with fingers
cəʔ-jaw to fetch, carry something with a handle
"taʔ FOOT 'foot, kick, heel, knee, kneel' (UACS 187, 224, 225, 243, 245); cf. PA *taʔ ’knee, kick’;
"taʔpi’ - "taʔpi” 'heel’
SP ta’- 'foot' tama- 'to kick'
esSh ta’- 'with the foot; feet' (tr. and intr.)
taʔmi- ’with the knee or foot, with backward motion' (tr. and intr.)
nSh ta’- - 'on, by, with the feet'
tama- 'on, by, or with the knee'
Og ta’- 'with the foot or leg'
Kn ta’- 'feet'
NP ta(-)’ - 'with the foot or leg; pertaining to foot or leg'
taʔpi heel
taʔpaʔi-na third toe, middle toe
taʔtoko big toe ('foot'-'grandfather')
taʔoči hooves of elk
taʔko’pa to break someone's leg; to break as the result of being stepped on
taʔwoʔi to walk ('foot'-'fall/drop')
taʔkwi a step
taʔma to touch with the foot
taʔ(1)ma-pu’i ankle
ta(1)na- to run fast, race
ta-ni'ka to put on shoes
-ta(1)ga kick
ta-noho to push with the foot
ta(1)ga'pi'sa knee
ta'sa'pa stocking, socks
-ta-ki'co ko ankle

*to 'fist, hit violently; motion away from body'
(cf. following set)

SF to'- 'fist' to-na 'to punch'

ecSh to'- 'with the fist, or violently; with the hand or fist, away from the body (tr.)'

On to'- 'with the fist or violent motions of the hands, also with the hoof'

Ha to'- 'with violent motion; hit, cut, break'

NF to(')-' with hand or fist, hoof or paw; with a long object; with force or violence'

to-pa'na- to split
to-tawaka to make a hole
to-ty'sma to plug, be plugged
to(1)ca'ka- to push with both hands; kill with fist or hand
to-aq'q'i'ta to hang up for drying (e.g. hides)

to-kipi to pluck, remove
to-ko'pa to cut with a saw, etc.
to-ka to touch with a long pole
to-ta-ni'ka to light a match (pa to burn', 52 causative)
to(1)na to hit with the hand or fist
to-ma-ni to push
to-ma-ma to push

*to, *ty, to 'stone, rock; throw something; do with something in the hands; motion away from the body, forceful activity' (UACS 354): see previous set.

SF to'- 'by throwing, with a stone'

ecSh to'- 'with the hand or fist, away from the body'

Ha to- 'with something in the hands'

Ha ty-, ta'- 'earth, rock, missile'

NF ty(')-, ta(')-, to(')- 'rock; throw something; forceful activity'

ta-pa'ka bend in, dent (e.g. pan)
ta-pa'jul to break into pieces
ty'pi rock, stone
ty'i'py - ti'py earth, ground
ty-ji to possessed region, land
to(1)pi to throw something at, hit with a rock, mash
tyätapı to throw a rock
ty-na'kwa'sy to throw stones
ta'wyna(ɔ)1 to throw something
ta'caska to kill (with stones)
ykwa(?)wa rock rat (kn(?)wa 'rat')
ty-wa?i burnt rocks (perhaps just 'burn something')

"co 'head; shoulder' (UACS 219)

SP co'- 'head'
ceSh co'- 'with the head (tr. and intr.)' (rare)
nSh co- 'on, by, with the shoulders'
Cz co2 'with the head'
Ko co'- 'head'
NP co(') 'head; shoulder'

co'a-ŋpy shoulder
cokapi brains
cotywa hat, headgear
cokpyhy head hair
cokono basketry head shade ring on a baby board
cotana to touch with the head

cokwa ku- 'with the head (tr. and intr.)' (rare)
nSh ku- 'on, by, with the head'
kuu- 'by, with a covering'
Cz ku- occurs in 'to bob up head, stick head out' (Canonge)
NP ku(') - TOP (see forms below)

-kupa(') - locative postposition 'on, above, over' (see IV.2)
-kupaŋuna ablative 'down from'
ko-ŋi- in front, before, first, ahead
ko-ŋa face
ko-ŋaçanika halter
kuta neck
kuta mallard duck (so named for neck ring)
kua'kwa mountain peak, summit
ku-zi-ka wart

*hu BACK 'outside'

Cz hu?- 'with the back'
hu-nakwa 'outside' (Canonge)
NP hu- 'back; outside, behind'

hu-ŋi- behind
huŋapoto back, backbone (ŋapoto 'digging stick')
hu-na'kwa outside
no 'load, pack; by pack on back; carry; camp; move; round, egg, house; bend' (UACS 367, 89, 154, 295); cf. Pi *no-

nSh no'o 'on, by, with the back' (also in Shikin 1949)

Kn no- 'dwelling, camping'

NP no- 'egg, house, round; move, carry; load, pack on back'

no-(he) egg; testicles
no's fetus; be pregnant
no(?o) to carry on back to transport
no(?o) load, pack, basketload
no-to'yn-1 to haul and dump
no-pl' house, camp; to be camping
no-pl-n' load, pack (n. and v.), packing; travels
no-plju to move camp
no-noo- to travel
no-no-plkaa to camp here and there
no-wya to move a house a short distance
no-ju'y to move, push or pull something
-pono-a, -punu-a round (?)
-noh-a carry (q.v. under other prefixes)

*pl BOTTOM 'base, below, down, buttocks, back, behind' (UACS 17); see Pi *pl-juhu
*pu EYE "berry, seed, louse", etc. (additional examples in Section II) (UACS 169 and possibly others); cf. PN "pu(‘)ni 'eye'

** SP py’, pu’- 'eye; pu?i 'eye' (n.)

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su 'mental or emotional activity; think, feel, etc.'
(UACS 222); cf. PN "sogo(-i) 'lungs', "suga- 'breathe'

** SP, CN, su- 'mental or emotional activity'

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su-ni- by, with the mind or thinking

---

su- with the mind, mentally

---

su(-) to know, understand, believe, esteem, think

su-pli’ja to know, understand

su-pli’tan’kwa-lu- to know, understand

su-ti’ya to know

su- to smile

su-kwa?i to want

su-kwaha to suspect somebody

---

su- to remember, memorize, think about (for 'find')

su-ky(‘)ni to forget

su-ka(‘)ni to think, feel, wonder, ponder, be sensible, thoughtful

su-gah to breathe

su-ga(‘)y breath, spirit, soul

soi’ga lungs

su-wa?i to laugh

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*n1 TALK, SPEECH 'name; sing; ask; teach; pray; medicine' (UACS 432). Numerous divergent constructions in all three.

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nsh ni- 'by talking, with words'

---

n1 ni- 'voice, speech'

---

n1 ni(-) 'with speech; to talk; by word of mouth'

---

n1 to name, call by name

---

n1- to be told, to appear in a story (har- 'appear')

---

n1- to tell someone

---

n1 to scold

---

(ty-)nik’ya- to sing, tell, say

---

n1- to answer

---

n1 to guess (sai 'find')

---

n1- to scare (by telling something)

---

n1-si’ya to quarrel (gya 'bad')
na-miasu a joke
ty'ni'kwyity naana priest ("talker" - "man")
y-nil to say, talk, make a sound

"ta 'sun, hot, light' > 'seasons; fire; celestial body', etc. (UACS 422, 423; 328(7)); cf. FN *tapa(-1)
'sun' etc.: *tapi 'light', *taca 'summer', *tahma
'spring (season)

SP ta- 'sun, heat' tapa 'sun, day'
NF ta- 'sun, day, light; appearance'

ta-pa sun, clock, watch
ta-pa-hy'kwa- east wind ('sun' - 'wind')
ta-py'2a appear, look like, seem, become visible
ta-py- to be dawn, get light
ta-py'2i to be apparent, make apparent
ta-pl day
ta-pl-ty'ka to eat dinner

"ta-pl-tu(?)/a to be daylight, be visible, shine (as the sun)
ta-ca- suzer
ta-na spring (season)
ta-syni-ta February ('sun' - 'changing')

"ku 'fire, heat' > 'ashes, GAY, firewood; axe'
(UACS 170, 393); see also FN *kuca, etc., GAY, 'ashes'
(V.1), 'kuna 'fire, firewood'; also *kini 'shoke

SP ku- 'fire'
ecSh ku- 'by means of heat' (intr. only)
nSh ku- 'with, by heat'
Cz ku- 'by heat'
Am ku- 'fire, heat'
NF ku(')-' 'fire, heat'

ku-pisuki to warm one's back at the fire
ku-tawaka to burn through with a live coal
ku-tky to set fire to (sg.) (taka 'put')
ku-tuuana id. (pl.)
ku-en to get wood, cut wood for fire
ku-ja?i?py a burn
ku-en?nu an axe
ku-ey('?)/i to be hot (weather)
ku-mi-a to be cloudy (< 'smoke')
ku-na firewood
tu-na?a sweat
tu-no(?) to carry firewood
ku-su fire, heat
ku-su-py a match
ku-ha'ní to cook
*sy COLD 'freeze, shiver, shake, frighten' (UACS 94, 463)

ecn Sh sy' 'by means of cold' (intr. only)

H3 sy(')- occurs in several possibly related forms, but probably not all those given below are cognate

ycy'cy冷 (cf. yty'ty 'hot')
sy-a-i to be frightened, afraid
ty'asy to freeze (as water)
sy.ta(2)i to freeze to death
ta-sy-31 to freeze the feet
synyn to shake, quake
sylqapi aspen, quaking aspen
ydocy'qa to shake, quake; be alive
pa-sy-31 to sprinkle water

*pa WATER 'liquid' (UACS 204, 344, 349, 455); cf. Pa *pa(-1). (Not an instrumental prefix per se in any Nuuic language.)

An pa(')- 'water, moisture'

NP pa(')- 'water, moisture'

pa2yam-pa rain (n. and v.)
pa2my- drunk ('water'-'crazy')
pa2ossa water bottle, olla
pa2ona Water Baby spirit (also pa2ona)

pa-tapy2a clear water
-pa2ty'ma to shut off the water; build a
doz
pa-to'ci fous
pa4ako2wa water snake
pa(4)ca('ka) to wash
pa31ko-py ice
pa-ona a spring
pa-kyma-pa fog
pa-ku's1 muddy ('dusty') water
pa'k1i fish
pa-na- water place (used in compounds)
pa-nyama lake; plain
pa-no(9)o to carry water
pa-4sa to dry; to ball
pa(4)sa2wa-py mud
pa4es(?)o to leak
pa-sym1- to sprinkle
pa(4)sa2wa-py sand
pa-ka(')pl to swim (ma(')pl 'lie, lie down')
pa2wa to swell
pa-wana-py meadow, prairie (wana-py 'grass')
pa-wi blood vessel, vein
Several general observations emerge from the compilation of data above. First, the number of examples listed for NP provides a rough guide to the productivity of the forms throughout Nuxic. Second, no real difference exists between incorporated roots and instrumentals. Third, a large percentage of the endings listed with the instrumental prefixes recur with various prefixes, and many of these 'instrumental bases' are themselves formed with instrumental prefixes: 'touch, feel' occurs with ny-, pi-, kv-, tr-, kr-, in- 'foot', le-, ni-, pi-, in- 'run'; and the same root 'sa occurs in several other forms in other, more complex bases.

The fact that the NP examples have been collected from several different sources may obscure patterns of productivity and the potential for coinage within individual idiolects. Since the class of instrumental bases is an open one in NP, it is not meaningful to list morphemes that can or cannot occur with each particular form; in the proper context otherwise bizarre combinations of familiar morphemes may be used to describe a special situation. For example, my coinage out of context of a word 'to reciprocally pull with the teeth' was accepted without question by a C Sh informant and explained as suggesting two horses standing side by side, head to tail, and nipping and...
muzzling each other’s flanks. A word usually formed on a single instrumental base using various prefixes is included below, with the informant’s glosses or explanations.

CONF  -pajul  ‘split, break’

tyipajul  splitting a block of wood with an axe; breaking things
calipajul  split up with the hand using the fingers
silipajul  poke things, like ice on a pond to break it
wyipajul  with a little hatchet — just breaking things; split it
tyipajul  breaking a stick or anything in the mouth
telpajul  breaking logs with a sledge hammer
mabpajul  break with the hand (e.g. in karate)
ụmụpajul  break with the nose

This group of words shows clearly the contrasts between certain prefixes. The ty'- element is not an instrumental prefix here but functions essentially as an independent object added to permit the instrumental base to act as an independent verb stem; no meaning is added to that carried by the base (see LV.1 for more discussion of indefinite objects and transitivizers). The wy'- element is also neutral here, although other examples of wy'- above emphasize its reference to the length of an object, as opposed to n’1'-, which indicates the point. 12 The use of n’1'- contrasts with the neutral forms only in the degree of force applied to the object, but notice in the main lists the interplay of phonological shape and meaning in the ty' - *tu' - ‘to split’. The opposition of n’1', referring to the whole hand, vs. n’1', the fingers, is clear here and is well attested in other sets. Sometimes n’1' is also interpreted as involving more force than n’1'.

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12 Munro (p.c.) agrees that most UA ‘frequent’ instrumental prefixes are in fact old compounds, and that the body part prefixes are in fact incorporated nouns. She also suggests that a *wy' 'č1 ‘length’ - ‘point’ dictionary (cf. ‘great antiquity’) parallel to the identical elements in Nigbo is found in these pairs of La verbs:

woola- 'be a trench'
čiila- 'hatch out, of chicks'

woora- ‘roll’
čiila- ‘rattle, of a rattlesnake’

(The p/ụ alternation here is regular in La, as are the Vowel Shifts.) Although she doubts that these two elements represent independent noun or verb roots in the protolanguage, and has set them up as prefixes rather than incorporated nouns, I feel that they belong to the same domain as the body part instrumental designations and may well have the same explanation.
IV. Nominals, Verbals, and Clitics

O. Introduction. Word lists for the Nuic languages are in reasonably good supply, but grammatical statements are very few. Of the Nuic languages only SP is described in any detail. For SP we have a fair amount of material, and sketches of Cz and Sh have appeared, but for NP, Fm, Ch, Ut, and Ks we have had only glimpses. Thus extreme caution is necessary in making generalizations about the presence or absence of grammatical features. My analysis of NP has been hampered by the lack of adequate English translation. Most of the translations of grammatical elements must be tentative when an inflecting language like SP is translated into a caseless, tenseless dialect of English, especially in the presence of a definite language barrier. The subjects included here have been guided by ongoing preparation of the Marsden and Natcher manuscripts for publication, and are further limited by the availability of comparable material on the other Nuic languages. 

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1 The earlier unpublished SP grammatical material includes a manuscript partial sketch of SP grammar by W.L. Marsden (representing nearly 20 years of field work by a physician in Burns, Oregon who spent much of his free time learning the language, and who consequently knew it well, but who had little linguistic training); other manuscript material by Gilbert Natcher,
1. Deictics.

1.0. Introduction. The synchronic deictic system of a UA language is usually divided into two subsystems: demonstratives and pronouns. Because of the familiarity in western grammatical tradition of these classes as well as such typical parameters as person, number, and case, the deictic elements are usually included in even the briefest descriptions and word lists. Despite normal difficulties with regularization of paradigms and diachronic interpenetration of demonstrative and pronominal elements, it is relatively easy to trace the changes in the UA deictic system because the various languages have faithfully preserved the original UA roots in forms which are morphologically transparent in spite of past recombinations.

Given this similarity, the various reconstructions of deictics tend to agree in overall system, and in many details as well. Two recent treatments of UA deictics by Jacobsen (1973) and Langacker (1973) were undertaken with goals different from those guiding this study, but many of the conclusions reached are parallel to those presented here. All three of us are in essential agreement concerning the PUA reconstruction underlying the later stages.

Each of the UA languages shows traces of the two PUA deictic classes. The PUA demonstrative bases include locative information based on vocalic sound symbolism ranging from a high front vowel *i* for proximal deixis to a back round vowel *u* (or sometimes *o*) for distal, with a variable number of intermediate distinctions. 2

Those deictic forms without sound symbolism are classed as pronouns. The PUA pronouns include personal pronouns, relative pronouns, and, marginally, interrogatives. Personal pronouns are marked for first, second, and third person (1, 2, 3). Personal pronouns, and often relative pronouns and demonstratives as well, are marked for number, singular (sg) and plural (pl), with some languages showing a dual (du). There is an intimate connection between third person pronouns, relatives, and demonstratives, all

2 I treat this part of the deictic as the base, although in earlier literature this term refers to the postponed element. The deictic base as defined here takes locative postpositions that also attach to independent nominal stems. Additionally, in NP these deictic bases are followed by a morphophonetic *Z* (stem-final) boundary (see II,3.2).
of which could be said to be unmarked for person. In
this group there is usually an added feature of definite
vs. indefinite reference. The most frequent inter-
changes between demonstratives and pronouns are
among these groups.

Both sets of deictics occur in independent and
enclitic forms, and the independent forms are inflected
for case. Nominative (nom) and accusative (acc) case
forms occur in all of the languages, and a genitive
(gen) is present in many. In systems of both types
(with and without genitive), the accusative can be
described as residual, i.e. the case assigned by
default when neither nominative nor genitive is
appropriate.

Locatives (spatial and temporal) are frequently
described as cases in the UA languages. They are
formed by adding numerous different postpositions to
the deictic enclitics or to independent nominal stems.
Lexicalized combinations of demonstratives with post-
positions occur in most of the languages as adverbial
particles. Because the postpositions may be compounded
with one another to produce a very large number of
different combinations, it is not economical to treat
these as a case system. Case in the following dis-
cussion will comprise only inflectional elements, and
not the more recently agglutinated postpositions.

Comparison of the grammatical case markers between the
deictics is a major problem of all stages of UA
reconstruction, which will not be completely surveyed
here.

1.1. Pre-I'imeño and Sori. Secondary developments
peculiar to Nusko obscure the FUA system, which is more
evident through comparison of other UA languages. For
this reason the presumably more basic deictic system
of I'a, the best-known I'imeño language, is outlined here,
with a brief glance at the Hp system for comparison.
The I's forms listed are my own reconstructions of a pre-
I'a stage which may be considerably older than that
label implies (a conclusion borne out by the ease of
comparison with both Hp and FM). Comparative evidence
from other UA languages has been used where I'a internal
reconstruction is ambiguous; the result is a pre-I'a
which is comparable to FUA in the simplest fashion.
Bright 1968b, Hyde 1971, and Kroeber and Grady 1969;
97-104 provide the data base (the divergent synchron-
ically attested forms are too numerous for detailed
presentation here). As in many deictic systems, some
sound changes must be assumed which are not typical
and which can be explained only in terms of analogy. I am
omitting the detailed derivation of I's from pre-I's
since it is obvious from reference to the synchronous
forms. Langacker 1973, which details several waves of
pronominial elitic development in Takio, also makes
similar assumptions, and should be consulted for
intra-Takio comparison beyond the scope of this study.

The pre-Is delics presented in Table 11 show
independent pronouns marking three persons, two num-
bers, and two cases. These are matched by enelic
forms which are not specially marked for case. Ad-
ditionally there is an enelic form for indefinite or
indeterminate person, which is not paralleled by inde-
pendent case-inflected forms based on the same morpheme.

La also has a demonstrative system involving four
degrees of distance: proximal (1), intermediate distal
(2), remote but visible (3a), and invisible (3b). The
demonstratives are inflected for number like the pro-
nouns, but only irregularly or incompletely for case
(including several specific locative constructions
occasionally interpreted as case forms). Both pro-
nominal and demonstrative elitics may function as
bases for locative constructions whose phonological
realization occasionally differs from the basic en-
elitic shape by the addition of postposed general
locative morphemes that have amalgamated with the
base and which are then followed by one or more spe-
cific locatives. Table 11 presents a single typical
locative stem rather than the complete list. La, like
Nakio, requires a minimum of two moras for independent
words, and single-mora forms regularly lengthen the vowel to form independent words.

One of the recurrent partials in the pre-IPA delocative system is *ay, an almost universally attested FUA plural element restricted in many daughter languages to animate nominals. This form has spread to singular independent forms of the Pron 2,3 and 3e 2,3b (see below), but not to the enclitics forms. This generalization of an originally plural marker to singular forms caused the addition of another *ay plural to the true plurals. Again the enclitics, where the original difference was preserved, were not affected.

Another old element is a FUA accusative suffix *-1, which tends to supplant or color preceding vowels. The pre-IPA *-1 is not preserved in the singular demonstratives unless the referent is animate, a development that appears to be an innovation here.

The vowel length originally occurring in the acc pl pronoun has spread to other Pron 1 pl forms. The nom and loc constructions show it but other functions of the enclitic preserve the short vowel. Use of the accusative as the pattern for analogical replacement has been noted in several connections in IP. The CN nouns with the (now) nom *-pa had accusatives with this same *-1, and now the nom and acc forms are identical as *-pa (see III.1).
The morphemes *i-, proximal, and *u-, distal, are the only PUA sound-symbolic demonstrative bases in the Le system. Pre-Le *i remains i, but *u has become u (only in the deictics). 4 Both of these morphemes have spread from the demonstrative system to the pronominal system as well as being retained as demonstratives, although in the latter the locative force of the original bases has been supplemented by the addition of locative postpositional elements, which indicates a loss of part of the original meaning. The demonstrative system has been supplemented by originally pronominal elements which have spread in an analogous fashion, but in the opposite direction, and which now share the fused locative elements. Without evidence from the other Javanic languages it is not possible to order the changes and extensions within Le (see Langacker 1973). The primary problem is that most of the morphemes in the system are of PUA date; we thus have no terminus a quo for the changes, although phonological irregularities suggest that many of the changes are early.

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3 This pattern is attested in other language families. Romance nominate, for instance, reflect Latin accusative bases rather than the nominative.

4 Comparative Javonic evidence now suggests that Le u may come from Proto-Cusan *wa-, Proto-Javonic *u-a; but the link to PUA *u still holds.
or referentially. The distinction between Dem 3a and 3b involves an additional parameter, visibility, which is incompletely matched in the pronouns by the difference between Pron 3 and *u-, the indefinite enclitic.

Illustrations of this linkage in Lu include the addition of Dem 1 *1- to the Pron 1 pl. The addition of Dem 1 to Pron 1 pl is also found in other UA languages (q.v. below), but it is concealed in Lu since the *1-t sequence yields modern Lu a (= a rule found in SP as well; cf. *mity, etc.). Pron 3 has been replaced everywhere by Dem 3a in a very recent change which has occurred since the time Sparkman collected the material used in Kroeger and Grace 1960, as indicated by the completed shift in Hyde 1971. In the other direction we have the Pron 3 taken directly and used as Dem 3b with the meaning 'invisible' added. The Dem 3b noun is identical to the Pron 3 noun, but the Dem 3b acc is forced from the Pron 3 enclitic plus the *na locative. These may be late formations, but another earlier shift in the same direction is also indicated. Dem 2 *y- is probably a phonological adaptation from Pron 2 *y-my- or an earlier independent Pron 2 *y with the sense of intermediate distal generalized from 'near you' in opposition to the proximal 'near me' of Dem 1 and Pron 1. In any event, the long vowel needs some explanation if a FUA *y Dem 2 is postulated separately from Pron 2.

It is also interesting that the forms Dem 2, 3b, which were just suggested to have shifted from the Pron system, share with their sources the presence of the extra *-ny- plural morpheme, which is not shared by the primary demonstrative constructions with the *1- and *u- (Dem 1, 3a).

The FUA deictic roots continuing in pre-Lu include pronominals: *ny- 1 sg, *ta- 1 pl, *y- 2, *sy- 3, and *a- indefinite and demonstratives: *1- proximal, *a- distal. The grammatical elements *-ny plural and *-1 accusative are not restricted to deictics, nor are the locatives *na and *pa or the *ta aboslutive. The potential link between pre-Lu vowel length (here in the acc pl) and PN fortis has already been noted (11.4.2), and is discussed again below.

In Table 12 the Lu deictics are listed in part. Again a general locative form has been selected to keep the table brief, and some variant stems have been omitted where they do not affect the discussion. Although a complete description of Lu deictics would be possible, the abbreviated system is presented here since only comparison with the pre-Lu and PN systems is at issue.

The resemblance to the pre-Lu Pron forms is almost complete. The Pron 3 is essentially a demonstrative (Kennard 1973, p.6.), but is nevertheless
Table 12. Hopi pronouns.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>singular</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nom</td>
<td>ny?</td>
<td>?ym</td>
<td>p2m</td>
</tr>
<tr>
<td>acc</td>
<td>nyj</td>
<td>?yq</td>
<td>pyt [stem varies]</td>
</tr>
<tr>
<td>enclitic (gen)</td>
<td>?i-</td>
<td>?yh-</td>
<td>2-at</td>
</tr>
<tr>
<td>loc</td>
<td>?iiny-</td>
<td>?y(h)-</td>
<td>[stem varies]</td>
</tr>
<tr>
<td><strong>plural</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nom</td>
<td>?itaz</td>
<td>?yma</td>
<td>p2ma</td>
</tr>
<tr>
<td>acc</td>
<td>?itazyj</td>
<td>?ymyj</td>
<td>p2myj</td>
</tr>
<tr>
<td>enclitic (gen)</td>
<td>?ita-</td>
<td>?ymy-</td>
<td>2-az</td>
</tr>
<tr>
<td>loc</td>
<td>?itaz-</td>
<td>?ymy?,</td>
<td>p2ma</td>
</tr>
</tbody>
</table>

Based on pronominal forms *py* and *a*. The *sy* plural extends into singular forms in Pron 2 sg, 3 sg, as it does in pre-Ls. The final *j* seems etymologically identical to the *i* accusative already noted. The alternation in the Pron 2 of H - 2(-<p>2-2) - 2(-<p>/w) has been noted in II.4.2-3 in connection with the alternation of H pronominal and PI *2* (prenasalization).

Hp has extended an original *1 proximal demonstrative now absorbed as the Pron 1 sg enclitic (and gen) to the complete Pron 1 pl and also to the Pron 1 sg locatives. The process is not only reminiscent of pre-Ls but similar to developments in KN which are illustrated below, and to developments in two SUA languages, Yq and Ky (not illustrated here).

1.2. Nuhis. The deictic systems of Hs and representative Nuhic languages appear as Tables 13-16. The format of presentation follows closely that of pre-Ls and Hp. The transcription used represents a compromise between underlying representation and broad phonetics. No deictic locatives have been included, since they are formed regularly with the pronominal enclitics or the demonstrative bases listed in the tables. All of the pre-Ls morphemes are reflected in one or more of the tables in this series, with the exception of the pre-Ls locatives, although these also have Nuhic cognates.
Table 13. Northern Paiute delastics.

<table>
<thead>
<tr>
<th>Pronouns (pron)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>indefinite</th>
<th>referential relative/ indefinite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Singular</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nos</td>
<td>ny</td>
<td>y</td>
<td>(ut)su</td>
<td></td>
<td>py</td>
</tr>
<tr>
<td>acc</td>
<td>ny(1)ka</td>
<td>y'(1)</td>
<td>(ut)ka</td>
<td></td>
<td>py(1)1</td>
</tr>
<tr>
<td>enclitic</td>
<td>1-</td>
<td>y'</td>
<td>u(*)</td>
<td></td>
<td>ty(*)-</td>
</tr>
<tr>
<td>(gen)</td>
<td></td>
<td></td>
<td>a(*)</td>
<td></td>
<td>pya</td>
</tr>
<tr>
<td><strong>Plural</strong></td>
<td>ina1</td>
<td>exa1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nos</td>
<td>ta(a1)</td>
<td>ny(a1)</td>
<td>(ut)a</td>
<td></td>
<td>(ut)a</td>
</tr>
<tr>
<td>acc</td>
<td>ta(a1)</td>
<td>ny(a1)</td>
<td>(ut)a</td>
<td></td>
<td>(ut)a</td>
</tr>
<tr>
<td>enclitic</td>
<td>mi-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(gen)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dual (relatively rare)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nos</td>
<td>ta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>acc</td>
<td>ta(1)ka</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>enclitic</td>
<td>ta(*)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(gen)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Table 13, continued)

<table>
<thead>
<tr>
<th>Demonstratives (gen)</th>
<th>1</th>
<th>2</th>
<th>ja</th>
<th>3b</th>
</tr>
</thead>
<tbody>
<tr>
<td>proximal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nos</td>
<td>il'su</td>
<td>ma'su</td>
<td>u'su</td>
<td></td>
</tr>
<tr>
<td>acc</td>
<td>i'ka</td>
<td>ma(1)ka</td>
<td>u'ka</td>
<td></td>
</tr>
<tr>
<td>enclitic</td>
<td>1-</td>
<td>ma-</td>
<td>u-</td>
<td>c(0)-</td>
</tr>
<tr>
<td>definite</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>enclitic</td>
<td>mi-</td>
<td>ma-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 14. Mono deictics (w:n).

<table>
<thead>
<tr>
<th>Pronouns</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Singular</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nom</td>
<td>ny</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>acc</td>
<td>nzy'kaa</td>
<td>y'my'kaa</td>
<td></td>
</tr>
<tr>
<td>exclitive</td>
<td>1-</td>
<td>y'-'</td>
<td>a(')-, t(')-</td>
</tr>
<tr>
<td><strong>Plural</strong></td>
<td>incl.</td>
<td>excl.</td>
<td></td>
</tr>
<tr>
<td>nom</td>
<td>taa'k'wana</td>
<td>nyy'k'kana</td>
<td>y'y'k'kaha</td>
</tr>
<tr>
<td>acc</td>
<td>ta(n)i'ny'k'kana</td>
<td>nil'ny'k'kaa</td>
<td>y('n)i'ny'k'kaa</td>
</tr>
<tr>
<td>exclitive</td>
<td>ta(n)i'-'</td>
<td>nil'-'</td>
<td>a('n)i'-' , ty(n)i'-'</td>
</tr>
<tr>
<td><strong>Dual (?)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nom</td>
<td>ta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>acc</td>
<td>tamy'k'kaa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>exclitive</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(204)

(Table 14, continued)

<table>
<thead>
<tr>
<th>Pronouns</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ty</td>
<td>indefinite object, goal of verbal action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ty(')- sg.</td>
<td>obviative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ty(n)i'- pl.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pyy'kwsu</td>
<td>indefinite reflexive 'oneself'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pyy'kwsa'kwsu pl.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demonstrative bases</th>
<th>1</th>
<th>2</th>
<th>3a</th>
<th>3b</th>
</tr>
</thead>
<tbody>
<tr>
<td>proximal</td>
<td>l</td>
<td>1h</td>
<td>uhu</td>
<td>maa</td>
</tr>
<tr>
<td>distal</td>
<td>1</td>
<td>uh</td>
<td>3a</td>
<td>u-</td>
</tr>
<tr>
<td>emphatic distal ['stronger']</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>indefinite [rare]</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 15. Shoshoni deictics (combined ec, n=Sh).

<table>
<thead>
<tr>
<th>Pronouns</th>
<th>1</th>
<th>2</th>
<th>3 relative/reflexive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Singular</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nos</td>
<td>ny</td>
<td>y&quot;(ny)</td>
<td>py&quot;(ny)</td>
</tr>
<tr>
<td>acc</td>
<td>ny(n), n=ny</td>
<td>y&quot;(n)</td>
<td>u, ma</td>
</tr>
<tr>
<td>gen</td>
<td>na, ny&quot;a&quot;, n=ny&quot;</td>
<td>y&quot;(a/ny&quot;)</td>
<td>u&quot;, ma&quot;</td>
</tr>
<tr>
<td>excl.</td>
<td>ny=</td>
<td>y=</td>
<td>u-[see Dem]</td>
</tr>
</tbody>
</table>

*Floral Incl excl*  

| nos       | ta=ny" | ny=ny" | my=ny" | py"ny" |
| acc       | ta=ny" | ny=ny" | my=ny" | py"ny(y) |
| gen       | ta=ny" | ny=ny" | my=ny" | py"ny" |
| excl.     | ta=ny" | ny=ny" | my=ny" |

*Dual*  

| nos       | tan=nyh ny=nyh n=nyh | py=nyh |
| acc       | tan(a)y n=nyh yh(y) | py(y)1 |
| gen       | tan= nyh= nyhy= | pyhy= "(a") |
| excl.     | tan= ny=nyh= ny=nyh= |

*Personal case and number markers (animates)*  

<table>
<thead>
<tr>
<th>sg</th>
<th>pl</th>
<th>du</th>
</tr>
</thead>
<tbody>
<tr>
<td>nos</td>
<td>-n</td>
<td>-n=ny</td>
</tr>
<tr>
<td>acc</td>
<td>ls, -n=ny</td>
<td>-n1</td>
</tr>
<tr>
<td>gen</td>
<td>ls, -n=ny</td>
<td>-n=ny</td>
</tr>
</tbody>
</table>

*Demonsstratives.*  

<table>
<thead>
<tr>
<th>Demonstrative bases.</th>
<th>1a</th>
<th>1b</th>
<th>2</th>
<th>3a</th>
<th>3b</th>
</tr>
</thead>
<tbody>
<tr>
<td>less</td>
<td>definite</td>
<td>proximal</td>
<td>intermediate</td>
<td>distal</td>
<td>invisible</td>
</tr>
<tr>
<td>1-</td>
<td>1-</td>
<td>a-</td>
<td>a-</td>
<td>o-</td>
<td>u-</td>
</tr>
<tr>
<td>definite; previously mentioned</td>
<td>1-</td>
<td>sa-</td>
<td>sa-</td>
<td>so-</td>
<td>su-</td>
</tr>
</tbody>
</table>

| general (1,2,3); | ma- |

*Endings for independent demonstrative bases.*  

<table>
<thead>
<tr>
<th>sg</th>
<th>pl</th>
<th>du (?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>nos</td>
<td>-n=ty</td>
<td>-n=tyy</td>
</tr>
<tr>
<td>acc</td>
<td>lska(1)</td>
<td>-t1-</td>
</tr>
<tr>
<td>gen</td>
<td>lska&quot;</td>
<td>-t=tyy&quot;</td>
</tr>
</tbody>
</table>

*Other deictics.*  

<table>
<thead>
<tr>
<th>ta-</th>
<th>indefinite subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ty(*)</td>
<td>indefinite object (on transitive verbs without overt object)</td>
</tr>
<tr>
<td>Table 16. Southern Paiute deictics.</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td></td>
</tr>
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**Pronouns.**

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<thead>
<tr>
<th></th>
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<tr>
<td><strong>Singular</strong></td>
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</tr>
<tr>
<td>nos</td>
<td>ny-</td>
<td>i'mi-</td>
</tr>
<tr>
<td>acc</td>
<td>nini-a-</td>
<td>i'mi-a-</td>
</tr>
<tr>
<td>enclitic</td>
<td>i'mi</td>
<td>i'mi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>incl</th>
<th>excl</th>
</tr>
</thead>
<tbody>
<tr>
<td>nos</td>
<td>tza-</td>
<td>ny'zi-</td>
</tr>
<tr>
<td>acc</td>
<td>tza-ja-</td>
<td>ny'zi-a-</td>
</tr>
<tr>
<td>enclitic</td>
<td>tza-</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dual</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nos</td>
<td>ta'zi-</td>
<td></td>
</tr>
<tr>
<td>acc</td>
<td>ta'zi-a-</td>
<td></td>
</tr>
<tr>
<td>enclitic</td>
<td>ta'zi</td>
<td></td>
</tr>
</tbody>
</table>

**Demonstrative bases.**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
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</tr>
</thead>
<tbody>
<tr>
<td>proximal</td>
<td>1-</td>
<td>ma-</td>
<td>u-</td>
</tr>
<tr>
<td>mention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>visible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>previous</td>
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<td></td>
</tr>
<tr>
<td>invisible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>indefinite</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Endings for independent demonstrative bases.**

<table>
<thead>
<tr>
<th></th>
<th>ane</th>
<th>ane pl</th>
<th>anan</th>
<th>anan</th>
</tr>
</thead>
<tbody>
<tr>
<td>nos</td>
<td>(1)ga-</td>
<td>any-</td>
<td>-ty-</td>
<td>ika-</td>
</tr>
<tr>
<td>acc</td>
<td>(1)ga-ja-</td>
<td>any-a</td>
<td>-ty-a-</td>
<td>ika-ja</td>
</tr>
</tbody>
</table>

**Des/Pron 3 enclitics.**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>visible</td>
<td>-aga-</td>
<td>-a'my-</td>
</tr>
<tr>
<td>invisible</td>
<td>-?...ga-</td>
<td>-?...my-</td>
</tr>
</tbody>
</table>

**Miscellaneous forms of deictics.**

- kyma: 'other'; patterns with deictics (see PN *kyma*)
- py-: marks reflexive possessive object
- *'au: often marks independent demonstratives used as pronouns, and occurs elsewhere (see IV.2)
Two major systematic differences between Numic and Ls or Hp include the presence in Numic of a dual number and a distinction in the first person non-singular between inclusive and exclusive reference. As Jacobsen has noted (1973), these two features are characteristic of Numic and Tb, and also of non-UA languages to the north and west, but not of the rest of UA nor of relatives of the other languages in the area. The Tb deictics diverge markedly from the general UA pattern and have not been reproduced here, but in Tb as in the WN and SN languages the dual number is restricted to first-person forms.

CN differs from the rest of Numic in having a dual for all three persons, in having both inclusive and exclusive duals distinct from the plural forms, and in having a complete set of dual and plural case-number suffixes for animate nouns. The regularity of formation of these elements is illustrated by Sn (Table 15). The CN and Ih forms of these markers (not illustrated) differ noticeably from Sn and from each other, but are quite regular within each of the languages. In contrast to most old deictic paradigms, the neatness of these formations in the separate CN languages suggests that they are relatively recent, especially since corresponding forms are not found in the other Numic languages. Assuming CN innovation facilitates comparison of FN deictics with the less elaborate UA languages such as Ls and Hp. The simpler FN reconstruction also lends support to Jacobsen's areal explanation of duals and the inclusive/exclusive distinction (1973).

At the level of FN we can nevertheless reconstruct at least the following pronoun roots:

*ny 1 sg, 1 pl (exclusive)
*ta 1 du (inclusive), 1 pl (inclusive)

The plurals, and often the dual, are accompanied by a plural marker *ay (q.v. below). If we assume that neither the dual nor the inclusive/exclusive distinction is original, i.e. that FN was like Ls and Hp in having suppletive roots for Pron 1 sg and Pron 1 pl, then several analogical processes can be invoked:

1. Addition of the redundant *ay plural to *ta could have displaced plain *ta to the dual. The dual could alternatively be a back formation from an obligatory *ta-ay plural.

5 The CN and CN languages also show duals in some suppletive verb stems, mostly among 'sit', 'stand', 'lie', etc., stems that are also used as verbal modifiers (see Croapo 1970). FN has few suppletive verbs, and of these most lack a dual, except for the few noties just mentioned.
2. Pron 2 sg and 3 sg formed plurals by adding *my to the singular. If Pron 1 sg *my is treated the same way, the result is *nmy and *tmy, two plural forms for which a specialization of meaning along inclusive/exclusive lines could easily be motivated.

In both instances areal influence may have provided a stimulus but is not a necessary condition since the pattern for regularization is found within the same paradigm.

The discussion of boundary and juncture in NP included evidence for the relative strength of the X (stem-initial) boundary in blocking phonological rules (II.2.3). This boundary separates an enclitic pronoun from the following stem, where the insulation of the stem-initial element indicates a less strong attachment of the enclitic to the stem. Comparative Nusie evidence reinforces the probability that the deictic enclitics were recently more mobile in SP (Table 16) and the other SW languages these enclitics are postposed to the stem, but in WN and CN they are preposed. Langanke (1978) assumes several waves of deictic formation and enclitic attachment for Taklo, a statement that could probably be made of Nusie as well. As recently as PN times the current deictic enclitics were probably more mobile than they are now.

Mobility of other elements in the sentence is amply illustrated in Nusie (see also IV.2). Most of the languages show SVO word order, with VOS the most common alternative. Because case marking is associated with Nusie nominals (or, as in SP, limited to animates), the word order in some languages is almost free. Case suffixes also indicate several waves of formation, and most of the components of case markers are very old.

In Nusie, as in English, case markings are well preserved only in deictics. The Sh singular case endings are an important exception. Retention of at least three early and irregular classes of singular nominal endings undoubtedly encouraged the formation of the recent and regular dual and plural endings whose PN status was discussed above (see Table 15). One of the best examples of Nusie retention of the old PN *ta absolutive noun (pre-Is *1a) is the Sh *fjia acc found on one class of nominals following the -sh noun. Another old accusative case marker in *a, extended as a regular acc suffix in SN, which occurs in two of the Sh nominal endings and also sporadically in both the CN and SN

---

6 An exceedingly small group of NP nouns preserves case marking on or in the noun, e.g. eCNP 'person'; nom bixay, acc bixay (Liljeblad 1966b).
pronounal paradigms. The most widely attested FN acc marker is the *-1 mentioned above for Ls and Hp. This is found in all of the Nusio languages, but it is productive only in Sh and CN. The SH -in- allomorph of -a after a probably reflects an old 1 from *-1 followed by a from *a. Other fossilized forms of *-1 occur with the plural (see below). It may also be responsible for the 1 - y alternation in ncm's (III.1).

In Nusio, sentence subjects are in the nominative, while direct and indirect objects and subjects of embedded clauses are accusative. Deictic enclitics forms may have more than one case function, but most mark the accusative. In languages having only two cases, possessive relationships are usually marked by the accusative free form or by enclitic forms, as is the practice in NF. There is fragmentary evidence for an old genitive case, represented by Sh -2, which occurs with both deictics and regular nominals. In NF the cognate marker would be 2, which in fact often appears with enclitics used as possessives (see Table 12). Since some of the enclitics require 2 regardless of case function, the old system, if one analogous to Sh existed, has broken down. In any event, the NF system

7 Sh has regularized its acc sg case endings, formed with these same elements, on phonological grounds: -ja after a, -(y)ja after y, -ta after 1 (Zigmond, p.c.).

is only partially regular. Another link between fortis 1 and case marking occurs in the tendency for NP deictics to have medial fortis (1) in the nominative corresponding to medial lenis in the accusative: nom hi'ma, acc hima 'something'. This distinction is not always clear in NF, and is occasionally contradicted (e.g. 'person' in fn. 6). A potential connection with the vowel length marker for acc plural in pre-Ls, similar to that noted for consonantous aspect in II.4.2, is insecure until the NP forms are explained.

Sh 1 occurs between elements in compounds where a genitive relationship is obvious, and the NP tendency to have 1 in these and numerous other less obvious compounds may be related. Sh 1 may also be related to NF -ma, another alternative in genitive-like constructions. 8 The fortis feature in the following examples is associated with the compound itself, and not with either constituent root: NF antinoma, antinomu 'rice', lit. 'anti-egg(s)'. Evidence from outside Nusio for a cognate genitive marker with a nasal is Tb -y -yn -. Given the scant comparative evidence for the genitive separate from the accusative or

8 Recall that SH 1 is reflected as n before vowel, and that -a is a common case marker. The -a affix noted in the discussion of ncm's (III.1) may be related, as may a SH acc -ma.
entities, an areal explanation might be sought for the nasal genitive.

Since NP nouns are no longer marked for case while the NP deictics are, the NP deictics take over the function of indicating case. The use of separate deictics which redundantly marked case may have hastened the decay of the nominal case system of PN where demonstrative reference is appropriate, any of the deictics may be used with the noun; but where only a syntactic function is to be marked a proposed form (u)is, nom, or (u)ika, acc, serves as a general case marker, conveying no deictic meaning:

cOMP su wya ka tytja-nu nom grizzly bear acc deer with

naza nopi-kalju together house have nom

'Bear was living with Deer'

In NP, these case markers are often slurred over and may contrast with following vowels in rapid speech, especially where the unmarked SOW word order is used. Karaden (1943) lists three such combined deictic forms. All are actually composed of separate morphemes in synchronic analysis, and the contraction is not limited to deictics but can occur with any following vowel.

NP si- (<su 1-): Pron 1 sg gen on nom noun
sy'- (<su y'-): Pron 2 sg gen on nom noun
ki- (<ka 1-): Pron 1 sg gen on acc noun

NP (i)ka accusative, originally used only in demonstrative paradigms, is spreading to the pronouns as well. Pron 1 sg acc (and naturally Pron 2 sg acc) show -ka forms in all dialects, and many published sources give *ka as an alternate Pron 3 pl acc. Matches also lists ku'i-kam as Pron 1 pl exclusive. 9 PN *ka is reconstructed as a demonstrative suffix (often accusative) on the basis of the NP and similar Mn acc, Sh Den sg acc/gen, and probably the SP inanimate marker as well. The reconstruction of PN *is will be treated in IV.2. 10

9. Matches, revising Karaden 1943 according to his own speech, reversed Karaden's correct identification of ta'i as inclusive and *ni as exclusive. This cannot be a misprint, since it appears also in Matches mas., but it is clearly incorrect even in WMN.

10. A system of marking attributive function on verbal constructions, exemplified in NP by *ku - (n)u acc, *ku nom, is also reconstructable for PN. *ku is found in Sh and SP as well as NP, but the other two forms are not identical. See also IV.2.
An ancient suffix form which has been mentioned several times above, the plural *-my, occurs in nearly all of the plural deictic and also as a noun suffix plural marker in all of the languages. NP has only a small class of animate nouns which have a *jiθmy plural, e.g. NP *jiθmy-tha Δaunav 'daughters', *jiθmy-ka Δaunav 'sons, children', *jiθmy-sa 'mountains' (Narndian only). Most NP nouns do not indicate plurality at all, but the regular device in those that do is initial reduplication: *gōθa 'girl', pl. *gōθa-sa. Generalization of original plural *-my to singular forms is noted in all of the Numic languages, and also in pre-LS and NP. All of the suffixed -m forms are generally thought to come ultimately from the *-my plural. The -ni- forms in NP, Sh, SP, and the -ni- forms in Am, Sh, and SP, result from contraction of the plural *-my or the first person *-my with the accusative *-i. Modern LS also shows *ni- from this source. The other interchange between n and *m, where *m is to be expected on etymological grounds (as in Am plurals and Sh singulars from earlier *-my), is not a regular change, although it also occurs in pronouns in FN and CA (not illustrated).

Many of the complexities of the NP deictic system involve interference and replacement of pronouns with demonstratives, but before a discussion of these a preliminary reconstruction of the FN demonstratives is in order. Reconstruction of FN *-1 proximal and *-9 distal is relatively easy in all of the languages, and their extensive penetration into the pronouns in Numic as in pre-LS indicates their age. These two are the only purely locative deictics reconstructable for FN, although all the Numic languages have more complex paradigms. In NP and Sh the sound-symbolic extension of *-1 distal produces forms with q. The NP *niθ-m-, a remote-locational enclitic occurring only in a very few lexicalized forms such as *qoŋθ-m- 'very long ago', is a back formation of an independent form q 'remote location' developed from y 'distal location' by vowel symbolism with an added temporal suffix. The vowel lengthening was probably in origin a root extension (see II.1.2). The independently developed Sh form with *-m- labels distal deictics and displaces y- to the invisible category. There is no indication that the NP and Sh q- forms are directly cognate.

FN *-i- is originally an indefinite person marker that forms a partial third person pronoun paradigm in NP, occurring only with nouns and verbs. In Am it has an additional plural form and is also lexicalized in a few demonstrative constructions, again as an indefinite. In SP and other SS it is declined as a demonstrative, but functions as an indefinite. In Sh it is a pure locative demonstrative, but its meaning
of intermediate distance is a natural extension from indefinite. The PN *a-, an enclitic for indefinite reference, is exactly matched by the pre-LS reconstruction. Related forms occur in many of the UA languages (e.g. Hs; see Table 12).

PN *ty- is also an indefinite, represented in all the Nuni languages, though not always described as a deictic. Like *a-, it is restricted in occurrence in most of the languages. Specialization as an indefinite object marker with certain transitive verbs seems most widespread. This process often converts a transitive to an intransitive. In NP the *ty- form has these uses and also occurs as an indefinite marker on nouns, apparently as a later extension. The distinction in meaning between PN *a- and *ty- is unclear, if in fact any distinction existed. PN *ty is probably of PUA date as well, but there are many alternative explanations.

PN *py, often occurring as an indefinite, has relative and referential meanings as well. In Nuni none of the languages uses *py as a simple third person pronoun, although it frequently patterns as a pronoun similar to Pron 2 sg *y*. Use of *py in Pron 3 forms is characteristic of Ls, Hs, and many other UA languages. It often occurs as an indefinite demonstrative. In NP, the enclitic form px- is in complementary distribution with *a-, never occurring with nouns or verbs but only with locatives and other postpositions. The NP distribution need not be original, however. The relative-pronoun functions of *px- are in part overlapped by relatives formed from interrogatives *ma- and *ni- in many Nuni languages, including NP (see IV.2). In all of the languages a suggestion of oblique usage for *ty and *py is also present (cf. Hs, Table 14).

All of the Nuni languages reflect a demonstrative *ma which is described either as an intermediate distal or general locative, or as some kind of emphatic or definite element which may also indicate previously mentioned information. Both meanings are attested in NP. The glosses show that both PN *ma and *a, when used as locatives, do not reflect any particular location. I would argue that they are not locatives at all but mark a definite/indefinite distinction; the central function of *ma would be that of definite marker, and the meanings of intermediate and general locative would be later extensions. The NP form *mi-, a proximal definite, is obviously a very recent innovation from *ma- and the i- proximal, since it is

11 In further support of this position, Kunze (1973, p.c.) reports that Ch lacks ma- in the deictic paradigm, and ma- is a general deictic, unmarked for location. Cf. SP, Table 16.
not matched in the other Nusie languages or even among the distal in NP.

The Sh Dem 1a and Dem 1b are in relatively free variation in each, but in SH mark slightly different degrees of proximity. Thus, some dialects of Sh have five degrees of distance based on the vowels 1, SI, 2, 3, 4. This development from the single "1 vs. "4 contrast again illustrates the general CH trend for proliferation and regularization of paradigms. (For the CH demonstrative "definite" bases with initial y see IV.2.)

Each of the Sh Nusie languages can use Dem 3 for Pron 3 functions. In NP and in SH there is no morphological difference between demonstratives and Pron 3 forms. The formal animate/inanimate distinction in suffixes here seems to be a SH innovation not paralleled in other Shic dialects (although distinctions of animacy are frequent elsewhere; e.g., NP use of -ny on some animate plural nouns). In all of the languages demonstratives may imply third person, and number is often predictable from context; number reference on demonstratives is overtly marked only in the SH group. SH frequently converts ma-, general, and ya-, distal > unmarked, for general use as Pron 3, but the paradigm is incomplete, and there are clearly intrusions into the Pron system. The NP Dem 3 distal y- has been borrowed intact as Pron 3 sg, but a Pron 3 pl has been developed on the pattern of Pron 2 pl, and in fact is frequently homonymous with the latter, since (although both [ur:] and [aw:] are recorded). I reconstruct a demonstrative system for SH which did not mark number. When NP converted y- to Pron 3 use it acquired number markings, but none of the other demonstratives distinguish number. An extension of the system presently attested for NP y- to the other demonstratives could have produced the regular plurals of the SH demonstratives.

Both has borrowed the Dem 1 "1 into the Pron 1 system in a fashion similar to that observed for 1s and 1p, but only into the singular, where it completely replaces PN "1y. It is possible that this "1 helped condition the extension of Pron 1 pl forms with y from the acc endings. Liljestrand records two Pron 1 pl enclitics in NP (marked with square brackets in Table 13), but these are not recorded for SHNP or SHNP, nor for some other SH areas. Jacobsen (1972) suggests a contraction of the independent accusative forms in the same way as is indicated by the alternative optional contractions in 1s Pron 1 pl (Table 14). An equally possible explanation would be analogical extension from the imported Dem 1, now the Pron 1 sg enclitic, and the earlier extensions of acc forms to the now in
Pron 1 pl. The mi- Pron 1 pl enclitic found in the other NP dialects seems to be an analogical formation on the pattern of Pron 2 pl, 3 pl, based on the fact that the last syllable of these forms is homophonous with that of the enclitics, i.e., my. The last syllable of both the Pron 1 pl inclusive and exclusive is mi, which would then cause the observed syncretism of inclusive and exclusive. In my opinion all of the attested NP 1 pl enclitics represent innovations.

The reconstructions of PN deictic elements are collected in Table 17. The forms with double asterisks indicate revisions which would provide a more direct link with the other UA languages. Such a revised system would be very close to a portion of the PUA deictic system. The incomplete investigation of the SVA languages precludes complete reconstruction of all parts of the system, but virtually all of the PN forms have SVA cognates. Several still-unexplained SVA pronominal forms with *TV (e.g., CJa2 Pron 2 sg) may also fit here.

If we compare the nearly identical PN, pre-Ls, and Si reconstructions to a Yanoan language such as Taos for a general test of the AT hypothesis, we find almost no phonological matches; only the 1 sg forms look at all alike (both contain n). Major morphological differences in Taos include a well-developed

Table 17. Proto-Nanai deictics.

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ny- 1 sg, 1 pl(excl), **1 sg</td>
<td>*ta- 1 pl(incl), 1 du **1 pl (?)</td>
</tr>
<tr>
<td>*ny- 2 sg</td>
<td>*sy- 2 pl</td>
</tr>
<tr>
<td>*sy- rel., indef. **3 (?)</td>
<td></td>
</tr>
</tbody>
</table>

Soun-symbolic demonstrative bases.

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1 proximal</td>
<td></td>
</tr>
<tr>
<td>*a distal</td>
<td></td>
</tr>
</tbody>
</table>

Other deictic bases.

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*a- indefinite</td>
<td></td>
</tr>
<tr>
<td>*ty- indefinite</td>
<td></td>
</tr>
<tr>
<td>*sa- definite, previously mentioned</td>
<td></td>
</tr>
</tbody>
</table>

General nominal suffixes.

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ny plural marker</td>
<td></td>
</tr>
<tr>
<td>*1, *2 accusative markers</td>
<td></td>
</tr>
<tr>
<td>*ty deictic affix (identical to nominal participles; see III.1)</td>
<td></td>
</tr>
<tr>
<td>*su deictic affix (independent form *su?) nov?</td>
<td></td>
</tr>
<tr>
<td>*ka deictic affix (independent form *ka?) nov?</td>
<td></td>
</tr>
</tbody>
</table>
dual number for all persons and highly elaborated third person reference based on several complex noun classes. Tacs also amalgamates non and nec pronouns into a single contracted form which is no longer neatly segmentable. This process could have obscured comparisons that might otherwise have been possible. Tb and some Tukic languages show deictic analogues, but these are usually easily analyzable and seem to be recent developments.

2. Verbal and clitics. 12 In the Numic languages, roots used as verbal bases are often marked with verbalizing suffixes, especially where the root meaning is essentially nominal. This is in direct correspondence to the use of non's and nominalizing affixes discussed in III.3. The verbal construction includes the verbal base and a constellation of affixes and clitics which include deictics, tense-aspect markers, and syntactic operators such as subordinators. As in the deictic system, there have been successive waves of attachments to the verbal base, presumably as earlier affixes lost some of their specific force. There is also good evidence that some of the parts of the verbal construction were once independent forms.

with more mobility of placement in the sentence than they now possess.

Some morphemes in the verbal suffix string exhibit an alternation CV - CIV - CVIV, which is identical to the variation in shape of morphemes based on a CV root with and without root extensions (see II.3.2). This interpenetration requires that earlier independent words have become bound forms. Addition of suffixes prior to loss of independent status, or their removal from formerly independent stems which had become suffixes and no longer needed them, could have produced the synchronically observable variation. Retention of interior morpheme boundaries which block the operation of phonological rules may also be evidence that the boundaries once separated independent forms, i.e. that they were word boundaries. One of the clearest indicators of a strong boundary (such as ʌ, ʌ, or ʌ as opposed to derivational boundaries) is the optional or obligatory assignment of stress to a bound form separate from that of the stem to which it is attached.

Pre-PN *ka - *k'a-i 'to have', which was certainly an independent form, is preserved as -k(a) or -k(a) in the various Numic languages, e.g. NP -k(a). In PN this root became attached to nominal objects as a predicative or verb formative suffix, and at least optionally retains the vowel length and stress.

---

12 The analysis of the Numic data presented here was stimulated by the conclusions on the PUA system presented by Steele (1973 and p.c.).
placement of an independent stem. It is not usually described as an independent verbal, however, in any of the Numic languages.

NP  u-su ma-na  kai  n-o  ty'kwa-ka2ju
Des 3  man  neg  wife  have  nom

That man has no wife'/That man is not married'

My NP informants tend to use short vowels in these -ka- forms, but will frequently stress ka even if the alternating stress rule is thereby contravened (see II.3.1). The example above is regular, but in the NP verb given in IV.1 `pap1-ka'-'to have a house; to live' the ka bears a stress not predictable by the regular rule. Liljedal (1966b) includes several examples with the alternative long vowel, e.g.,

NP  iwa-u  ty'kapsy-kua-na,  kai  cia-la'1
much  acc  eat  nom  have  pa,  neg  hunger-die  'food'  '-ing'  'starve'

He has plenty to eat, so that he is not starving'

Relating the 'have' form conclusively to other ka elements is difficult because of the very general meaning of the predicative and the large number of -ku suffixes, especially of the shape ka, in the Numic languages. For the same reason, no definite affinities have been demonstrated for the deictic accusative post-position `ka (see IV.1) or the negative (q.v. below).

Confirmation for earlier mobility of morphemes comes also from the presence of phonologically and semantically similar affixes, clitics, and (less commonly) independent words, in various parts of the sentence. These elements may show enough variation in sound and meaning that their etymological identity is not obvious. Identical forms have usually been described as different particles, modals, verbal suffixes, auxiliary verbs, and adverbial or deictic bases and suffixes. Most of this variety can be put into order by reference to Steele's assumptions about the FUA clitic system (1973). She reconstructs a set of FUA clitics, each of which could occur in each of three positions in the sentence (C1, C2, C3) with respectively modal, aspectual, and tense functions, while still retaining a core meaning in each of the three positions. Steele's three positions are shown in modified form in Table 18. A indicates the first element in the sentence, B is a deictic base, and V/BA is the main verbal stem of the sentence. 1)

1) Instead of a deictic base Steele refers to a 'subject marker' which is a 'cliticized pronoun' (1973:3-9). This core specific labeling is based on
Nearly all of the old clitic elements in Nusic have become firmly attached to other words in the sentence. Two remaining as independent words are the negatives illustrated as Table 19. These are very old and widespread PUA constructions. Some of the proposed cognates for the second reconstruction are not quite as expected. We expect an mi and on ci, but with both negatives retained in most of the languages contamination is likely to have occurred, and an old construction such as this might have been recast synchronically. Several of the languages have negative elements as verbal suffixes, but, like NF -jéma or Ka -jémo(1), these are formed on different roots. All of the negatives in Table 19 usually occur only in first, or less commonly second, position in a sentence, but a few instances of compounds are also attested. The following examples are from NF; other examples appear below in this section.

---

Taklo, where the PUA system is best preserved, Steele treats the C1-D-C2 unit as an auxiliary. My modifications of her reconstructions do not affect her analysis or conclusions for the other UA languages, but make the Nusic systems, which are more generalized than that of Taklo, fit more comfortably into the PUA reconstruction.
Table 19. The *ka(1) negative.

<table>
<thead>
<tr>
<th>PW</th>
<th>*ka-1 negative 'no, not'</th>
<th>FUA *ka-1- (UACS 306)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP, Sh</td>
<td>kai</td>
<td></td>
</tr>
<tr>
<td>PN, CN</td>
<td>ka(a)1</td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>ka</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PW</th>
<th>*ka(1)-tu- (? negative</th>
<th>FUA *ka-1-tu/ [-] (?) (UACS 306) 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP</td>
<td>ka-tu(?)</td>
<td>'not: nothing, nobody: empty, missing; gone'</td>
</tr>
<tr>
<td>MN</td>
<td>ka-tu</td>
<td>'no, not, none' (usually initial)</td>
</tr>
<tr>
<td>SN</td>
<td>ka-tu</td>
<td>'no more [left]'</td>
</tr>
<tr>
<td>PN</td>
<td>ka(a)1-tu(')</td>
<td>'nothing: all gone'</td>
</tr>
<tr>
<td>CN</td>
<td>ka-1</td>
<td>'don't'</td>
</tr>
<tr>
<td>SP</td>
<td>ka-1u</td>
<td>'to be exhausted'</td>
</tr>
<tr>
<td>KA</td>
<td>kaitu</td>
<td>negative elitic (initial)</td>
</tr>
</tbody>
</table>

14 The *TV here reflects another old elitic which in this position in most of the languages has lost an original meaning of 'turn into, become'; cf. NP -tu(?) 'turn into'.

I know of no secure examples of the *ka1 negative occurring in the post-verbal (Cj) position, although one NP suffix without known Nume cognates, the -kai- -ka(1)- dubitative that Liljegren (1965b) usually translates 'perhaps', could be equated with the negative on phonological, and possibly even semantic, grounds.

One of the best-attested and most important sets of old PW (and FUA) elitics is the interpenetrated group illustrated as Table 20. Steele (1973; p.c.) has demonstrated that none of these forms belong to a FUA *sV elitic whose central meaning is 'unrealized'. Forms reported by Steele for this set are marked with [2] on Table 20. Several different PW and WH forms can be reconstructed which probably relate to the FUA set, including some which reflect initial ? , a sporadic
Table 20. A family of old clitics: *saV.

*sa C1/C2 clitic

<table>
<thead>
<tr>
<th>FD</th>
<th>*sa'a</th>
<th>C1/C2 clitic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP</td>
<td>-sa'a</td>
<td>C2 clitic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>exhortative 'shall, should'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>optative 'shall, may'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>adverbial 'later, in a'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>minute'</td>
</tr>
</tbody>
</table>

[5] *sa'a C1 clitic indefinite base 'some --'

SP *sa'a C2 clitic interrogative

Ka *sa'a verbal suffix (not glossed but similar to SP)

**sa pa C2 clitic

<table>
<thead>
<tr>
<th>NP</th>
<th>-sa'pa</th>
<th>C2 clitic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>general adverbial (on deictic bases and interrogatives); 'after'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>definite 'just, exactly'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>indefinite 'some --'</td>
</tr>
</tbody>
</table>

wbn *sapy'ti conjunction 'or'

eehn *sa'pait adverbial 'even'

Pn *sa'paw indefinite (on interrogative) 'some --'

Ch,SP *sa'pa 'only, except, but; always; just; even so, it would seem; although'

cf.Ka *sypl C1/C2 clitic irreals and/or volition; 'always' (on temporal)

(Table 20, continued)

(*sa C1/C2, continued)

<table>
<thead>
<tr>
<th>NP</th>
<th>*sa'kam</th>
<th>C1/C2 clitic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>obligation 'could, should, ought to'</td>
</tr>
</tbody>
</table>

[5] *sa'kam C2 clitic optative 'shall, may'

Of [5] SP *lujekam C2 clitic strong wish 15

15 As Steele has observed (1979:13), this form is problematical in both vocalism and the is portion. As a C2 clitic it should belong here, but an origin as a derivative of *sa- 'with the mind, emotion' (see III.2) is an attractive alternate explanation for both phonological shape and specific meaning.
(Table 20, continued)

**as C1/C2 clitics**

**EN**  *SU  C1/C2 clitic

NP  *Su  C1 non-ag: precedes independent nominal
       definite 'exactly, just so, certainly,
       the same one'
       reflexive (on pronouns)
       general adverbial

WN  *Su  definite 'precisely'
       reflexive (on pronouns)
       adverbial
       temporal adverbial 'still'

ecSh *as"  indefinite (on deictic bases; n.b., not
       found with -sh- deictic bases)

*  definite (old incorporated prepositional
       element on deictic bases)

SP  *Su  independent marker (1) (on Sen/Fron J)
       deictic
       reflexive
       'also, again, same, just, only'

* Su  emphatic particle

Ka  *V- (where V is identical to the following vowel)
       independent marker (on Sen/Fron J)
       'thus' (on some verb roots)

On  *su  indefinite (on interrogatives)

(cf. WN  *su

subordinating perfective (at end of
verbal construction)
also on some common particles, e.g.
   *Su 'and, then'.

(continued)

**as C1/C2 clitics**

**EN**  *Su  C1

NP  *Su  C1
       attributive: acc (-lhu)
       (on adjectives and deictics) 'thus,
       just so, precisely'
       cooperative
       C3  perfective: momentarily, completed,
       'right away'

CN  *Su  attributive: nom
       cooperative
       (on demonstratives and interrogatives)

WN  *Su  adverbial
       C3  in relation to a following temporal
       suffix: 'suddenly, briefly' (on verbs)

-hi  independent marker (on deictic bases) (pro-wm *-hv; see Table 14)

(cf. SP  *Su 'pa*/"  'through, by; in ... direction; in
       ... manner, same way', etc.

of ecSh  hai  (dial.) future imperative (on verbs)

-hastry  past (on verbs)

ha's/tu  definite 'that very one'

ha'tsh  'Oh, yes!'
(Table 20, continued)

(*hV clitics, continued)

PN *ha-, *hi- (all HUA) Forms interrogative (relativized, indefinite) bases (with many of the same postposed elements found on deictics).

(***c1?)

PN *-ha C2 interrogative (yes/no questions)

NP -ha?a

[3]3n,c3 -ha

cf. [s] w-3n -sana

Alternant with g (see II.2.5). An important observation supporting Steele's original reconstruction is that the g - h alternation and the vowel variation ascribed to the PUA level and unusual even there, is no more complex than the differences observed among the closely related Nuku languages. The retention of ancient unproductive phonological alternations clearly demonstrates the great antiquity of the original system inherited by PN from PUA. Similarly, the variety of regularizations and specializations in Nuku also indicates great time depth.

Reconstruction of the original meanings of the clitics is probably not possible at the level of PN, we might better refer to a family of related clitics rather than regular phonological reconstructions. In fact, several of the resemblances in meaning noted on Table 20 are due not to retention of PUA meanings but rather to the original position of the clitic in the sentence. A clitic in the C1 or C2 position would naturally become associated with the first words in the sentence (see Table 13). Therefore it would be likely that regularizations could reflect the influence of these other words rather than that of the clitic, especially if the original clitic meaning had been blurred.
The first position in the sentence is often occupied by a deictic-based adverbial which may function synchronically as a conjunction. WI *ag, SP and WN forms with *am, and *am in several languages are given glosses suggesting that the clitic has acquired the sentence- connective function of the deictic derivative. Generalization from these sentence-initial forms to adverbials which occur in other positions in the sentence seems to underlie the adverbial uses of the *av clitics. Nonapplication of etymologically related forms occurs occasionally on adverbials, as earlier forms become lexicalized. For example:

NP    mū*p   'tomorrow'
      mū*p'am  'already, now'

WN    mowa hu  'now, soon'
      mowa huam  'tomorrow, next day'
      mowa huam'am  'early tomorrow or the next morning'

(All from PW *mu 'first, previous, before' + *a, agentive, etc.; cf. II.2.3.)

With the SOV word order typical of UA, association of C1/C2 clitics with the subject is also to be expected. This is the origin of the NP deictic (and independent nominal) nominative case marker *am.

Generalization from these subject deictics (and other nominals) leads to glosses of SP *am, *am, *am as independent markers for deictic bases. Another development from association with the subject is the use of *am as a marker for reflexives in NP, *am, and SP. This form is added to independent words, e.g. WI *nū*nū 'myself' (not *nū*nū), and may therefore be a relatively late extension even though it is of PN date. Other nominal reference, object as well as subject, may be behind the participation of some of the *av forms as part of the attributive marking on adjectives, numerals, and other verbs, e.g. NP *háy - *kay, etc., 2am, nos. The attributive is illustrated in several sentences in IV.1.3.

First position in the sentence can also indicate topicalization, and the emphatic and definite meanings of *av are a direct outgrowth of this positional association. Several of the *am and *am glosses show this specialization. The eSN C1 definite -aj preserves the earlier meaning, and the C2 indefinite -'(av), like the other indefinites (e.g. NP *ama-) are thought to be later formations produced after the *av forms lost their original meanings.

The specialization of the *am, *am forms of *av as interrogative bases (and, later, relatives and indefinites) must have been very early, since these
forms occur as interrogatives in at least much of Kua. These may have developed from the C1 position clitic which is otherwise less well represented. The development from 'unrealized' via 'doubtful, questionable' has been noted also by Steele (1977).

Although most of the forms on Table 20 are postposed, several, including SP *su, *su2, *NaKwa, and *Pa, can occupy either C1 or C2 position with little change in meaning. For example, the SN descendants of PN *su are proposed in Ka but postposed in SP, and have identical meanings. I suggest that by PN times the C1/C2 distinction in meaning proposed by Steele for PUA was no longer recoverable, and either these elements retained some modal force as the NP, Pa, and SP *sa forms have, or they became generalized C1 and/or C2 clitics with little or no inherited meaning separate from their original positional associations. Often these general clitics are highly productive in contexts other than those reconstructed as C1 or C2.

There has also been extensive phonological and semantic interpretation; e.g. NP *mu corresponds to Wm *hu and *mu in the adversative forms illustrated above, but the C2 interrogative is NP *hau2, Wm *hau2.

The immediately post-verbal C3 position in WN is occupied by *hu, a perfective marker. The clearly later *aii, also a perfective, occurs at the end of the verbal suffix string as a subordinator, and is probably the most recent agglutination (see Text, IV.3). If these two forms are indeed etymologically related, there may be evidence here that the subordinator whose function as an adverbial or connective ending in other parts of the sentence has been noted above, gains a perfective meaning as a verbal suffix, a meaning which it lacks elsewhere. This would be in exact correspondence to the original meaning distinction of PUA *su 'unrealized' in the C3 position as proposed by Steele.

Other clitic families based on *su and *tv, noted by Steele in preliminary reports, present additional complications in Nuki, since there are a number of phonologically similar but unrelated forms intermingled with the clitics. The *tv family illustrated here is free from this interference, and therefore remains the clearest example. There exist additional members of the *tv family whose direct correspondences are not quite as clear as those included in the table: NP *sa-ma2ni - *ma2ni, pro-NP *za-za2ni 'somewhat' (*za2ni similitive 'like'); esN *ma2 'after all'.

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16 Several SP forms which may be cognate naturally lack h- and are therefore susceptible to confusion with Wm 2-2-, but the form on Table 20 is probably related; thus *hu may well be WN rather than just WN.
(adverb), su'al 'thus' (e.g. of a sound). The case for association of the PN sets in Table 20 is strengthened rather than weakened by the interpenetrations of sound and meaning correspondences, and points toward a relatively untouched but very important area of historical investigation in Munic and UA.

3. **Text analysis.** The short text presented here was collected in my first field season and represents the only text I was able to collect from this particular narrator. It has, however, been rechecked from tape recordings several times. A free translation of the interlinear appears at the end. The abbreviations used are: vb, verbalizer; pp, present progressive participle; cont, continuous; rep, repetitive; pl, past participle; incho, inchoative; sub, subordinating perfective.

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**AO OMP text:** Catching Sparrow Hawks.

Ny'si u'my u ytyty ty tus'ny oo
Pron 1 pl Pron 3 pl Dem sparrow child-pl. Dem 3b excl 'those' 3a hawk 'chicks' 'there' (onomatopoeic)

ty'pi1k'wa1ku, my hima'twu. Waha2ju-na;
'trock' loc acc Pron 3 pl 'get' cond 'two' nom ps 'up in' enolit 'then'

ny'si jai1si my hima4si n'pi1k'wa1tu. My
'we' Dem-sub 'then' 'get' sub 'house' loc-lo 'then' 'they'

hima4si1 ny'si u wpi1k'wa1 my wy'ty'na
'get' pf sub 'we' Dem 3 box' loc 'then' tr 'close' (lit. 'in' 'board')

my wy'ty'na-na my ma'ka-ja'ki1. My
'them' tr 'close' ps 'them' 'give' rep 'them' (food)

ma'ka-ja1-na yay maa-na pi't-y-ka.
'feed' cont ps 'they' 'grow' ps 'cope' pf

Co jai1i-ja'ki1 jai1si. Ny'si ma'ty'ty
'there' 'sit' rep 'then' 'we' def loc (du)

'right here'
Free translation.

We would go get those sparrow hawk chicks there up in the rocks. There were two of us. Then we would bring them home. After getting them there we closed them up in a box. We kept them in there and fed them a lot and they grew. Then there the two of them would sit. We went there a lot since they were continually hungry. When they saw people even far away they would begin to cry and cry since they were continually hungry. We fed them again and again; meat, we'd try to find little things, grasshoppers. We fed them a lot. That's the way we hand-raised them. Then when they were grown they would not go away. The two of them would sit there. When they learned to fly, they would fly around and around. Whenever they were hungry they would come right to people. That's how it would be. Then we would feed them some meat, some jackrabbit meat. When they were hand-raised they would fly around and around, and then come back again. Then they didn't come; maybe they went away.

V. Language and Culture

6. Introduction. At the interface between purely linguistic and purely cultural investigations lie a number of topics for which the Numic group with its large number of closely related languages and dialects provides an excellent laboratory. In view of the wealth of information now becoming available, the topics presented below have been arbitrarily limited and contained, and in each case the material presented is only a small fraction of that which is available. Similar treatments of kinship and ethnobiology would also be possible with the data at hand. See e.g. Fowler 1972 on Numic ethnobiology and the Numic Urheimat.

A complete analysis of Numic color focus has become too massive a topic for inclusion here. The NP material presented as V.1 is but a part of this larger study and relies on it heavily. The majority of the reconstructed PN color labels are presented in Appendix III, however.

At the opposite extreme, the word play described in V.2 does not have the advantage of a longer background work, but rather represents an area that requires much further research, and this presentation is only a start.
1. **NP color terms.** Color terminology systems have long been considered an ideal domain for methodological studies since they appear to constitute a psychologically salient category of qualifiers in most languages and their limits can be semantically determined. Acceptance of the Sapir-Whorf hypothesis, namely that reality is divided differently in each culture and language, led to the conclusion that color designations were only roughly equivalent from language to language. Additional support for the hypothesis came from Conklin’s description of Manuño, a Philippine language whose formalization of color terms was shown to be quite unlike that of western Europe (1955). However, by checking informants from different languages Berlin and Kay (1970; hereafter B-K) illustrated a high correlation among the locations of the centers or foci of areas of perception of colors described by special criteria as basic to the systems of the particular languages. The description of each language’s system of basic color terms was carried out independently, and the results were compared and classified. B-K also presented several additional hypotheses about color systems which have proven to be controversial, especially the extrapolation of their classification to evolution of color systems. The criteria used to define basic color terms and the labeling conventions form a particularly valuable addition to ethnolinguistic metalanguage, which is useful regardless of the drawbacks of the evolutionary hypothesis. The B-K terminology will be utilized here for the purposes of description and organization, and as a starting point in the discussion. Table 21 shows the B-K criteria for defining basic color terms, and the classification scheme. The numbering is preserved from B-K, as is the convention of labeling the focus of a basic color term with capital letters to imply subsidiary meanings or distinctions, i.e. GREEN may refer to green, blue, purple, etc. if no separate BLUE and PURPLE exist in the language.

Among the exceptions to the B-K classification are the two Uto-Aztecan languages treated in their sample, Hs and Kg. These languages apparently have six basic color terms like the B-K group V, but they differ in having GAY instead of BLUE as the sixth term. Hill and Hill (1970) present data from nine additional UA languages to suggest that the basic color term system for UA comprises BLACK, WHITE, RED, YELLOW, GREEN, and GAY. They imply that the UA genetic grouping forms a single, major exception to

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1 The non-UA exception to B-K group V is Western Apache, which has BROWN instead of BLUE as its sixth term.
Table 21. B-K criteria for basic color terms (adapted).

Basic color terms should:

1. be monolexemic
2. not be included in the specification of any other color term
3. not be limited in application to a particular class of objects
4. be psychologically salient, i.e.
   1. occur early in elicitation
   2. have a stable field of reference
   3. occur in all dialects

Subsidiary criteria:

5. Additional basic terms should have the same distributional potential as other basic terms.
6. Basicness of a color term having the same name as a represented object is suspect.
7. Basicness of recent foreign loan words is suspect.
8. In cases of difficulty in determining status, basicness of morphologically complex terms is suspect.

Table 22. B-K classification of languages according to presence of basic color terms.

<table>
<thead>
<tr>
<th>Class</th>
<th>Color Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>BLACK, WHITE</td>
</tr>
<tr>
<td>II</td>
<td>BLACK, WHITE, RED</td>
</tr>
<tr>
<td>III</td>
<td>BLACK, WHITE, RED, YELLOW (or GREEN)</td>
</tr>
<tr>
<td>IV</td>
<td>BLACK, WHITE, RED, YELLOW, GREEN</td>
</tr>
<tr>
<td>V</td>
<td>BLACK, WHITE, RED, YELLOW, GREEN, BLUE</td>
</tr>
<tr>
<td>VI</td>
<td>BLACK, WHITE, RED, YELLOW, GREEN, BLUE, BROWN</td>
</tr>
<tr>
<td>VII</td>
<td>BLACK, WHITE, RED, YELLOW, GREEN, BLUE, BROWN, and one or more of PURPLE, PINK, ORANGE, GRAY</td>
</tr>
</tbody>
</table>
the normal six-term pattern as described by B-K.\footnote{Hill and Hill (1970; hereafter B-H) also reconstruct an incipient term for BLUE, which is better assigned to GRAF or LIGHT than to BLUE, and which may be more closely related to the idea of clarity or translucence than to any color designation. The B-K listing of SPF, the only basic language included in their sample, omits without explanation three additional terms for GRAF, two for BLOOD, and one each for PINK and PURPLE. By the B-K criteria the term for BLOOD and one each for LIGHT and GRAF can be considered secondary, but the others are not safely to be excluded on internal evidence alone. Similar unexplained omissions occur in their study for ip and ls, but have not been treated here.}

B-K were aware of the problems inherent in applying their analysis to broader studies of color terminology (60):

... it has been argued, to our minds convincingly, that to appreciate the full cultural significance of color words it is necessary to appreciate the full range of meanings both referential and connotative, and not restrict oneself arbitrarily to hue, saturation, and brightness. We make no claim in fact we emphatically deny -- that our treatment of the various color terminologies presented here is an ethnographically revealing one.

Unfortunately, the stringency of the B-K criteria filters out too much valuable information when applied to genetically related languages for purposes of diachronic analysis. The problem lies in the fact that the so-called basic color term of B-K is actually an amalgam of two separate constructs: the color word...

itself, which is a lexical label subject to the vicissitudes of linguistic change, and the color focus, a central point and the immediate area surrounding it perceived as the same color by a particular individual, an area which is temporally and culturally more stable. In a language group such as Nusa where cognates are abundant this distinction becomes very important. Cognates of color labels in other languages which are not themselves color terms in the language in question are excluded from the composite system by the B-K criteria, and the color focus for the protolanguage may escape reconstruction when no single basic color label is available. It seems most desirable to reconstruct the focus independently of the linguistic reconstruction of the lexical labels so that all possible information about the protolanguage will be included. Adherence to this modification significantly changes the pattern-
Spanish, and Italian by a Germanic loan "blank surviving in English blank. Romanian, on the other hand, preserves a native form albastru, which originally meant 'whitish' but in modern Romanian is the normal word for BLUE. There is no evidence whatsoever to indicate that there was any period of time when basic color foil for WHITE and BLUE were lacking, and yet the color labels were replaced or shifted from one focus to another.

The six terms in Table 23 are found as color terms in all NP areas, and satisfy all of the B-K criteria for basic color terms. They can therefore be symbolized BLACK, WHITE, RED, YELLOW, GREEN, and GRAY in agreement with the conclusions of B-K. Note that all have cognates in other Uinka languages, and are reconstructed for FN.

In all of the NP dialects studied, a large percentage of the speakers have BROWN as a basic color term. Although the focus is reasonably constant, the lexical label varies. B-K have no computations about reconstructing the presence of basic color terms under similar circumstances, and they are probably correct. However, this situation is unusual in NP, where the lexical labels for the first six basic color foil show little variation from dialect to dialect.

Table 23. NP color terms.

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
<th>FN (if)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tu(hu)</td>
<td>black, dark-colored</td>
<td>*tu(hu)</td>
</tr>
<tr>
<td>toha</td>
<td>white, light-colored</td>
<td>*tosa</td>
</tr>
<tr>
<td>a'ca</td>
<td>red, red-brown</td>
<td>*a'ka</td>
</tr>
<tr>
<td>oha</td>
<td>yellow, gold, orange, tan, golden brown</td>
<td>*oha</td>
</tr>
<tr>
<td>pahi</td>
<td>green, blue, purple</td>
<td>*pahi</td>
</tr>
<tr>
<td>l(s)i</td>
<td>gray, silver</td>
<td>*alsi</td>
</tr>
</tbody>
</table>

3 to'sa occurs in some NP areas, but is usually recognized as a Sh loan by NP speakers.
For some NP speakers **toka** is the basic term for **brown**, which then takes into its specification some of the hues classified by other speakers as **red** or **yellow**. Many speakers insist that **toka** refers to any dark color without regard to hue; thus it can label **black** and the darker shades of all of the other basic terms, including indigo and purple as well as the browns. For all speakers of NP, **toka** is also an essentially verbal root meaning 'to get dark, be night' or just 'dark'. The semantic specification of **toka** includes implications of a color specification, but since it intersects with almost all the other basic terms it might better be called paraphonic than basic. It is interesting that the English word dark has essentially the same semantic range as **toka**. Numerous Nucie cognates permit reconstruction of Pa **to/uka**.

The labels of this particular focus are not restricted to **toka**. **Brown** in ENP is **tu’p’la’l**, which is not a color term in other NP dialects but usually means 'obsidian'; and **l’k’w’i’l** occurs in several dialects. I was unable to elicit **l’k’w’i’l** in ENP, but it was collected there about 70 years ago by Harris in one term for **brown bear** (see below). It was collected by Kelly (1932) as **brown** in swONP, but it does not appear in a list of color terms collected earlier for the same dialect (deAngelo and Freeland 1929).

Powell (Fowler and Fowler 1971) collected **l’k’w’i’l** as **brown** in swONP from Gilbert Indian, but it does not appear in the Indian manuscripts of a few years later. In 1968 I collected this term from one ENP informant with the meaning **purpure**. The range of meaning suggests the same pattern of usage as that of **toka**. Note in this connection that **purpura** is etymologically identical to **toka** in other Nucie languages (see Appendix III).

Reconstruction of a single PA term from ENP, **k’o’ny’**, is required by the evidence of CN and SN forms (see Table 24). This term is attested in only one word in ENP, **CNPA l’k’w’i’lpla’i** 'ground squirrel sp.', probably **Citellus lateralis** (cf. **ENP l’k’w’i’lpla’i** 'ground squirrel sp.', probably **C. townsendii**). Interpretation of **PA k’o’ny** - as a shade of **brown** is possible, but in view of its restricted usage this form is likely to be a naturalized ENP loan.

The derivation of NP **nu’ko** 'red-brown, rusty red', etc. via the meaning 'wet-earth color' by a rare vowel shift from **nu’ko** 'earth, ground (often specifically wet)' dates from a very recent period. NP **nu’ko** is now widely used metaphorically as 'on foot' common, old-fashioned, ordinary', hence approaching affective meaning, and occurs in this form in most, if not all, of the Nucie languages (see PA **nu’ko**). Its use as a color term is apparently an early NP innovation, since it is
restricted to lexicalized bird and animal names, and
is no longer productive.

If we can assume a basic color term for BROWN in
the history of Np and Nn on the basis of a reconstructed
FN form, we can offer a very convincing explanation of
a sequence of semantic shifts and replacements in WN,
where some color terms do not quite fit the expected
reconstructions. Table 24 illustrates the modern situ-
ation. Sh and SP have preserved both the presumed FN
term and the separate unrelated labels for the terms.
WN has lost the expected reflex of the FN term for
BROWN except in the form noted above for Np. In order
to relabel the independently retained BROWN focus,
proto-WN innovated a special sound-symbolic doublet
based on RED, giving "a'ka 'red' and "a'ca 'tan, brown,
copper-colored, orange", identical to the modern Mn
system. Np then lost the old WN term for 'red' and
shifted the affective form "a'ca into that meaning,
leaving the BROWN focus unlabeled again. The result
was the lack, with some speakers, of a label for BROWN
which would satisfy the criteria for a basic color
term; these speakers simply merged the BROWN focus
into other terms, including RED and YELLOW. Others
replaced it with new terms, hence the present diver-
sity of labels. Notice that each of these losses and
respecifications has involved a progressively smaller

<table>
<thead>
<tr>
<th>Table 24. Norse RED and BROWN.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP (WN)</td>
</tr>
<tr>
<td>RED</td>
</tr>
<tr>
<td>↑</td>
</tr>
<tr>
<td>BROWN</td>
</tr>
<tr>
<td></td>
</tr>
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</table>
portion of the speech community, which suggests that the latest shift has been very recent. The eONP form for 'pink', j' [i]-pl, a naturalized loan from Sh ai"ka-pl(-ty) RED, is probably the most recent adjustment involving this set of labels in NP.

The persistence of the basic focus of BROWN is clearly evident here, as is the semantically close relationship of BROWN to RED. Similar links of BROWN to YELLOW, especially in CN, occur in many reflexes and specializations, too numerous to be included here, of forms listed in Appendix III.

In Table 25 are the Hp and Nuna terms for 'green', 'blue', and GREEN (which includes both 'green' and 'blue'), indicating the usage of particular labels. The groupings according to usage are also geographically distinct units, although they crosscut the traditional tripartite division of Nuna. (See also Map 7.)

Enough terms such as words for 'grass', 'still be green (of foliage)', and a gloss indicating a root meaning of both 'blue' and 'green' indicate that Hp sak"a(p) originally labeled GREEN, although in current usage it most often means 'blue', with an additional label, nok1, taking on the aspect of 'green'. It seems likely that nok1 is a recent addition to the Hp color system, because of its limited meaning and the
evidence that sak*wa(p) once had a broader scope. A similar situation prevails in most of the SN languages, with the cognate label sak*wa — sawa also meaning GREEN. NUA *sak*wa is probably of PUA date if it can be related to PUA *sawa, UACS 255, 479. PUA *sawa means 'leaf' in Pliso, Tr, Cr, Hs, and both 'leaf' and 'yellow' in Vr, Ny, Yq. This etymology would suggest that the source of *sawa — *sak*wa was in yellow or the yellow-green end of the range of GREEN. 4

In several of the Finnic languages (e.g. NP, Ch) puhl means 'gall, gall bladder', giving PW *puhl. Since this form lacks other UA cognates, it is necessary to assume that its use as a color term dates only from PW times. It has completely displaced earlier sak*wa in all of UW and most of CN. In Hs and UW, sak*wa shifted to 'blue' as the new term puhl became established for 'green'. Ch, Sh, NP, and Hn

4 The interrelationship of *w and *kw in the UA terms for GREEN and YELLOW is not predictable, but groups of probably related although phonologically irregular color word pairs exist in many language families. Another example involving the YELLOW-GREEN range occurs in Indo-European, where words strikingly similar in form and meaning cannot be subsumed under a single correspondence (data from W.S. Beekker, p.c., and J. Nicholas, p.c.): Latin hexas 'vegetable greens', Hebr. *hulh 'yellowish', sel 'gall, bile', phthos 'tawny, iron-colored, light yellow'; Greek chlous 'green', Lithuanian salkas 'green', Proto-Iberian 'green', Avestan yel ('yellow'; English yellow, gold, gilt, gall.
have a single label as in SP, Ut, and Ch, except that
pulti has completely replaced *nak'wa as the label for
GREEN. In Cb pulti- is retained in that phonological
shape only in derivatives meaning 'money; leaf, grass'.
The basic color term is *alli [esl] < *[esl] < *al-pulti,
with a prefixed element (discussed below) and vowel
sandhi, a relatively late development as indicated by
the numerous lexicalized relic forms with pulti but none
with alli. In esn, which is adjacent to wsn, the pulti
form probably prevailed completely and *nak'wa was reinf-
truded later as 'green'. Note that in this area
nak'wa also means 'algae' or 'scum on water', while in
wsn it means 'blue' just as it does in neighboring Ka,
which indicates different recent histories for the
label in the two Pn areas.

The most recent modification is in eONP, where
pulti has been displaced to 'blue' by the introduction
of pulti'kapa as 'green'. This form means 'green algae,
pond alge' in other NP (cf. the meaning of 'green' in
ePn; see also PN *juka 'slimy, etc.). In one recording
of Sarade's, pulti'kapa means 'paper money', a sense
reminiscent of the Cb derivative just noted. Another
recent modification occurs in wsn, where pan-šh pulti(1)
GREEN has split, the innovative form again being 'green'.

The meanings 'leaf', 'algae', 'gall', ' bile' seem
to be particularly fertile sources for new terms for
'green' or 'yellow'. In one Pn dialect the word
'yellow' was recorded [nwyš] (good ms.), which re-
sembles closely PN *nwyš 'liver', for example (cf.
fn. 4).

A certain consistency in the mechanism of
replacement characterizes the entire group, including
the modern eONP derivation. The name of an object or
substance typically having a green color is first
taken to mean 'green', then GREEN. If the process is
repeated, the first label for GREEN is either lost or
displaced to 'blue', and the new label enters as
'green'. It appears that the main meaning for these
labels is in fact GREEN, and that replacements may be
introduced to reemphasize the green portion where the
meaning of the previous term has become too diffuse
through specification of the entire GREEN area. The
evidence suggests that a separate BLUE exists only as
a house for former GREEN terms and that the usage in
the color sequence is properly: 'green' > GREEN >
'blue', with only a single basic color focus. A
prime reason for this contention is the lack of per-
sistence of a putative BLUE focus in contrast to that
shown by BROWN and the other basic color foci. Also,
no label with a basic meaning 'blue' has been shown to
be derived from, or related to, an actually blue ob-
ject. This is not to say that those languages
synchronously characterized as having two basic color terms in this area should not be described as having both GREEN and BLUE for synchronic analysis of the B-K type. This occurrence of 'blue' in Nusa differs from that proposed by B-K in deriving 'blue' from GREEN rather than from GRAY, and in being of definitely post-FN date, rather than from FUA.

Although the regular NP color term for GRAY is *asi, a recurrent form ku*asi occurs in plant terms with the meaning 'gray-green', much the same as suku- 'red-brown' with animal names. With a nom the root ku*asi- yields 'dust'. A similar contrast is found in Sh, Cs, and wSn; cf. FN *asi, *kuasi. An original meaning 'ashes' is indicated, since the form is a derivative of FN *ku- 'fire, heat' (see III.2). NP *asi is actually a derivative of FN *ai LIGHT; DULL with the same second element. With a nom the meaning is 'white paint', 'chalk', etc.; NP *asi; FN *ai-pl. As in the discussion of GREEN above, the Cs term was reconstructed *ai-puhi. Examples of Sh ai-puhi 'blue' (lit. LIGHT/DULL - GREEN) are found in Steward 1938 for mSh and eSh dialects, those linguistically closest to Cs, and lend support to that etymology.

An extended meaning for FN *ku- of 'ash' > GRAY is indicated by its occurrence in several sets; e.g. FN *ku'ca yields ka, SP GRAY and SN, CN 'ashes'.

The WN form with a nom refers to the larvae of Ephypria hians, a fly that builds an edible greasy gray bubble nest on saline lakes (see Appendix III).

Other compounds with FN *ku and *ai occur throughout Nusa, often on the same roots, with the resultant form containing either a color implication or a color specification, e.g. 'blue', 'gray', 'dull', 'light-colored', etc., listed below (see also forms under FN *ai- - *ku in Appendix III).

NP liasi- GRAY; silver
kuasi- gray-green (of plants); dust

CM ai-asi- GRAY, dull
ku-asi- GAI

CM ai-so- LIGHT (color)
Sh, MN, NP ku'so - ko'so fire; match (FN *ku'so)

wCM (êko) alituasi'py' ashes
tuasi'py' dirty

wCM (Leshi) alituasi'py' ashes
ku'tasi'py' coals

CM ai-tu-asi-py ashes, soiled, dirty

Sh, FN ku'tuasi'py ashes
NP ku'tuasi'pa dust

NP 1ak'wilafi brown, purple, dark
Sh aikwil'ki-ty' smoky color
kuwik'ily' smoke (cf. FN *k'ihli)
Ut ak'ki-py ashes
SuT ak'ki-py charcoal
CMSP ku'ik'iy chipmunk, ground squirrel sp.
WMNP ku'ik'iy ground squirrel sp.
SuT ak'wilici 1d.
Ut ak'wilici 1d.

probably also:
ka ai-wuici 1d.
These sets are reconstructed "al/kw-... in Appendix III.

NP and Nusio color terms cannot occur as bare
stems, and as a result are frequently marked with
non's (see III.2). Because of the productive nature
of these and other nominal formatives or markers, E-K
criterion vii, concerning the suspet nature of color
terms with the same name as the represented object,
is not very useful in these languages. It is virtually
impossible in some cases to determine, without recourse
to detailed historical and comparative information,
which comes first, the color term or the name of the
object, where the construction of color term plus
simple suffix has become lexicalized. For example,
NP *puhi* from puhi GREEN means only 'something GREEN, 
anything GREEN' and is not lexicalized; however, in Cu
the same form means 'grasses, leaves, weeds' and is
lexicalized. Similarly, NP *tuhu* 'charcoal' (cf.
tunu BLACK) raises the question whether tudo-
is 'charcoal-colored' > 'something black' > BLACK and
hence suspect, as with Cu puhi, or rather tudo BLACK
> tuhu 'something black' > 'charcoal', parallel to
the formation of NP *puhi*. The latter explanation is
historically and comparatively correct in both in-
stances, but using NP data alone or even in conjunction
with Nusio cognates it is impossible to determine with
certainty which is the etymologically correct
interpretation.

In addition to non's, some particular combinations
of other non-initial morphemes occurring with color
terms have been erroneously translated as 'color' or
'colored', for which there is actually no aboriginal
term. In many languages, such as Kg and SP, several
nominal qualifiers without any color meaning use the
same endings. In some other languages, including NP,
use of at least one of these endings is rare except
with color terms; in fact, one of the tests of mali-
yency for the native speaker involves this usage.
All of the NP basic color terms can occur with the
'typical' color marker, but neither *kuh* nor *uku*,
which are subject to additional restrictions, can
do so.

The following suffix morphemes occur typically
with color terms. Other combinations are possible,
but would not be among the first choices of most
speakers. A parenthesized language abbreviation
indicates less common use of the form in that
language.
-ka-ty       Ut, SP, Ch (Sh)
-ka-1-(ty)    SP, Sh
-ki-ty       Ka, ehn
-zi(4)pa      Ka
-pl-('ty")    Sh, Cn
-pl-py       Sh
-kWi-ka-(ty)  NP 5
-mo, -pana    Mn (NP)

In Mn alone of the Nuzi languages, no one form marks
color terms. Mn also differs in using some endings
which are not analyzable, either in Mn or in other
Nuzi languages. The complete list for Mn is:

-pani       BLACK
-taja       WHITE
-pana       YELLOW, RED, BROWN
-pono       GREEN
-tawa

In ehn the situation is different:
-pono       WHITE, YELLOW, RED
-tuway       GREEN
-ki-ty       BLACK; follows -pano in WHITE, RED, YELLOW

but since we have incomplete data on these dialects
no trends can be described with certainty.

In general, influence from English is negligible
in the color domain. Spanish has contributed only to
the Mn system, without displacing native forms, and a
few color-related loans occur in Mn. Color systems
of acculturated individuals occasionally show personal
adaptations, with several additional terms derived
from the native lexical material to accommodate the
larger number of color terms in English or Spanish,
but there is no evidence for English loan words, nor
does it appear typical for speakers to add only one or
two extra words. The native color vocabularies seem
to be either modified with several coined terms or
not adapted at all. For example, most NP dialects
completely lack speakers who will admit a distinct form for BLUE separate from GREEN, and informants who speak some English will often volunteer, when discussing color terms, that the same word serves for both. As an illustration of an acculturated system, a list collected from a single eONP informant appears as Table 26.

The last two forms on Table 26, which have been given particular attention as very recent adaptations, do not take the typical color term ending occurring with more established or familiar color markers. The words for 'brown' and 'purple' have also been discussed above.

Because the NP and Amaic color terms cover a fairly broad semantic range it is seldom necessary to modify the basic term in order to alter the focal meaning. Various methods of doing so are attested, but it is most often stylistically preferable to use the basic color terms without alteration. Thus a horse will be called simply a'ca'a'ka 'RED-horse' in NP if its color is at all reddish. Most informants prefer to use this type of expression rather than to describe finer gradations of colors even in borderline cases. Descriptive compound constructions of the type of English blue-green would be unambiguously in CHP, and do occur in \( \text{eONP} \) and SP, but none of my informants would accept them.

<table>
<thead>
<tr>
<th>Table 26. Acculturated eONP color terms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>with -k'vi-ka:</td>
</tr>
<tr>
<td>tuhu</td>
</tr>
<tr>
<td>toha</td>
</tr>
<tr>
<td>a'ca</td>
</tr>
<tr>
<td>ona</td>
</tr>
<tr>
<td>pahi</td>
</tr>
<tr>
<td>i'si</td>
</tr>
<tr>
<td>yny ona</td>
</tr>
<tr>
<td>tu'pi'si</td>
</tr>
<tr>
<td>i'k'vi'ci</td>
</tr>
</tbody>
</table>

| without -k'vi-ka:                      |
| pajukapa | green  |
| i'k'aipl | pink   |
Items of more than one prominent color are not normally described with color terms but are referred to as spotted, striped, etc., although occasionally one can elicit NP constructions such as eONP a'caik'1i-ka puhi1k'1i-ka-ty-nu, lit. 'red blue-with', for 'red and blue', where the independent form of each color term occurs with -k'1i-ka, and the enclitic suffix -nu is used with the second term. The problem of the use of derivative affixes or adverbs for alteration of the focal meanings of color terms has as yet been only partially investigated, because such forms are uncommon and several contain unique or unusual constructions. It is entirely possible that some of these constructions date from after contact with European languages. One older term, eONP toka-suku 'orole', may derive from 'dark (bright?) rusty-red', hence 'orange', but the exact mechanism is unclear, given only this one form (especially since suku by itself means 'robin'). In general, a hue can be intensified or qualified by preposing an adverbial enclitic, e.g.

and ONP sak'wa?ni 'a little, somewhat' (*sa-ma?ni, cf. IV.2):

from GREEN eONP sak'wa?ni puhi1k'1i-ka 'purple'

The process is regular in ka, with different coronizations.

A few compound color terms are attested, all based in NP l(1)i GRAY.

eONP(3d) tu-lsi-k'1i-ka-ty blue

eONP tu-lsi1k'1i1ka-ty brown (Varada: crossed out gloss)

wNNP tu-lsi-k'1i-ta-ty dark gray
(all BLACK-GHAY)

wNNP a'caik'1i-k'1i-ta-ty strawberry color of horse [roan?]
(RED-GHAY)

Powell (Fowler and Fowler 1971) reported for NP [tu-k'1i-te1-a] 'light blue', which may involve the last part of l(1)i1ka discussed above. The first element appears to be tu(ni) BLACK, but this is not consistent with the gloss (see examples above, however). This device is more common in SP.

Because compounding may follow derivation, some forms may be mistaken for color term compounds, e.g.

eONP a'ca1tuha1pl [hot] coals,

superficially RED-BLACK-nun but actually RED-charcoal;
WNFku-tu-pi
Sh ku-tu-hu-pi

both 'coal', are derived from first-Charcoal, the
latter element from BLACK-nom.

Liljeblad records a suffix form eONP asiida
'resembling', e.g. eONP toh-asiida 'to be whitish'.
This element, analogous to the '-ish' noted for Sh,
appears to have counterparts with different meanings
in my own field notes (cf. fn. 5):

RED eONP a'ematsu'na 'it's pink'
WHITE eONP toh-ematsu'ka-ty 'speckled with white'
BLACK tu-ematsu'ka-ty 'speckled with black'

and is also attested in the Natches manuscripts
recorded from WNF by Kroeber and Natches:

BLACK tuhatsu'tua-ty 'dark color gray'
YELLOW oha'su'tua-ty 'light yellow'
GRAY i'si-no'tua-ty 'light gray, mouse color'
[here 3 is probably an error for 2]

In NP a number of variants of color terms have
become lexicalized with specific meanings, most fre-
quently animal names. Several of these have been
formed with nom's, e.g. emu-pa 'red-shafted flicker'.
(Avian), cf. wu emu-pa-ppa, id., on emu-pa'na 'slided
flicker'. Some of the following forms are derived

from color terms with the endings typical of NP color
terms, and others using typical endings of other neigh-
boring groups, which suggests that some of the latter
are loans. Coinages for 'brown bear':

BROWN eONP 1'kwa'l1'i14kwa-ty (Marston ms.)
toka'kwa-l1'ka2a
YELLOW oha1ju'na
BROWN WNF toka-ju'na

Possible loan forms include:

puhi-tu'la 'abalone; shell' (cf. Mn puhi-tuwa
Gree)
puhi-pitu'-ju 'bluebird' (cf. Sh puhi-pitu'-ty
Gree)

Two forms suggest that the Mn -pono endings may be
related to NP -pono 'round':

ONP oha-pono-za 'orange'(fruit) (YELLOW-round)
toka-pono-za2a 'huckleberries' (DARK-round)

There can be little question that the basic Munic
color system included in the discussion above comprises
seven basic feet, BLACK, WHITE, RED, YELLOW, GREEN,
BROWN, and GRAY, with two additional parabasic areas
DARK and LIGHT; from these, additional terms are
coined or developed as needed, including BLUE, PURPLE,
ORANGE, PINK, and gradations of the basic colors not
specifically named in English. These fool are labeled by more than 30 color-related morphemes, most of which

It is premature to compare the color systems of PKT and PUA since for neither protolanguage do we have a complete reconstruction. However, the formal parallels between XU and the PU system as outlined here are striking, even though additional terms might be found if more data were available.

BLACK Te phén-?7, pêng-yi (Hano), rên (Santa Clara); Ta phên-
WHITE Te qê??7, cêyi (H); Ta pêta-
RED Te pî?, gî?î (H); Ta phay-
YELLOW Te cêyi?, cêyi? (SC), cêyi? (H); Ta cul-
GREEN Te caaw-yi?, caawá, caawá (SC), caawá? (H)
'blue, green'; Ta cêl-
Te posîwi?, posî?i (a) 'light green' < po
'water' + îî?î 'rotten'
BROWN Ta pôxé-
GRAY Te cêntowôi (see WHITE); Ta poha-
DARK Ta xuq (SC); Je hîî; Ki hîq
(As uses suffixes -wî, -hî 'ich'.) Note especially the phonetic similarity between Te GRAY, WHITE, YELLOW, and GRAY, reminiscent of the PU and PUA extensions. As an interesting sideline, the terms reconstructed for 'bluebird' and 'bitter' in XU begin with 'c' and 'a' respectively, and 'grape' and 'liver' with 'p' and 'o', which suggests that the same sort of confusion found in UA will also pertain in XU. A striking parallel between XU and PU is the coinage for 'light green' from 'rotten water' in XU and the use of terms for 'airae', etc., as the source of new color terms for XU in Nusio.

have PN etymologies. Far from representing a unitary, self-delimiting system, the Nusio color domain blurs on the edges, both contributing to and drawing from names of objects in the world. In fact, as has been emphasized above, the influences often come from predictable directions, as in the YELLOW-GREEN complex or the 'fire'-GRAY-LIGHT/WHITE area. Although not specifically discussed here, the majority of other PN color terms without direct NP referents are included in Appendix III.

2. Punning and Word Play. A general awareness of phonological similarity makes itself felt in various ways in Nusio oral literature. A propensity for punning, the use of phonologically resonant or even identical roots in order to produce multiple meanings, noticeably affects NP verbal art. This propensity also illuminates certain problems in historical linguistics.

NP informants are keenly aware of phonological resemblances, and on several occasions have volunteered homonyms (including words whose range of meaning in NP is wider than in English and which hence appear to be homonyms, e.g. NP puh 1 GREEN for both English BLUE and GREEN) and a few minimal pairs such as NP tywa 'root' and tywa 'anteelope'. Any error in linguistic performance is likely to be noted with humor, especially where the result is a meaningful
utterance in its own right. Similarity in phonological shape occurs both from homonyms and from etymologically identical roots lexicalized with different meanings. Since reduplication in the Nde languages is generally of the type CV(C)- rather than of whole forms, juxtaposition of two phonetically similar forms does not have a grammatical source. Such juxtaposition, when it does occur, is also humorous.?

Folk etymologies to explain the identity in phonological shape of unrelated roots often take the form of narratives. The explanation of the kinship of two or more words is the ostensible purpose of this type of tale and generates the main narrative sequence.

A brief cNP narrative collected by Nareden illustrates a folk etymology. The story explains why babies and buttercups are both called *oha*. Actually, the PN word for YELLOW (which also has cognates in Pisi) is *oha, regularly attested in NP as ohe (see UACS 477), and the name for buttercups is a descriptive label derived from this root. The root for 'baby'

---

7 An example that I used to check my hypothesis juxtaposed the cNP words for 'eye', *ui, and BLUE, *uli. The regular compound for 'blue eyes' would be *(*ul?)ui, which was rejected with scales of laughter. The grammatically acceptable cNP yapi*u*ui-ni 'you have blue eyes' fared no better, and one of the Indians consented (in English), 'it's a good thing we don't have blue eyes!', which evoked more laughter.

is PN *onqa (see Appendix III). Lamb and Zigmond noted the onomatopoetic relationship of the words for 'baby' and 'baby's cry', which could have reinforced the particular shapes these words took in the various languages where a reflex *u or *i conditioned by surrounding vowels could result in homonymy of this root with the words for YELLOW. However, the nasal reflexes in CN, GN, and SP preclude the etymological unity of YELLOW and 'baby'.

Another folk etymology which is the basis for innumerable puns, jokes, tales, and incidents in longer narratives is the link between badgers (huna) and menstruation (huna-), based on a disagreeable odor attributed to both. The form for 'badger' is clearly old, attested in all of MNA as *huna, PN *huna (UACS 19). The form for 'menstruation' may be related to PN *hu(i) 'to run or flow (of liquids)', e.g. cNP hú*yu 'it is flowing', hú*yu 'stream, river'; but UACS 391 'hu 'to smell (bad); skunk' (cf. PN *hú*yu 'flatulence') suggest other possibilities. It is by no means certain that the roots in question are unrelated, but until some demonstration of the relationship is forthcoming it seems safer to consider their interplay as the product of folk etymology.

The NP narrator of traditional or formal tales can form variants on the details of a particular story.
line as his inclination or talent dictates. Inclusion of deliberate homophonous elements is therefore a possibility. Some circumstantial evidence that it may have been applied can be found in any of the languages.

Several versions of the creation myth and a few other stories portray Beaver as a woman having children who either populate the earth or take part in certain adventures. Punning on the name for Beaver is possible in NYP where 'beaver' and 'belly, abdominal region' are both koli; the phrase 'Beaver's children' can be interpreted also as 'belly's children'. In contemporary NYP and in the Karaden (CONP) and Nakches (WNYP) manuscripts this homonymy is attested, although it is no longer the preferred form.

In a widespread story (The Theft of Pinenuts), Coyote attempts to steal pinenuts (NYP ty'pa) by placing then in his mouth (ty'pa). When this effort fails they are entrusted to a bird who accomplishes the theft. In one version the pinenuts (occasionally a single

---

8 A variant word for 'beaver', hirgam(pa), PN *ha'gol-, also occurring in the Karaden manuscripts, has sup- planted koli as the modern word for 'beaver'. koli is attested as 'beaver' only in NYP and as 'belly' only in NYP and Shl; see PN *koli-. A further replacement of koli seems to be recent; in the Karaden manuscripts 'to be pregnant' is koli-kojlu, lit. 'to have a belly', but now the idiom is pum-koli-lu, lit. 'to have a fetus' (cf. *no, III.2).
event in question been part of the traditional story line. The version with the juxtaposition thus seems innovatory.

The story of the theft of Coyote's eyes, in which Coyote tries to replace his stolen eyes with various natural objects, suggests a number of potential deliberate homonymous juxtapositions. The NP words for 'eye', 'seed', and 'berry' are all put as a result of medial consonant loss. There exist variations of the story where Coyote replaces his own eyes with seeds or berries, and others where he catches a small bird, takes the bird's eyes, and in response to the bird's complaints gives his seeds or berries as replacement eyes. One of these latter variants is a just-so story of how the vireo got red eyes, since the berries chosen for the eye replacements were NP k'aput, 'wild currants (Ribes sp.)', literally 'red-berry', also interpretable as 'red-eye'.

In the story of Cottontail (tapu'tu) shooting at the sun (taco), the names of the main characters provide the elements for a juxtaposition.

This association is widespread and probably coincidental, but in several versions further embellishments are added. In a variant in the Natches manuscripts, Cottontail becomes annoyed with the sun because the day is too short to do all the hunting he wants to do. The game he is hunting in this case is cottontails.

syzyka u'su tapu'tu gui tapu uka mia-potan'a
once that Cotton- some cotton- was going
(non) tail (acc) around (getting)

This juxtaposition involves two treatments of the same root, one as a personified mythical being and the other as the ordinary animal.

In some versions of Cottontail's quest he is annoyed by a squirrel or similar animal, which he then also kills (see Fowler and Fowler 1971:227). One of the many terms for these animals is tapa, homophonous with the word for 'sun', and which generally refers to ground squirrels or a species of chipmunk. The pun is readily apparent, since killing of the sun or of the squirrel would be expressed in the same way. I have not collected this version in CoNP, where the term PN *tapa 'squirrel' survives only in wokot'ana 'tree squirrel' (lit. 'pine squirrel'; cf. Ka wokotapata'asi, id.), an animal which is not found in the same
environment as cottontails and would thus be thought inappropriate. The species used in the story as recorded in this area is one of the ground squirrels (Citellus spp.).

The devices of punning and juxtaposition are not restricted to NP, but occur throughout Numic. Goss (1963), in the course of describing the Ut system of non’s (see III.1), illustrates how a 'single' root juh- takes on the meanings 'fat', 'porcupine', and 'pine' with different non class markers. Although comparative evidence shows that many roots do indeed change meaning according to the use of different affixes, Goss's key example involves three historically separate roots which have only coincidentally come to be homophonous in Ut and in no other Numic language, even the closely related SP. Numic cognate sets for the three forms are shown in Table 27.

In Ut, as in some of the other Numic languages, a medial consonant has been eroded and the sandhi of the vowels produces a long juu. In Powell's manuscripts (Fowler and Fowler 1971:131) a phonologically transitional form for 'pine' occurs: juwi' (juwi-nyu, yu-yu) in a Ut dialect. C. Fowler also records juwi' for SP (p.c.). The frequent association of 'fat', 'porcupine', and 'pine' in Ut narratives as reported by Goss is a case of folk etymology rather than an

Table 27. Three NP roots for Ut juu.

<table>
<thead>
<tr>
<th>PN</th>
<th>juu</th>
<th>jyhay</th>
<th>jypt</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP</td>
<td>juu</td>
<td>(ONP)</td>
<td>jyhay</td>
</tr>
<tr>
<td>Mm</td>
<td>juu</td>
<td>---</td>
<td>jypt</td>
</tr>
<tr>
<td>Sn</td>
<td>juhu</td>
<td>[yˁhˁ]</td>
<td>---</td>
</tr>
<tr>
<td>Sh</td>
<td>(juhu)</td>
<td>jynny</td>
<td></td>
</tr>
<tr>
<td>Cr</td>
<td>juhlu</td>
<td>jynny</td>
<td>---</td>
</tr>
<tr>
<td>SP</td>
<td>juu</td>
<td>jynny</td>
<td>jypt</td>
</tr>
<tr>
<td>Ut</td>
<td>juu</td>
<td>jyu</td>
<td>jyu</td>
</tr>
<tr>
<td>Ch</td>
<td>juhu</td>
<td>jypt</td>
<td></td>
</tr>
<tr>
<td>Ka</td>
<td>jyu</td>
<td>juu</td>
<td>jypt</td>
</tr>
<tr>
<td>cf. NUA, PW</td>
<td><em>jyhaa</em></td>
<td>'rodent sp.'</td>
<td></td>
</tr>
</tbody>
</table>
Illustration of the variant meanings of an etymologically related root. This association is motivated biologically and culturally as well, and serves to strengthen the identification in the myths noticed by Goza. If the roots can be etymologically related at all, the time depth must be at least pre-PN rather than dialectal SN.

An additional problem marginal to those discussed above involves the names for two major culture heroes, wolf and coyote. The substantial variation in these terms among Numic groups is reminiscent of the presumably taboo replacements of monomorphemic names for 'bear' in the holarctic region (see also replacements for 'bear' in NP, V.1). In many Numic dialects the words for 'wolf' and 'coyote' form a diminutive soundsyndetic doublet (see II.2.5), with wolf, as the mythological older brother of Coyote, represented by NP *iššaʔ, and Coyote by the diminutive form Apa. The traditional etymology for these terms links the nominative to the verbal *išša - 'to tell a lie' through the semantic link of Coyote's attributes as a liar and trickster. If this hypothesis is correct, then the term for 'wolf' originally meant 'coyote', since Wolf is an honorable person, and the new term displaced it. Some indirect support for this idea comes from Win, where both forms occur with the meaning 'coyote', one the neutral and the other the obscene term; the same pairing occurs in EN with the meanings 'Coyote' (mythological being) vs. 'coyote' (see the PN sets in Appendix III). An additional coinage in this area may include the geographically restricted name for 'younger brother' and Fox, the mythological younger brother of Coyote. In some NP dialects the term for 'fox' is wā(i)gi (PN *wahyj 'fox'), while the Proto-Wn word for 'younger brother' is wawwama (cf. Win *wawalma). The tradition of Fox as Coyote's younger brother is pan-Numic, but the phonological resemblances are not found elsewhere.

Very little investigation of narrative devices has been undertaken for these languages, and published texts are frequently available only in English, which almost completely obscures the effects of the original syntactic and phonological relationships. Future investigations in Numic linguistics and folklore should disclose many additional instances of these processes in all of the Numic languages.
Appendix I. Sources

The sources for the particular forms cited in the text and appendices are documented here. Abbreviations for language names are given again.

General sources for the entire range of Numic not repeated under the individual languages include:

Fowler and Fowler 1971 (abbreviated Fw)
Miller 1967 (UAOS)
Steward 1938 (US)
Vogel, Voegelin, and Hale 1962 (VH)

In each listing below the primary source is given first, as in the text, p.c. abbreviates personal communication.

NUA (Northern Uto-Aztecan)

Numic:

WN (Western Numic)

NF (Northern Paiute)

Liljeblad 1966a, b; p.c.
eNF (Hannock; Fort Hall, Idaho)
Nichols, field notes (1968-69)
Liljeblad 1990; p.c.
eONP (Harney Valley Paiute; Burns, Oregon)
Nicholls, field notes (1968-70)
Harmsen 1923; ms.

SWNF (Surprise Valley Paiute; Cedarville, California)

Kelly 1932
demaggio and Freeland 1929

SwNF (Honey Lake Paiute; Susanville, California)
Nichols, field notes (1970)

WNF (Pavlovso; Pyramid Lake, Nevada)
Mather 1923; ms.
Mather 1929
Lowie 1926

MNAP (Northern Paiute of several communities near Walker River and Walker Lake, Nevada)
J. Shapiro, field notes; p.c.
Liljeblad, p.c.

Other NF sources:

Stewart 1941
Stewart 1941

U (Ute)

WN (Northfork Ute)

Lamb 1957, 1958
Lowie 1930

ONP (Owens Valley Paiute)

Stewart 1933, 1938

NIPN (Port Independence, California)

Liljeblad 1964

CN (Central Numic). General sources include:

Miller, Tanner, and Foley 1971

Sh (Shoshoni)

eSh (Ogden)

Miller 1972

WSN (Duckwater, Nevada)

Crapo 1971; p.c.
nwSh (Owyhee, Duck Valley, Nevada; Idaho)
  Miller and Booth 1971; p.c.
  Fowler, field notes; p.c.

nSh (Fort Hall, Idaho)
  Dayley 1970; field notes; p.c.

neSh (4th river, Wyoming)
  Davis 1966

Fb (Panamint or Doso)
  Dayley, field notes; p.c. (Death Valley, California)
  Good 1944
  Kroeber 1907

Cn (Comanche)
  Canoage 1957, 1958
  Cuahuaralde 1951, 1955, 1956
  Smalley 1953
  Siles 1949
  Wahbah and Smalley 1949

SW (Southern Modoc)

SP (Southern Paiute)
  Capir 1930, 1931, [1933]1968
  Fowler, field notes; p.c.

Ut (Ute)
  Joss 1946, 1966, 1970a, b
  Davis 1966
  Fowler, field notes; p.c.

sUt (Southern Ute)
  Joss 1961

Ch (Cheyenne)
  Harrington, n.d.
  Sunro, field notes; p.c.
  Fresson 1973; field notes; p.c.
  Fowler, field notes; p.c.
  Laird 1974.

M (Kawailo)
  Zigaoni 1971; ms. (to appear)
  Klein 1958, 1959

Other Nia

Tb (Ikanulalbal)
  Voegelin 1935, 1958

Hp (Hopi)
  Voegelin and Voegelin 1957
  Whorf 1946a
  Sunro, field notes; p.c.
  F. Kennard, p.c.

Takie

La (Luiseno)
  Bright 1966b
  Blyle 1970
  Kroeber and Grace 1960
  Sunro and Benson 1973
  Sunro 1973; field notes; p.c.

Jn (Junneño)
  Kroeber 1907

Ca (Cahuilla)
  Miller 1967

Cu (Cupeño)
  Miller 1967
  Kroeber 1907

Sr (Serrano, including Kitanemuk)
  Miller 1967
  Zigaoni, field notes; p.c.

Gb (Gabrielino)
  Kroeber 1907

Fn (Fernandeño)
  Kroeber 1907
SUA (Southern Uto-Aztecan)

Pima

Sg (Sapano)

Miller 1967
Hale 1970

Pm (Pima), NT (Northern Tepemuan), ST (Southern Tepemuan)

Miller 1967

Yq (Yaqui)

Miller 1967

Ny (Nayo)

Miller 1967
Collard and Collard 1962

Op (Opata) and Tn (T'onishl)

Escalante 1964

Vr (Vashonc)

Miller 1967

Tr (Tarahumara)

Miller 1967
Hilton 1959

Cr (Colla)

Miller 1967
McKahan and McMahon 1959

Kp (Arichole)

Miller 1967

Sh, Az (Nahua, Nahua1, contemporary Aztec languages)

Miller 1967
Morf 1946b
Campbell 1973

CLAz (Classical Aztec)

Newman 1967
Bright 1965a
Svendsen and Sanchez 1966
Miller 1967

KT (Kiswe-Yampa)

Te (Teva)

Nichols, field notes (Nambe and Hano)
Hale 1967a, b (Santa Clara)
Spears 1959

Ta (Taos)

Trager 1946

Jc (Jemez)

Hale 1967a, b

Ki (Kiona)

Hale 1967a, b
E. Trager Johnson, p.o.

Papuanian

SSM (Southern Sierra Miwok)

Brodbent 1964

Cjyu (Chukchansi Yokuts)

Shipley as.
Appendix II. Nemic Sound Correspondences

This section tabulates for Proto-Nemic:

Initial consonants and the vowels; the
correspondences of identity

series one medials
series two medials
series three medials
series four medials
prespirated sonorants

the particular correspondences for the estab-
lishment of independent velar nasals and the
prespirated and presglottalized sonorants

Some of the forms from which the correspondences are
derived, including nearly all of the last group, are
illustrated in Appendix III.

Broad phonetic transcription is used for the
individual languages; on the charts for the medial
series ɗ is used for the semivowel [y]. Most of the
languages have several possible pronunciations of
series two. Where its occurrence is common, a single
variant [ɔ'] has been arbitrarily selected to simplify
this presentation, with no implication that it is

necessarily the only, or even the preferred, pronun-
ciation. Other pronunciations listed are the preferred
ones. Parentheses are used to set off variants pre-
dictable from palatalization or raising in the charts
for medial series.

The sporadic interchanges of i*i, i*i, *i*
*i* (and *i*, not illustrated here) have not been
treated in these charts. The correspondences listed
are the regular ones. The majority of the presglot-
talized sounds do not appear with sufficient regularity
to be charted. The sets included as evidence for the
prespirated or presglottalized sonorants were selected
by two criteria: the presence of *h or *ã and *i or *ã,
in at least two languages, or parallels with sets which
do have the required number of correspondences. Sets
with fewer were treated as "O.

A chart of the Oregon Northern Salute (ONS) sounds
is included to show the development of FH in that
dialect group.
ONP phonemic inventory

\[
\begin{array}{cccc}
p & t & c & k & k' & \?
p' & t' & c' & k' & k' & \?
\end{array}
\]

\[
\begin{array}{cccc}
\text{m} & n & \text{s} & j & q & w & h
\text{'m} & 'n & 's & 'j & 'q & 'w
\end{array}
\]

\[
\begin{array}{cccc}
\text{[hn]} & [hj] & [hq] & (hw)
\text{[?z]} & [n] & [j] & (?q) & (?w)
\end{array}
\]

\[
\begin{array}{cccc}
l & y & u &
\text{a} & \text{o}
\end{array}
\]

final feature ' accent '

Parenthesized sounds are uncommon; those in square brackets are rare.

Changes from early ON and PN:

**'C > 'C (series three merges into series two)

*al > i, a (usually retained as al across morpho-phonetic boundaries and when the result of recent medial consonant loss)

Rules for the central subdialect (CONF) (see Sec. II)

\[
\begin{array}{cccc}
\text{*j} & => & \text{'j}
\text{*w} & => & \text{'k'w}
\text{s} & => & \text{'s'}
k & => & \text{'k'}
\end{array}
\]

Proto-Nicaraguan. Parenthesized sounds are not secure:

\[
\begin{array}{cccc}
\text{(*)} \text{indicates that no examples are attested.}
\end{array}
\]

\[
\begin{array}{cccc}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\end{array}
\]

\[
\begin{array}{cccc}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\end{array}
\]

final features: \text{(*)} \text{(*)} \text{(*)} \text{(*)}

vowels: \text{*al} \text{*y} \text{*u}

\[
\begin{array}{cccc}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\end{array}
\]

\[
\begin{array}{cccc}
\text{*m} & \text{*n} & \text{*j} & \text{*q} & \text{*w}
\text{*m} & \text{*n} & \text{*j} & \text{*q} & \text{*w}
\text{--} & \text{--} & \text{*j} & \text{--} & \text{*w}
\text{*hn} & \text{*hn} & \text{*hn} & \text{*hn} & \text{*hn}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\end{array}
\]

\[
\begin{array}{cccc}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\text{(*)} & \text{(*)} & \text{(*)} & \text{(*)}
\end{array}
\]
Numic initial consonants.

\[
\begin{array}{cccc}
p & t & c & k \\
\bar{z} & \bar{n} & s & \bar{j} & \bar{w} (h) \\
\end{array}
\]

All Numic languages show identical correspondences for initials, except that some Sh h may correspond to w of other groups, as has been noted in the text. SP and some Sh dialects have \( \jmath \) for initial \( h \).

Numic vowels.

\[\begin{array}{ccc}
1 & y & u \\
(a1) & a & o \\
\end{array}\]

The regular correspondences are identical vowels in all languages, except for \( *a1 \), treated in II.2.1.
### Series two (') medials.

<table>
<thead>
<tr>
<th>PH</th>
<th>*p</th>
<th>*t</th>
<th>*c</th>
<th>*k</th>
<th>*kw</th>
<th>*s</th>
<th>*j</th>
<th>*w</th>
<th>*n</th>
<th>*q</th>
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<tbody>
<tr>
<td>cNP</td>
<td>p*</td>
<td>t*</td>
<td>c*</td>
<td>k* (3*)</td>
<td>k* w</td>
<td>s* (3*)</td>
<td>d*</td>
<td>k* w</td>
<td>m*</td>
<td>n*</td>
</tr>
<tr>
<td>wNP</td>
<td>p*</td>
<td>t*</td>
<td>c*</td>
<td>k*</td>
<td>k* w</td>
<td>s*</td>
<td>d*</td>
<td>s*</td>
<td>d*</td>
<td>m*</td>
</tr>
<tr>
<td>eNP</td>
<td>p*</td>
<td>t*</td>
<td>c*</td>
<td>k*</td>
<td>k* w</td>
<td>s*</td>
<td>t*</td>
<td>k* w</td>
<td>m*</td>
<td>n*</td>
</tr>
<tr>
<td>eSh</td>
<td>p*</td>
<td>t*</td>
<td>c* (3*)</td>
<td>k*</td>
<td>k* w</td>
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<td>j</td>
<td>w</td>
<td>m*</td>
<td>n*</td>
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<td>t*</td>
<td>c*</td>
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<td>k* w</td>
<td>s*</td>
<td>h*</td>
<td>q*</td>
<td>m*</td>
<td>n*</td>
</tr>
<tr>
<td>Ca</td>
<td>n'p</td>
<td>ht</td>
<td>hC</td>
<td>hK</td>
<td>hK w</td>
<td>s</td>
<td>j</td>
<td>w</td>
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<td>h*</td>
</tr>
<tr>
<td>eSh</td>
<td>p*</td>
<td>t*</td>
<td>c*</td>
<td>k*</td>
<td>k* w</td>
<td>s*</td>
<td>j</td>
<td>w</td>
<td>m*</td>
<td>n*</td>
</tr>
<tr>
<td>Sp</td>
<td>p*</td>
<td>t*</td>
<td>c* (3*)</td>
<td>k*</td>
<td>k* w</td>
<td>s* (3*)</td>
<td>j</td>
<td>w</td>
<td>m*</td>
<td>n*</td>
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<tr>
<td>sUt</td>
<td>p</td>
<td>t</td>
<td>c (3)</td>
<td>k</td>
<td>k* w</td>
<td>s</td>
<td>j</td>
<td>w</td>
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<td>k</td>
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<td>Ch</td>
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<td>t</td>
<td>c</td>
<td>k</td>
<td>k* w</td>
<td>s</td>
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<td>w</td>
<td>m</td>
<td>n</td>
</tr>
<tr>
<td>Ka</td>
<td>p</td>
<td>t</td>
<td>c (3)</td>
<td>k</td>
<td>k* w</td>
<td>s</td>
<td>j</td>
<td>w</td>
<td>m</td>
<td>n</td>
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### Series three (") medials.

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<th>PH</th>
<th>*p</th>
<th>*t</th>
<th>*c</th>
<th>*k</th>
<th>*kw</th>
<th>*s</th>
<th>*j</th>
<th>*w</th>
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<td>t*</td>
<td>c*</td>
<td>k*</td>
<td>k* w</td>
<td>t*</td>
<td>k* w</td>
<td></td>
</tr>
<tr>
<td>cNP</td>
<td>p*</td>
<td>t*</td>
<td>c*</td>
<td>k* (3*)</td>
<td>k* w</td>
<td>d*</td>
<td>k* w</td>
<td>d*</td>
</tr>
<tr>
<td>eNP</td>
<td>b*</td>
<td>d*</td>
<td>(3)</td>
<td>e*</td>
<td>e*</td>
<td>d*</td>
<td>g* w</td>
<td></td>
</tr>
<tr>
<td>wNP</td>
<td>p*</td>
<td>t*</td>
<td>c*</td>
<td>k*</td>
<td>k* w</td>
<td>t*</td>
<td>k* w</td>
<td>g*</td>
</tr>
</tbody>
</table>

| eSh | mb | nd | n (n*) | s3 | s3 w | j | w |
| neSh | mb | nd | n3 | s8 | s8 w | j | w |
| Fnd | mb | nd | n3 | s8 | s8 w | j | w |
| sUt | p | t | c | k | k* w | j | w |
| SP | mb | nd | no (n*) | qK | qK w | j | q* w |
| Ut | Ch | ap | nt | no | qK | qK w | j | w |
| Ka | (n)b | (n)d | 3 | s'y | s+y | j | w |
Series four (h) sounds: CN (and Fi?)

CN *hp *ht *hc *hk *hk *hs *hj *hw *hz *hn *hg

across morpheme boundaries:

ccSh f A(t) s'(s') x x' s'(s') j w hs hn

possible correspondences in the other languages:

[ Nt t h,k(?) ]

[ SN *p *t *k(?) ]

---

Peraspirated sonorants.

PN *hj(?) *hw(?) *hm *hn *hg

NP j hw, w m h,n h,q

Nn j hw, w w h (w)h

(e)nq,h

Pn j hw hm m h,h

Sh hj, j h hm,h h,n h,h

Gm h,j h hm,m h h n,n

Sut ñ, w w n,ñ n,ñ

SP ñ ñ, ù m n, q,

Ch h hw, m n q

Ka h,j hw,h ha hn h,n,hn
*ni (?)  

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<tr>
<th>NP</th>
<th>Kn</th>
<th>Ph</th>
<th>Sh</th>
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<th>Ut</th>
<th>SP</th>
<th>Ch</th>
<th>Ka</th>
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</thead>
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<tr>
<td><em>sink</em></td>
<td>*panju (?)</td>
<td>J</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>duck</em></td>
<td>*pyhy (?)</td>
<td>h,g</td>
<td>J</td>
<td>h,J</td>
<td>J</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>itch</em></td>
<td>*pipja (?)</td>
<td>hj</td>
<td>J</td>
<td>hj</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>find</em></td>
<td>*mahly (?)</td>
<td>J</td>
<td>g</td>
<td>h</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>six</em></td>
<td>*mahly-a (?)</td>
<td>J</td>
<td>(J2)</td>
<td>J</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

cf. *gopher*,  
Pj: *syly*  

(jincl. *porcupine*,  
pre-Pj *syly (?) | h | h |

**?)

*kangaroo rodent*,  

**w (?)  
(see also *w(?)*. )

*swallow*  
*ty?w* (?) | ?W | ?W | G | m, w | ?w, w | ? | ? | ? |

(*mouse* *pa?gal (?) | g | w, j | q | n, 'n, ? ? | g | ? | ? | ? | ? |

*man*  
*ta?ga-a (?) - *ta?gal (?) | g | 'n, 'k | n | ?w | q | ?w | q | ?w | ?n |

*snore*  
*na?w/* 'k|s|al (?) | ?k | w | 'k | 'k | q | w | ?w |

(see also *water bird spp.* *(pa)*ty?w/q(?)*. )
<table>
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<tr>
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<th>Kn</th>
<th>Pn</th>
<th>Sh</th>
<th>Ga</th>
<th>Ut</th>
<th>SP</th>
<th>Ch</th>
<th>Ka</th>
</tr>
</thead>
<tbody>
<tr>
<td>'cough, cold' *ohni</td>
<td>h</td>
<td>h</td>
<td>h</td>
<td>h</td>
<td>n, h</td>
<td>(k'm)</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'willow' *kahna</td>
<td>n</td>
<td>(n)</td>
<td>h</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>h</td>
<td>h</td>
<td>n</td>
</tr>
<tr>
<td>'house' *kahni (n)</td>
<td>n</td>
<td>(n)</td>
<td>h</td>
<td>h</td>
<td>h</td>
<td>n</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>'cradleboard' *kahna</td>
<td>n</td>
<td>(n)</td>
<td>h</td>
<td>h</td>
<td>h</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>h</td>
</tr>
<tr>
<td>'sugar, sweet' *phina</td>
<td>h</td>
<td>h</td>
<td>h</td>
<td>n</td>
<td>h</td>
<td>n</td>
<td>(l)</td>
<td>?</td>
<td>n</td>
</tr>
<tr>
<td>'skunk' *phinja</td>
<td>n</td>
<td>(n)</td>
<td>h, n</td>
<td>h, n</td>
<td>h</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>h</td>
</tr>
<tr>
<td>'flower sp.' *quint(q)</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'pot' SN *p'ay?/hni (not in Appendix III)</td>
<td>n</td>
<td>?</td>
<td>n</td>
<td>h</td>
<td>n</td>
<td></td>
<td></td>
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</tbody>
</table>

| *n (n) |    |    |    |    |    |    |    |    |    |
| 'quiver' *hukun (n) | n, n | h |    |    |    |    |    |    |    |
| 'eagle' *kw'ana *k'ina (n) | n | n, q | n, q | n | n | n | (l) | (n) | (n) |
"*g  (There has been considerable interchange among these two and the next two sets. See also 'waterbird app.', *(pa*ty... in Appendix III.)

<table>
<thead>
<tr>
<th>NP</th>
<th>Mn</th>
<th>Pn</th>
<th>Sh</th>
<th>Cm</th>
<th>Ut</th>
<th>SP</th>
<th>Ch</th>
<th>Ka</th>
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</thead>
<tbody>
<tr>
<td>'salt' *sogo</td>
<td>q</td>
<td>(n)</td>
<td>m</td>
<td>g</td>
<td>q</td>
<td>n</td>
<td>h</td>
<td>n</td>
</tr>
<tr>
<td>'lungs' *sogo</td>
<td>q</td>
<td>n</td>
<td>q</td>
<td>m</td>
<td>'n,&quot;k</td>
<td>m</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>'breath' *soga</td>
<td>q</td>
<td>w</td>
<td>m</td>
<td>w</td>
<td>w</td>
<td>$</td>
<td>$</td>
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<td>'aspen' *syga</td>
<td>(')g</td>
<td>'n,&quot;k</td>
<td>j</td>
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<tr>
<td>'thistle' *siga</td>
<td>&quot;k</td>
<td>$</td>
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<tr>
<td>'move, stir' *-jy'kyga</td>
<td>q</td>
<td>n</td>
<td>q</td>
<td></td>
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<tr>
<td>'break wind' *huag</td>
<td>q</td>
<td>$</td>
<td>$</td>
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"*g

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<th>NP</th>
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<th>Sh</th>
<th>Cm</th>
<th>Ut</th>
<th>SP</th>
<th>Ch</th>
<th>Ka</th>
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<tr>
<td>'chest' *j/ny'ga-</td>
<td>q</td>
<td>(n)</td>
<td>g</td>
<td>q</td>
<td>'n,&quot;k</td>
<td>n</td>
<td>q</td>
<td>$</td>
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<tr>
<td>'kick' *ta'ga</td>
<td>q</td>
<td>g</td>
<td>(q.v.)</td>
<td>q</td>
<td>n</td>
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<tr>
<td>'knee' *ta'ga</td>
<td>q</td>
<td>'n</td>
<td>q</td>
<td>'n,&quot;k</td>
<td>n</td>
<td>q</td>
<td>$</td>
<td>q</td>
</tr>
<tr>
<td>'ask' *typ'gV</td>
<td>q</td>
<td>w</td>
<td>q</td>
<td>'n,&quot;k</td>
<td>q</td>
<td>q</td>
<td>n</td>
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<tr>
<td>'younger brother' *ul *ka'ga</td>
<td>q</td>
<td>'n</td>
<td>(not in Appendix III)</td>
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<tr>
<td>'insect, ant' *n'gli - <em>a(</em>)ni</td>
<td>n</td>
<td>n</td>
<td>q</td>
<td>n</td>
<td>h</td>
<td>n</td>
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"*h

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<td>h</td>
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<td>h</td>
<td>hq</td>
<td>h</td>
<td>mn</td>
<td>h</td>
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<tr>
<td>'jay' *ahga</td>
<td>(')q</td>
<td>hq</td>
<td>(n?)</td>
<td>q</td>
<td>q</td>
<td></td>
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<tr>
<td>'baby' *ongha</td>
<td>q,h</td>
<td>w</td>
<td>h</td>
<td>w</td>
<td>hq</td>
<td>h</td>
<td>mn, hz</td>
<td>h</td>
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<tr>
<td>'roant' *jy'gha</td>
<td>q,</td>
<td>h</td>
<td>h, $</td>
<td>h</td>
<td>q</td>
<td>$</td>
<td>$</td>
<td>$</td>
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<tr>
<td>'porcupine' *jy'gy</td>
<td>(hg)</td>
<td>(h)</td>
<td>hq</td>
<td>mn</td>
<td>h</td>
<td>q</td>
<td>q</td>
<td></td>
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<tr>
<td>'anger, sean' *mahga</td>
<td>h</td>
<td>(n?)</td>
<td>q</td>
<td>q</td>
<td>h</td>
<td></td>
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<td>'basket(ry)' *ny'ga-1</td>
<td>h</td>
<td>h</td>
<td>q</td>
<td>h</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>'fox' *man'gi</td>
<td>(')q</td>
<td>(h?)</td>
<td>hq</td>
<td>hq</td>
<td>q</td>
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<tr>
<td>'eagle' SN *sy'gh</td>
<td>(not in Appendix III)</td>
<td>q</td>
<td>q</td>
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Appendix III. Proto-Nuritic Cognate Sets

Included here are the majority of the PN reconstructions cited in the text. The CV roots treated as instrumental prefixes (III.2) and the deixics (IV.1) have been omitted because they have been treated extensively in the text and elsewhere. Affixes involve special problems, and a treatment as detailed as that presented for the nom's (III.1) would be possible for each class. Specific affixes have been treated in II, IV, and V.1, and the tentative reconstructions presented there are not yet secure enough for inclusion in a listing such as the one below without considerable discussion and justification.

Because of the tremendous number of PN reconstructions now available, some selection had to be made to pare down the total number to be presented here. I have included a disproportionate number of color terms and biological labels because my interests in these areas led me to discover a disproportionate number of cognates. Since "u", "o", and the pre-aspirated and pre-glottalized consonants are rare and until now poorly explained, I have included as many sets for them as I could locate. Some of these will need major revision or be rejected as we learn more about Nuritic and UA. Next and regular sets have been
included for non-phonological reasons or because they provide minimal or near-minimal pairs with problematic forms. Some sets included are part of a wider network, and most have additional compounds and derivatives that have been omitted. The segmenting of compounds, inalienably possessed forms, nouns, and especially diminutives has been liberal where it simplifies the presentation without altering the reconstruction of the meaning or the phonological shape.

Notes to the sets.


Alternates listed with a slant line are always alphabetized with the first alternate; thus *e/o under *o and *p/w under *p.

Medial minimal pairs are alphabetized by final feature series as follows: plain, й, э, ы, ь.

Pre vocalic glottal stop is ignored in the alphabetization.

*a1-, *al- - *ku 'light color; dull; ash' (see also *ku, *kuks, II.1, III.2, V.1).

*al'k' - *ku'k' 'ashes, smoke, smoky color'; Ne 14k' 'brow, purple, dark', Sh al'k' 'smoky (color), ku'k' 'smoke' (see also Ph *k'hi), Ut al'k' 'ashes', sút al'k'py 'charcoal'.

*al'k'y - *ku'k'y 'ground squirrel sp'; Comp ku'k'y, WNP 1'k'y, WIP al'k'y, sút al'k'visi, probably also Ka al'wuci.

*al'pi - 'white paint, chalk, light-colored substance'; Np 1-pi, Sh al'pi, Ut api (also Ch, Ka).

*al'si - *ku'si 'silver, gray, light-colored, ash, dull'; Ne 1(4)si GAY, 'silver'; ku'si - 'gray-green (of plants), dust'; Cn al'si GAY, 'dull'; ku'si GAY, SP al'si 'light or dark gray'. (Also Kh, Sh, Pn, Ut, Ch, Ka)

*al'tu - *kutu 'ashes, coals, dirty'; Ne kutu(4)pa 'dust', WNP kutu'py 'coals'; súsh kutu'py 'ashes' (cf. tu'ko'py 'dirty'), súSh al'tu'py 'ashes', Sh, Pn kutu'si'py 'ashes', Cn al-tu'pi 'ashes, soiled, dirty'.

Other *ai: Sh aa- (7) 'gray'; Cn aiso 'light-colored, unripe' (cf. *kuiso); Sh al-puhi 'blue' (cf. *puli), Cn al-pu (cf. *puhi); Sp a-o'ko'py 'dried-up wood, dead log' (cf. *o'ko 'pine').
*aiko(*) 'tongue': NP 1Ko, Sh aiko(*), SP, Ch ako(*),
(also Kn, Ph, Cz, Ut, Ka).
*aikhu (*) 'pine cone hook or stick': wkn aihu 'acorn
whip', Ph aihnu (<*ahi*), Sh aikhu, Ka a'ku.
*aikyi see *ai- - *ku-.
*aikyi see *ai- - *ku.
*ai-qi see *ai- - *ku.
**aip/wo (?) 'much, many': NP 1wa, wkn awa, nekn awa-
SP, Ch apa-, Ka awa, of. UACS 275.
FUA 'ju-', of. Tb joowi. PH **iwa?
*ai-qi see *ai- - *ku-.
*aity 'bow > gun': NP aty, Sh aity - aiti, SP a[y
(see 11.2.1). Pre-FN **awity? Cf. UACS 53.
*a'ka RED: NP a'ca, wkn a'ca, a'ka, Sh a'ka, SP
a'ka (also Ph, Cz, Ch, Ka; see V.1). See also
*a'na 'body, rib': NP ana, Sh ana(-1), Ut, SP a[q]na-
(also Mn, Ph, Cz, Ch, Ka).
*a(*)ni - *a'yi- 'insect spp.': NP a(*)ni 'ant',
wkn ani 'large mosquito sp. (in mountains); nw, eCsh
ani- 'ant spp.', nwSh ahi- 'gnat', Sh, Cz ani- [fly,
quarryfly], Ph aqi- 'fly; louse', SP, Ch aqan- 'ant',
SP aqi- 'mosquito; flea (with diminutive)', Ch aqi-
'gnet', Ka ani- 'gnet, fruit fly'. UACS 4.
*a'na 'gnet, SP a[q]na, Sh, Cz
**a'na 'armspit, arm, wing, shoulder': NP ana 'armspit',
wkn shabi-qi 'armspit', nekn ahga 'shoulder', Sh, Cz
ahna 'armspit', Ph ahga 'armspit', SP, Ch ana-py 'ax',
Ut ana'v 'arm', Ka ana-ku'uta 'wing-charm, toy'.
UACS 465 (SUA -n-); see following set.
*a'na 'bluejay sp. ': NP ana 'pinon jay' [loan],
wkn a'ny 'bluebird, SP ana 'pinon jay', nekn ana'na 'pinon bird'
('looks like bluejay'), Ph ana'ki (?) 'a bird in
mountains', SP ana' 'pinon jay', ana'na 'pinon bird (blue)', Ch a[aga] [loan?] 'bluejay' (probably
related to set above).
*a'qi see *a(*)ni - *a'qi.
*a'qi/wo 'container': NP o'po 'big cooking basket',
Kn o'po 'cooking basket; any basket', Sh nwa, awy(-a)
'cup', co'po'po'po' (?) 'basket cap', Ph a'po 'cup,
vessel', SP afe'el 'burden basket, gathering basket',
suf aqfe'y [y] 'dish, bowl, cup, container'. Cf.
Ls ap-ma-l 'type of basin-shaped basket' (<sp>-
6).
Cf. *p/wo, *ty'na (1), *ty'na-l (1).
*a'ta male kin term, esp. 'uncle': NP statael
'brother-in-law' (cf. *jani), eCSh a[ata](-1) 'mother's
brother; sister's child (m. sp.)', Ka ata-tiwa
'wife's brother, sister's husband (m. sp.)' (also in
Kn, Ph, other Sh, Cz). Probably same as next set.
*a'atu 'raven, crow': NP ata, wi'ata; nekn wi'ata
'true crow', SP ata' (also in Kh, Ka). UACS 111.
*ahta (?) 'jaw': NP at-e-, Kn, Ph, neSh ata-py, ec,
wkn shatah-py(-a) 'jaw', eCSh ahta- (in compounds),
Cz [antasy], SN a'ta. Cf. TD al-han-(t) 'jawbone' (cf. *kana); Tass ṣād-enēma 'jaw'.

*a wa* 'horn': NP a-wa-, Xn a-wa, Sh a-wa, Pn a-wa*, SN a-wa*.

UACS 235.

*lca* - 'i'sa* 'to lie, trick, deceive; coyote, wolf'

(see II.2.5, V.2): NP lca* 'coyote', l'sa* 'wolf';

l'sa* 'to tell a lie'; wfn lca* 'coyote' (obscene term), l'sa* 'coyote' (polite term), Sh lca'py 'coyote', l'sa* 'a lie', eSh lca* 'to fool, to trick',

nSh l'sa* 'wolf'. (Also Pn, other Sh, Cm.)

*ika* 'enter (sp.)': NP ik,i, nSh ik,i*-, SP yka* (also

Xn, Pn, other Sh, Cm, Ka).  

*l'sa* see *lca* - 'i'sa*.

*cha* YELLOW: wī cha-, Sh cha- (occasionally recorded

oza-), SP, Ch osa (also Cm, Ut). UACS 477.

*onni* (t) 'cough, cold': wī, nSh, Pn oni, eSh, Cm, 

Ka onni, SP o'kmi (reflexed). Cf. 'sneeze',

*ham*w'k'mi'sa-l.*

*oqa* 'salt': NP, Pn, eSh oqa-, eSh, Cm, eNPO [loan]

oma-, SN owa-. Some occurrences in Pn and Sh recorded

as- [q'-] with o'maa. UACS 359. Some languages also

suggest *uga*.

*onka* 'baby, infant' (some languages also point to

*onka*; NP oka- 'older baby', oha- 'newborn baby',

wfn awa- (also cry of baby), Pn owa-; Cm, n, nSh

oona-, eSh ohmaa- (old word), nSh ohaa, SP yga-

'baby', oha- 'young of animals'. Ch yga'a, Ka owa-

(also cry). In NP, Pn, nSh, Cm, and Ka this form

is also used for the waterbaby or rock spirit, in

the first four with prefix meaning 'water';

Pn *pa-* q.v.

*onpl* (t) 'mesquite': Pn onpl-, Cm, Ka o'pl(t)-.

*oty*(t) BROWN: NP o'ty- [loan]; Sh o'ty-, Pn,

SN o'to (also Cm); SN o'pi 'red ochre' is probably

also related to this set. (See V.1.)

*yk'k* 'to smell' (tr.): NP yk*1*, 1k*1*, Pn ak*1*, eSh

yk*1*, Sh uk*1* (also Pn, other Sh, Cm). UACS 390.

*ci-a* 'rise': NP cis-, Sh ci(?a)(a)-, SP ci(a)-

(also Pn, Ka). (See III.2.)

*chi* see *khi* - 'cini.'

*ci'a* 'thistle': Sh cy'ka*-, Ka čili; cf. It čili'a-.

* cukih* - 'cukih (?!) 'small bird sp.; eSh
ty=cukih(-a) 'wren', eSh, nSh paka=cu'kli(-a) 'black-
bird', nSh ty=pi-ty=cosh 'wrentit' and/or 'dipper',
Pn cukih 'wren', SP ṭyky' pu- 'bee-bird' [king-
bird], Cm paka=cu'kli 'blackbird', taga-co'k(ali)
'verdin'; cf. Lz čirč'=sa-1 'kingbird'.

*cu(?)pahni-py* (t) 'yellow composite (plant sp.); 
Pn co'pahni-py 'nudhekia sp.', Cm cupahi-py 'yerba
del manso', Ka cupahi-py 'yerba mansa, Asenopia sp.
[probably loaned in the southern area].

*ha(?)ni 'to do, make, fix': NP ha(?)ni, Pn, Sh
ha'nih, Ch hani, Ka -hani (also SF, Ut).

*ha?q- (?) 'beerer': NP ha?q-2sa, eSh anil(-a),
(Pw) ha?-ni; nSh anil(a); Ch ha?nii.

'hap/wy' 'yellow, gray, tan': Fm hapy- 'orange',
yellow orange', Ch hapay- 'bright yellow', hywy-
pastel yellow', hnu- 'gray, bleached bone color',
Ka hapy(-) - YELLOW, hoo(-) 'tan' (also FSh, Ut, SP).

*ha?w/'mi'sa-1 'sneeze' (such reformed by onomatopoeia): NP [ha?k'wissai], [?awisai], Kik
ha?k'wissai(1), Sh o?k'wissai-, Pm uk'cwissai, SP
[ak'wiss1], Ka ha?wsi (YVH 711, UACS 396; see also
'cold', 'chill(-)').

*hipl 'to drink': NP, Mn, Ch, Ka hipl; Sh, Pm, Ch
hipl; SP, Ut ipi. UACS 141.

*hu- 'to flow': Wm hu(-u), Ch humu- 'creek, river,
etc.; valley, canyon', SP ui 'canyon, gully', Ka,
Ch hu(-w1) 'canyon' (see also *hu-pa).

*hu'oi- 'wii-ci- see *wii-ci- - *hu'oi.

*hu'uk'=na (?) 'quiver (for arrows)' [lit. 'arrow'-
sack', see *ku-na 'sack']: NP huk'=na, Sh
hu'ukuna (also 'utter'), SP uk'una, Ch hu'uk'=na, Ka
hu'uk'=na (note that the glottal stop does not
occur in *ku-na, q.v.).

*huna(?) 'badger': NP, Pm, Ch, Ka huna-, Sh huna(1),
SP yna(-). UACS 19.

*hqwy 'flatulence; odor of skunk': NP hqwy, SP uu-'

Ch hu(2)wa, Ka hu(?)u'- UACS 391.

*hu-pa 'soup, broth' (see also *hu-): WN, CN, Ch
hu-pa-, SP ypa-.

*jah- *tahi 'in-law' (meanings vary among cognate
forms, see grammars and dictionaries of the
individual languages; only NP forms are completely
glossed here): NP jah- 'parent-in-law', tai-
ters of direct co-address by parents-in-law, Mn
jah-, tah-, eSh jai-, tai-, Pm na?i'-, ta'ui-',
Ka jahai, tai=i (-j- form also in SP, Ut). Pos-
sibly also second element of NP ata'oi 'brother-in-
law' (cf. *ata-), on ata'oihi, nSh ata'oihi, also
referring to in-laws.

*ju- *(h)i- 'soft, gentle, young'; affective term
(for possibly the same alternation see 'much, many',
*iwa, and other sets with initial *ju-); cf. II.2.3.

*ju-a - *(h)iwa, affective term: NP iwa- 'fawn',
Mn jowa- 'bunny, baby rabbit', Sh alwa 'fawn', SP
[iwa] 'relative', Ch hiwa 'parent, doll', Ka jowa-,
ju'a- 'doll', hiwa 'parent'.

*juka'(-)ka - *(h)iwo(?)ka 'soft, easy': NP
joka'ka 'soft', i wo(ki, 1-aka 'easy', Mn aliaka 'soft',
Ch jy?iwa- 'soft' (probably also related to
Pm, Sh jo'co- 'soft' and similar forms; see also
*juka, *soka).

*ju-a(i) 'wara': NP ju'ia, Mn juwi, Sh ju'ah, SP
Juu’tui, Ju’ata (also Cn, Ph): If NP Ku’oy(*)gi ‘to be hot weather’, SP Ju’al ‘warm’ (of water) are related, a reconstruction *ju’gi might also account for the WN forms (cf. Hp Joqi, UACS 453).

Juji ‘fat, grease, oil’ (see V.2): Wi, CN, Ch, Ka

Juji, Ka Juji, SP, Ut, Cs Juji; see also "pi’jumu.


*Ji/ny’ga ‘chest’: NP, e/nwsh ny’ga-, ecSh j/ny’ka-, n,nwsh ny’na-, ecSh ny’na-, Cs ny’na-, Ph, Ch ny’ga-, Ut (PW) ny’a-, ji’ga.

*Ji’ga ‘rodent spp.’ (forms referring to smaller rodents have one or more diminutive affixes); ONP ji’-a ‘mole, gopher’, SWNP ja’-a ‘mole’, WNNP Jiya’-a ‘gopher’, On jaha ‘large mountain groundhog’ (no diminutive), Ph jya’-a ‘gopher’, Jiya’-a ‘pika’, n,nwSh jya’-a ‘gopher’, ec,nwSh jaha- ‘groundhog’ (no dim.), SP ja’-a- ‘groundhog’, Ka pu’-ja’-a ‘mole’; cf. Le Joevi-č ‘meadow mouse’, Hp [yiq’ya] ‘ground squirrel’ (see also following set).

*Ji’ga ‘porcupine’ (see V.2 and set above): NP Ji’goy [loan], Sh Ji’gny’, Cs Ji’gny, Ph ji’gik, Ut

Jiu’-*, SF Ji’goy’-*, ji’goy’-, Ch Ji’goy, Ut (PW) ji’-, ji’-.


*Jyi’wi (?) ‘to swallow’: Wi Ji’kwy, ecSh Jywi’-, neSh Juwi’-, ecSh Jywi’-; Ph Juqi (also ‘suckle’), Ch Ju’wi?’-*, Cs Ji’wi?’-*. UACS 425.

*Ka’niy ‘Jackrabbit’: Wi, SP Ka’ni; Ph, Sh Ka’ni (also Ch, Ka).

*Kana- ‘chin’: (NP Kanu, but see below) Mn Kanu ‘beard, whiskers’ (kawyha ‘chin’, cf. NP), SP Ka’ni- ‘chin’, Ch Kanu-*, UACS 813. PUA *Kaga, cf. Tb ka’la- in his chin, al-han(t) ‘jawbone’ (*ata-kaga-t), Kaga-a ‘facial hair’ (Pb kaan ‘cheek’, cf. ‘wi’).

*Ka’na ‘willow sp.’ (not attested in Wi, Ch?): SP ka’na, Ch Kanu, Ka kana; cf. Tb haal-1, Hp qahawi, Ca qaanki-1 (UACS 461).

*Kahni ‘house’: NP ka(a)ni (rare) [loan], Ch, Ka Kahni, SP ka’ni, Ch, Ut kani. UACS 239, PUA *kali.

*Ka’ni ‘rat’: NP ka’ni ‘rat’, tykawa ‘rock rat, wood rat’, Mn, Ph kana, Sh Kaa’, SP ka’ni (also in Cs, Ut, Ch, Ka); UACS 346.

*Ka’wi (?) ‘mountain’: NP, SP, Ch Ka’-pa, Ut ka’-py, Ka kaal-pi; UACS 289, PUA *kaw; see II.2.3.
*kahi - *oeihi (??) "elbow": NP ma-oehi, Ph, Mn ma-kii-, Sh, SN kii'-' see III.2.
*kohi 'belly, intestine; be pregnant': WN, Ca kohi;
Sh kohai; Pn kot.
*koai(-ty) 'shell, shellfish' (cf. *kaju-, etc.);
NP ko'o-, koati- in '[white] shell [necklace]';
koja 'crayfish'; Pn kojote-; dial. kmjota, kmojty
'toothless mussel, clam'; cf. Tb kojoo-t 'turtle';
UACS 446.
*Kohno 'cradleboard': NP -kono, WN -ko'no' - 'cradleboard [hood]', CN, Ka kohno, SF ko'no, Ch kono.
*Kupa-1 'face': NP, SP, Ut, Ch kopa, Ch, Mn kopai;
NP kopi 'in front'; nswH kopi(-a), Ka kopai- (from
pre-Pi **ku-pa-1), see III.2; UACS 160, 190.
*Ku... see also *ai - *ku; *ki...*
*kuca 'dust, ash': GAAY; NP ku'ca-pi 'larvae of
Ephestia hians' (a fly that builds a grayish bubble
nest on saline lakes), WN ku'ca, id. [loan], Sh, Pn
ku'ca-', Sh kuca- (see V.2).
*Kuhi see *kihi - *kahi
*kuji-1 - *kiwi 'fish sp., usually sucker': NP kujui
'sucker', ko'ja 'a Nevada fish', koja 'crayfish',
nswH k'wihi(-a) 'cui-ui sucker', SP kw'iu-'; tribe
name [(1) 'water-people' ]. UACS 173, PUA *kyju -
*kuju; see *kojo.

*Kuha 'male, husband': NP, Ca, Ch kuwa-, Mn kuwu,
CN, Ka kuwa-, Sh kuha, SP ku'na (UACS 504). Other
NUA indicates *-q-, PUA *kuapa.
*Kumu 'fire, firewood': WN, CN, Ka kuna (NP 'firewood,
wood'), SP ku'na UACS 170b (cf. *ku-, III.2, *ku'yo,
*ai - *ku-).
*Ku-ka 'sack, bag': SP ku'na, Ch, Ka kuna; UACS 19
(see *ku-ku'na). Other languages use forms with a
*ku element: NP ma-ku'na - ma-ko'o 'sack, bag'.
*Kusai see *ai - *ku-
*Ku'a 'heat, fire; tinder, match' (see *ai - *ku-
*so-an(a), *so'tma(-a)): NP ku'asa - ko'aso, Sh,
cesH ko'as....
*Kyama '(sharp) edge' ris, border, side': NP, CN
kyma, Sh kyma(-a), SP ky'yma(-a), da kuna-
*Ky'namai 'other, another, different': WN, SF
ky'na-, Sh ky'naal, Ch ky'na-, Ka kyai.
*Kwahi- 'back (of body)': nswH kw'ahi-?, nswH, CN kw'ahi-. Pn kw'ai-
*Kwai 'tail': NP, CN, SN kwa'iu, wn kwa'iu, esH
kw'ai(-a). UACS 430.
*Kwa'su(') 'dress, shirt; tanned hide (clothing)';
WN kwa'sy, CN, Ch, Ka kwasu(').
*Kwa'sy 'ripe, cooked': WN, CN, SP, Ch kwa'sy; UACS 152.
*K'ini- - *kahi- 'smoke': NP, CN, SF, Ut k'mi-',
wn ku'kahi-', kuhita 'to smoke out something', esH
(ku)k'ωl'-, Ch, Ka k'w1l'- (see also *a1- - *ku-).

*k'ωll(a) - *k'ωll(a) (?= 'eagle, large bird'; WN, nsw k'ωll(a), eKH, En k'ωll(a). nsw k'ωll(a), eKH, En k'ωll(a). All NA languages all show k'ωll(a), which may or may not be cognate to the WN-CN forms. Both occur elsewhere in UA.) UACS 186.

*me1 - *maya - *moy(o)(-1) 'hand'; NP me1, Ma maja; other Nuni mo, e.g. nswH mo, mo1 (from *ma-; see III.2); UACS 215.

*mak(')sua (?= 'cricket'; NP m'ak(')sua, m(')sua, eKH m'ak(')sua(a), nswH m'ak(')sua(a) (probably a loan, but direction uncertain; limited distribution).

*mahja (?) 'to find, discover'; NP maja, SP nma1-.

Ch maha, Kh maha

*mahja(a) (?= 'to mix'; NP mahja (WN maja 'to do, make, fix' may belong with *ma- = maja instead). Sh -majaa ['tobacco-mix']; CN -mahaa ['food-mix > spices', Pn ty-mahaa? 'baking powder'.

*manika 'five'; NP, nSH manika, WN, Pn, Ut, Ch, Ka manika, eKH manika, CN manika, SP ma'ni1.

*mo1 see *ma1 - *maya - *moy(o)(i).

*mupi 'nose'; WN, SP mupi-; Pn, Sh mupi- (also Cn, Ut, Ch, Ka); UACS 162b.

*myll(') 'soon; month'; NP myl(h)a', WN, eKH myl'a, SP myl'a', Ka myl(y)a- (also other Sh, Pn, Ut, Ch); UACS 286.

*ma1y 'gopher'; WN, SP, Ch, Ka ma1y; cf. Sh ma1y. Sr mi1ya- [loan], Proto-Opum *myll'ya 'gopher'; UACS 202 (also possibly WN myll', SSK myll'-, HP [mll'ya], all *porcupine', UACS 329); cf. *jylya', *jylyr'.

*nak'a-1 'ear, hear, listen'; NP na1ka, Sh na1ka 'hear', na1ka 'ear' (also KN, Cn, Ut, Ch, Ka), SP na1ka-, Pn na1ka 'hear', na1ka 'ear'; UACS 188.

*naka 'anger, angry, be mean'; PF na 'to speak ill of, revile', SP, Ch naka', Ka naka.

*na'pa1 'foot' eKH na'pal 'foot', na'py1(a) 'shoe', SP, Ch na'pa (also other Sh, Pn, Ut, Ch); UACS 188.

*natya1(a) 'medicine'; NP natya1(a), nKH natiya1(a), nKH natiya1(a), WN natiya1(a)'-, eKH natiya1(a)', -a, nSH natiya1(a)-, Cn natiya1(a)-, Pn natiya1(a)-. Note contraction of i to e in nSH, Cn, SP, CH forms show metathesis: SP pu1tu1'ki1-, CN na1tu1'ki1 'charu', Ka na1tu1'ki1; and all of the SH forms have a different initial and final element.

*nak1 (?) 'apron, dress'; NP na1'k1, SP na1'k1, Ch, Kh naki.

*noa 'fetus, egg; pregnant; placenta; etc.'; NP noa 'be pregnant', Sh noa- 'be pregnant', SP noa- 'fetus, embryo' (also KN, Pn, Cn, Ut, SP, Ka).
"noho 'egg, fetus': NP noho 'egg, testicles'.

"no-1 - 'nojo 'egg, testicle; womb': Mn, Pn noho 'egg', ecSh nojo(1) 'egg, testicle', no?1 - 'womb';
Cz no?1 'egg', nojo 'egg, testicle'.
The Ch form could fit any of the sets above.

UACS 154.

"no(')ko 'to bake, roast': NP noho, wkn-noko, Sh no'ko (also Pn, Cz); cf. Tb noh-('<')t - ?onoh 'to roast in the ground'.

"no-pi('<') 'windbreak, shelter, house; to make a windbreak, etc.': NP, Mn, SP, Ch, Ka no-pi('<');

UACS 154.

"ny('<')zy 'person; speaker of a Nusic language': NP ny('<')zy, wkn ny'<','y, ecSh ny'yi(-1), nWSh ny'my
(ny'<1) - ny'yi (ny'yi), Cz ny'yi, Mn ny'zi (ny'zi), Ut, SP ny<(')y>'y-; Ch, Ka ny'yi; UACS 265b.

"ny'ya 'body': NP, Pn ny'ya (also ecSh, SP, Ch, Ka;
Wkn uses ny'<','y, q.v. above); UACS 265b.

"ny'ya 'liver': NP, Ch, Pn ny'ya; Mn, Ka ny'ya; Sh, Ch ny'ya' (also SP, Ut); UACS 265.

"ny'ya- see 'j/ny'ya-'.

"ny'ya-1 'to make baskets (esp. coiled baskets)';
Wkn ny'ya, Pn ny'ya; Cz ny'ya-, Ka na'lay.

"pa(-1) - 'peja 'water' (free form only; cf. III.2);

UACS 154.

NP, Cz, Pn, SP pas, Mn pa'ja, ecSh pan(pi), Ka po?1o
(also in other Sh, Pn, Ut, Ch); UACS 455.

"pa'ly 'daughter': NP pa'ly, ecSh pa'ly" (pa'ly1), SP
pa'ly (see II.2.1).

"pa'ly 'three': Wn, nSh, Ch pa'ly-, ecSh pa'lah", SP
pa'ly, Ka pa'lah- (also in other Sh, Ch, Pn, Ut).

UACS 510; cf. Tac's poju.

"pa'ly1 (1) 'mink': NP pa'ju(na?apa), ecSh pa'ju(na?apa).

"pa'ly1 (1) 'kangaroo rat/mouse': NP pa'li?yu, ecSh

UACS 292.

"pa'ka - 'pe'ka 'to kill (ng. obj.)': Wn pa'ka, ecSh
pa'ka, Cz pa'ka), Pn pa'ka, Sw pa'ka; UACS 244.

"pa'ku <1> 'tobacco' [lean]: NP, nSh, Cz pa'ku; p1a<1> 'to smoke': Mn pa'ku, nWSh p1a<1>u, ecSh
p1a<1>u, Pn p1a<1>u.

"pa<1>ty 'water bird sp.': Cz NP
(p1a<1>)ty<1>ci(1)(1), variously glossed 'dipper',
'killdeer', 'snipe'; (without pa<1>) 'small gray bird
living in rocks'; WkNp pa'gy<1>ci- 'snipe (?), water
bird sp.'; Wkn pa'gy<1>ci(1); 'dipper', ecSh pa'tu<1>yu-
,nSw pa'tu<1>yu(1-)'sanipiper sp.' (Not listed in
Appendix II; see set below.)

"pa<1>ty<1>gliu 'sanipiper sp., killdeer', nWSh
pa'ty<1>gliu (1) 'killdeer' (lit. 'water-friend'), nWSh
pa'twili(-a) 'killdeer', tywili id., Cn tywil id.
A dubious set; see also the preceding group. The CN words resemble the CN word for 'friend', so do the SN forms not listed here. The latter can be related to CN, but not to Wi. Not listed in Appendix II.
*panwa (f) 'aunt', usually 'father's sister': Wi, Pn panha, Sn, Ch, Ka pana, SP paa. UACS 502.
*pawwi (f) 'fish': Np, Wm pa'kwi, Nkem, Pm pa'gwi, Sn pa'kwi (also Ck). The SN languages reflect SN *pakyu: SP pakyu, others pakyu-. UACS 173. Cf.
*pawiltoko 'taipole' ('fish'-'grandfather?'): Np, Sn pawiltoko, Wm pa'wiltoko.
*pawylpi 'blood': Np, Sh, Cn, Ka pyylpi, Wm, Ut pa'ylpi, Pm pa'ylpi, SP, Ch pa'ylpi. All the languages have other words, e.g. 'bleed', etc., based on this form. UACS 455.
*pl-a 'mother; woman; female' (<'suckler?): Wi, Cn, SN pl-; some languages showing an intrusive optional * (Sn, Sl) or ? (Wi, Sl). Other interesting forms include esSh pl(a), Wm pl(a). The SN languages show a related form, possibly SN *plilha 'wife, spouse': SP pl[?], Sl, Ch pliva, Ka plilha. Cf. PUA *pi, UACS 58, 'breast'.
*plasa 'good, pretty, etc.': NP plasa; plasa 'to be beautiful'; Ka pl'saa.
*plasa 'red ochre, pigment; to paint': NP plasa; plasa 'to be beautiful'; Wi, Cn pl'oa, esSh pica.
*pilja (f) 'to itch'; esSh pilja, Pm pilja-, Ka pilja.
*piljuwu (f) 'buttocks'; esSh piljuwu, Sn piljuwu; Pm piljuwu 'amus'; SP piljuwu (f -- vocalism deviant). See *juwu; UACS 17.
*pinki (f) (*pl(?)ki) 'soft, moist body product; rotten'; Wi -pik in 'brains', 'musus'; Wi pliki 'rotten', SN pl'ki(-'). Cf. CN pl'si.
*pinha 'sweet; a sweet substance (e.g. honey, sugar)': Wi, neSh, Cn, Ka pinha; CN pinea(a); nesh, Pm pinha(a), Ut pija. UACS 32.
*pilwy (f) 'heart'; Wi pilwy; esSh pilwy(-), pliwi-; nesh pine(-a); nesh piny (pliwi), Cn plwy, SP plwy, nesh pine(-a); Sp, Ch pllya-; Ch plwy, Ka plwy-.
*pel (1) *pojo 'road, trail, path' (only free forms listed here): NP, SP pojo, Pm pojo, esSh po(?)al (also other SN, Pm, Cn, Ut, Cn, Ka); UACS 350.
*pwoke (f) 'big, thick'; Wi woko; esSh pono-; woota 'tree trunk, waist'; Wi woko (also SP, Ut, Cn). UACS 39; see 11.2.6.
*pomna 'skunk': ONp pogila, WSN pomila, Wm pomila, Wm pomila, esSh, Cn pomila, neSh, Pm, Ka pomila, nesh pomila, pomila, SP pomila(ga), Ut pumila. UACS 292, 291.
*p/wono (†) 'large container, e.g. pack basket' (see also *ai/tau/wo); WN wono, eSh woste (†) 'large water basket', Fn pono- 'jug, basket' (with diminutive), Ch -po(ʔ)no postposed to nouns of basket types (additional forms in W, Pn, SP, Ch).

*puki- 'gali: GREEN, green, blue'; WN, Ka puki, Pn.
Sh pu(ʔ)i, Ch pukì (see V.1). Relevant forms include
wesh puki- 'blue', puki- 'green'; n-esSh al-puki 'blue', Ca alpî, alpî Gilew, but puki- in 'leaf, grass, money'.

*pui(ʔ)i 'to see'; WN, CN pui(ʔ)i, NP pui(ʔ)i, SH

*pui(ʔ)i (≈ pu(ʔ)i) 'eye' (also frequently
'seed', 'berry', 'ace', 'louse', etc.; see II.2); NP
pu(ʔ)i 'eye, seed, knot on a stick', pu(ʔ)i 'eye, seed,
berry', pu(ʔ)i 'ace', pu(ʔ)i 'louse'; esSh
pu(ʔ)i 'eye', pu(ʔ)i 'ace', po(ʔ)i- 'louse'
(psalm 'seed, pit'); SP pu(ʔ)i- 'eye, seed'; (also Mn,
other Sh, Ca, Pn, Ut, Ch, Ka). UACS 160.

*pui(ʔ)ku 'pet dog, horse'; NP pui(ʔ)ku; neñ; Sh, Pn, SP,
Ca pui(ʔ)ku (also wcx, Ca, Ut, Ka). UACS 153.

*pui(ʔ)i (†) 'mouse'; NP, eSh pui(ʔ)i- (also recorded:
-o-), wcx puwi-, eSh pui(ʔ)i-; neñ po(ʔ)i-; Pn
po(ʔ)i-; Ca, puwi, eSh puwi-, SP, Ut puwi-;
Ch puwi, Ka puwi- (other dialect recordings for several of the
above). UACS 292.

*py(h) 'hair, fur, feathers' skin, covering' (ab-
 briefed form used in many compounds; only the free
form is listed here); WN, CN, SP py(h).

*py(h) (†) 'duck'; NP py(h) 'naa', eSh py(h), py(y) 'naa';
M, esSh, Pn py(y); n-esSh py(y); n-esSh py(y)'.
Shh shows a different form, e.g. SP py(y). Cf. UACS 153.
(NP and eSh forms may have been influenced by 'hair',
etc., preceding set.)

*saka- 'tules; marsh; Scirpus spp.';

*saka- > *saka 'coot, mudhen' (Pulica americana)
*saka- 'boat' (made from tule balsa)

NP saka- 'tules, etc.; saka' 'coot'; saka- 'boat';
eSh saka- 'tules', saka- 'coot', saka- 'boat'; Ka saka- 'tules', saka- 'coot'. UACS
329, PUA *saka 'popcorn' (see Nichols 1971), cf. Lg
saki- (g) 'grain'; Lg sa- 'coot. To sa- 'mud-
hen'; To *sak-? 'tules', Proto-Capan 'sylila 'reed'.

*saka- - *sawa GREEN, 'green, blue', BLUE: wcx sa-k'a
BLUE, eSh sa-k'a GREEN, 'swim on water'; SP sa-k'a
GREEN, Ka sa-k'a - sawa BLUE (also Ut, Ch). See also
PUA *sawa, etc. UACS 50, 255, 432, 479.

*sawa- 'pitch, gum; sticky, chewy'; NP, CN sawa-,
SP sawa-; Ut, Ch, Ka sawa-'. NUA *s*(')na, SUA
*sawa; UACS 322.

*sawa- 'stomach, belly'; all Nucic sawa-; UACS 416.

*sawa 'see; *saka- 'sawa.'
*sawa(\') 'to cook, boil': NP, SN sa?u(\'), Sh, Cn saa(\'), Ph saawkh\' UACS 352 (230?).
*sawa(-1) 'raw, unripe' (\'green\?): Mn saawa, Sh, SP saa\'\', Ph sa[gu\']\', Ch saa- (in compound meaning 'virgin'). UACS 342.
*saawa (?) (- *sa\'a\') 'sage' (or 'evergreen?'); NP saawa-, SP sa[gu\']\', SH saawa-\', Ka saaha/o-, sa/cho- (cf. SDX sawhampi- 'sagebrush', also in other California languages); possibly also Mn sa\'k\'awa 'fir' (cf. Washa dawa 'white fir?'); Ph, Sh saasa- [sa\'a\'] 'juniper'; NP salavi 'spruce, fir'. UACS 235.
*sawl 'to melt, drip': NP so(\?), Sh sa\'l-, Ph sawl, SP sa?al, Ch sa\'. UACS 232.
*sacho 'cottonwood; tree (deciduous)'; NP so(h)\', Cn soho-, SN soo-\'; UACS 104.
*soko 'earth, usually wet earth' > *ordinary, common*: NP sokoh\', Cn soko- 'earth, ground, deep earth; ordinary, common'; old-style: on foot?; Cn soko- 'land, earth, county; on foot?; SP sokoh\' 'dirt, moist earth; moist'. UACS 297 (see also NP suko- 'red-brown; robin', etc.).
*so\'as(-1) (?) 'to spread out; blanket, rug?': NP (?) so\'as?i 'baby bison' (gloss insecure); Cn so\'als\' 'tanned buffalo hide', soxa 'fold back?'; SP, Ch, Ka sa\'ama-\', Ut, Ch sama (see next set).
*soni(a) 'hay, grass, tinder; bed or floor covering': NP sona- 'rug, floor, carpet, sidewalk, mat, sock, bearskin robe, bear'; WKn soma 'hay', sonas 'to spread out'; CN soni- 'hay, grass, blanket, mattress, match, pad, socks?'; SP so\'ni 'tinter'; cf. Tb sog-o-'little blanket' (see preceding set).
*sogo-1 'lungs': NP, Ph so-go, Hn sono, GoSh so\'xa(-1), so\'no(-1); nSh soho\'-\', nSh, Cn, Ph sozo [-q\'], SP, Ch, Kh so\'; Ut say\'i; see also *sogah-. UACS 272.
*sogah\' 'to breathe': NP so\'uga\'\', Hn, Sh, Cn, Ch so\'awa\', Ph suua\' [-q\'], SP au[w]a\'-, Ka soo\'-, Ut say\'i-.
*syga- 'aspen, quaking aspen': NP sy\'ga\'-\', Sh sy\'ka\', sy\'ma, SP Ayja\'- (possibly also Ph, Cn, Ka).
*taka- 'summer': WK, CH, Ut, SP, Ka ta?ma; UACS 423\'; (see also *ta-pa(1), *ta?ma\'); cf. Proto-Cupan *t\'a\'-pa 'springtime'.
*tahi see *jahi - *tahi.
*tama(\') 'tooth, teeth': NP, CH tama, Ph, Sh tama\'; SP ta[gu\']\'\' (also Hn, Ut, Ch, Ka). UACS 442.
*tama- 'spring (season)\': NP, Ut, Ch tama, Mn tama-, Ch, Ka tama\', SP ta?ma; UACS 423 (see also *ta-pa(1), *ta?ma\'); cf. Proto-Cupan *t\'a\'-pa 'summer', *t\'a\'- 'autumn; thunder', Hn talay\'akw 'beginning to be summer'.
*ta?mu 'sinew, thread': WK, Ph, Sh, SP ta\'mu; Ch, Ut, Ch, Ka tamu. UACS 377.
*ta\'a 'kick': NP ta\'a, nSh ta\'mi\'ku\'titi(h) (with
metathesis), Pn tagu'mu'ti, SP ta(a)lg'a, Ka tana.
UACS 243 (see *ta-, III.2; and following set).
*ta'ga(-) 'knee, kneel': NN, Pn, Ut, SP, Ch taqa-, wNn, nNw, ecSh ta'na-, ecSh ta'ka-, Cz, Ka tana-, Ut ta-. UACS 222, 245 (see *ta-, III.2; and preceding set).
*ta'gu-a (?) - *ta'wa (?) 'man': (no WN cognate)
ecSh ta'k'na (cf. taik'nahit 'boss, owner, employer'), ecSh ta'na-, Cz ta'na-', Pn tagu, Ut ta[q'wa], Ut, Ch ta'wa, SP ta[q'wa] (redup. ta'ta[q'wa]), Ka ta'ni-. UACS 273.
*tapa- 'chipmunk or squirrel spp.': NP (woked)tap'a ('tree squirrel'): Pn, Sh, SP, Ch, Ka tapa-. UACS 89.
*tapa- ('sun; light; watch, clock'): NP, Ut, SP, Ch tapa, Mn, CN tama, Ka tap(a)1. UACS 422. Other
*tap' sets occur in Munic, e.g. NP tap'('- to be day-
*ta'pi- 'sun'; NP ta'pi 'heal, ankle; socks': NP ta'pi
*ta'pi- 'heal, ankle; socks': NP ta'pi
*ta'pi 'heal, ankle; socks': NP ta'pi
*ta'pi 'heal, ankle; socks': NP ta'pi
*ta'pi 'heal, ankle; socks': NP ta'pi
*ta'pi 'heal, ankle; socks': NP ta'pi
*ta'pi 'heal, ankle; socks': NP ta'pi
*ta'pi 'heal'; all Munic tapu. UACS 139, 336.
*tata 'cloud, raincloud, thunder': Xn, ec, nSh, Pn,
ka too-, Ch, nAh tozo. UACS 93. Cf. Proto-Cupan
*tax- 'autumn, thunder', *taw-pa 'summer'; see next set.
*to(')mo 'winter, year': NP, Pn to(')mo-, Xn, Ch
too-, Sh, SP to'mo, Ch, Ka, Ch tozo. UACS 457. Cf.
CY t'omoxiš 'winter'; see preceding set.
*tosa WHITE: NP tosa (- to'sa [zara]), ecSh, Sh, Pn,
Ch to'sa, SP to'sa (- to'sa [zara]) (also Ch, Ka).
UACS 458 (see V.1).
*tu-a 'son, child; give birth': NP, CH tu^n('-), SP
*tu-n' (also in Mz, other Sh; several other forms
based on *tu- are attested in all of the languages).
UACS 54.
*tu(hu) BLACK, 'charcoal' (only long forms listed):
NP, Sh, Xn tu(h)u, Xn, Ka tu(h), SP, Ut, Ch tuu-
All of the languages use forms based on the short
variant, sometimes as the main meaning BLACK, e.g.
Xn, Pn, and several SN languages.
*tuka DAKK, 'black, brown, purple', etc.: NP toka,
Xn tokan'!' 'bruis, black and blue', SP, Ch took'a
'purple', Ut to'ka 'purple', Xn tok'a 'purple', Xn-
tuk'na, any dark color. All Munic languages have
words for 'night; get dark' based on this root. See
*tu(hu): V.1; UACS 45, 172.
*tuka-ipa- 'sky, clear weather': NP tokai-pa-', ecSh,
Pn, SP, Ch tuku-ipa-, Ka tuku-, su tuku-ipa-. UACS
*tů'kpa-n 'pine nut, pine (tree)'; all Nuuča *tů'kpa-n; UACS 319 (in SP also extended to 'wolf', since wolf is the giver of pine nuts in myths).

*ty'p(a)-i 'mouth'; NP, Nuuča ty'p(a), Wón, Sh ty'p(e).

SP, Ch ty'p(a), Ka ty'p(e) - (also in Cu, Ut). UACS 293.

*typl(-hn) 'earth, ground, land (possessed)' (UACS 150); and

*typli 'rock (UACS 354); NP typli 'earth, ground'; typliwa 'possessed region, land, reservation'; typli 'rock', ešh typli(-i) 'home country, land, property', typli(4th) 'rock, stone', SP typli 'earth, ground, country', typli- 'stone, rock, iron' (also in all other Nuuča).

*typhl(i) (?) 'middle, center'; NP typhmi, Yón typhl- , ešh typhl(h)i, Ch typhl-... (segmentation unclear), Pn typhl(a).

*typliy 'to ask a question'; NP typliy 'name, what'; typliywa, ešh typli'-k, typliyh, nh typli-ni, Pn typliya, SP typliya, Ch typli, Ka typli(y), UACS 12. A shorter form *typli- appears in Kh *tylwy, SP *typli-5i.

*wa'ci 'antelope'; NP wa'ci 'male antelope', Ch, SP, Ch wa'ci (also in Ut, Ka). Other special meanings include: ešh wa'ci 'gray', SP wa'ci 'antelope-colored, light gray', Ch wa'ci 'gray hair', cf. NP wa'ci 'gray hair, old man' (also in Kh, Sh).
"Wahpi 'fox sp. ': NP wa(')ci- (o'kwa wakan has other etymologies), Ch wasni1, Cz wasnai.

"wi- 'greasy, greasy' (see also *juha): NP wisi'ko 'to be greasy; grease'; ecSh, Cz wi- '[to taste] greasy, oily', Ch wi'api 'grease, oil', wi'pi'li(j)a(py) 'lard; any fat or tallow after rendering'. UACS 166.

"wi'ci- = 'hu'ci 'bird, bird spp.': NP hu(u)ci 'sage hen', hu(u)ci-pa 'bird', Ka ci'ci-pa-, Sh hu(u)'ci(?)u 'small bird', hu'i'ca(-i), wi'ca(i) 'sage hen', Cz hu'cuu, Fm wi'i(?)'i'cih 'house finch' (reduplicated), SN wi'ci-. UACS 480.

"wi'ci- = 'hu'ci- female kin terms, often '(great) grandmother', '(great) grandchild': WN, Sh, Pa hu'ci- (NP also recorded hu(')ci-), SP wi'ci, Ka wi'yi-. UACS 498.

"wihi 'knife': WN, n,neSh, Cz, Ch, Ka wihi (WN also 'metal, iron'), ecSh whi 'metal', wi'kih 'knife', Pa whi.i Ut, SP wi'(')h- (other recordings vary somewhat). See also next set.

"wihy(') = 'wi'jiy 'awl, needle': GNH wi'hy, NNP wity, SNNP wi'ity, wen wi'ti, ecSh wihu'-, nSh whiju, nwSh wi'hi(j)a(a), also 'thorn, pin, quill, bee stinger', Fm whiu-, SP wi1, Ch wyji, Ka wi'ja-. A more conservative reconstruction would be wi 'wi'/'jiy, GN 'winju('-), SN *wi(a)-. UACS 14; see also set above.

"whku- (?) 'buzzard' (Cathartes aura): WN wiho, nwSh w(a)li'ku'-, Fm whnu'-, SN wi'ku(')-. UACS 67.

"woki= 'wo'ko 'conifer, esp. pine': NP woko-'pine sp.', wO woko-, wo'ko-'pine spp.', mern woko 'bull pine', Sh (w)o'ko-, ec 'spruce', nw 'fir, evergreen', Fm wo'ko- 'tall pine', SP a'oko- 'fir', Ch hoko-'pine, fir, or spruce sp.', Ka woko-, wo'ko- 'digger pine'. UACS 320a,b.

"wo'ko = see *p/wo'ko.

"wona = see *p/wona.

"wo'gai (?) 'to scratch, comb': NP to'gai, wO 'wO'gai, ecSh -'gaih (forms with initial /do also exist), Cz 'wo'gai, SP u'gai (various recordings); cf. Tb wyg-y-t 'comb'.

"wopli(') 'board, wood, timber': NP, Cz, Ka wopli; Mm wopli', Sh, Pa wopli'-, SP op(')i-, Ch hopli. UACS 15. In Sh, NP, and others this form is also extended to refer to structures or vehicles made from sawn lumber, etc.
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