The role of typology in American Indian historical linguistics

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Linguistic reconstruction in North America has generally followed the same lines of development as reconstruction in other parts of the world. Work has normally proceeded from the establishment of regular sound correspondences among closely related languages, to the investigation of those among more distantly related groups. Once phonological correspondences have been understood, grammatical systems have been compared. Steady progress has been made in the grouping, subgrouping, and reconstruction of most of these languages, and most of the over fifty language families established by the end of the nineteenth century are still recognized today.

Throughout this period, however, scholars engaged in traditional comparative work have been struck by pervasive structural resemblances among many of these languages. Early in the nineteenth century, Peter Stephen Duponceau, secretary to the American Philosophical Society, commented on the grammatical resemblances among the lexically diverse North American languages he had examined. In his essay Mémoire sur le système grammatical des langues de quelques nations indiennes de l'Amérique du nord, he noted their polysynthetic nature, the high numbers of morphemes contained in single words.

Le caractère général des langues américaines consiste en ce qu'elles réunissent un grand nombre d'idées sous la forme d'un seul mot; c'est ce qui leur a fait donner par les philologues américains le nom de langues polysynthétiques. Ce nom leur convient à toutes (au moins à celles que nous connaissons), depuis le Groenland jusqu'au Chili, sans qu'il nous ait été possible d'y découvrir une seule exception, de sorte que nous nous croyons en droit de présumer qu'il n'en existe point. (Duponceau 1831: 89)
The pervasiveness of polysynthesis in America was the source of much discussion throughout the nineteenth century and into the twentieth. Some of the philologists engaged in establishing relationships on the basis of demonstrable sound correspondences began to wonder whether such structural unity might be indicative of deeper genetic ties. It was proposed on several occasions that all American languages “descended from a single parent language, for, whatever their differences of material, there is a single type or plan upon which their forms are developed and their constructions made” (Whitney 1867: 348). (A history of nineteenth-century views on the relative value of lexical and grammatical correspondences in genetic classification can be found in Haas 1969.)

Daniel Brinton, a contemporary of Powell, further described the characteristics of polysynthetic languages as follows:

The psychic identity of the Americans is well illustrated in their languages. There are indeed indefinite discrepancies in their lexicography and in their surface morphology; but in their logical substructure, in what Wilhelm von Humboldt called the “inner form”, they are strikingly alike. The points in which this is especially apparent are in the development of pronominal forms, in the abundance of generic particles, in the overweening preference for concepts of action (verbs), rather than concepts of existence (nouns), and in the consequent subordination of the latter to the former in the proposition. This last mentioned trait is the source of that characteristic called incorporation ... I have yet to find one of which we possess ample means of analysis, in which it does not appear in one or another of its forms, thus revealing the same linguistic impulse. (Brinton 1891, cited in Haas 1969)

Considerations of structural similarity were first applied formally to the classification of North American languages by Edward Sapir in 1929. Although he was both an experienced field worker and a rigorous historical linguist, Sapir felt that due to the limited documentation of many North American languages, as well as the tremendous time depths separating them, the traditional comparative method could be of little use in establishing deeper ties. On the basis of purely structural characteristics, he proposed an overarching scheme that conflated the fifty-some families into six super-
stocks: Eskimo-Aleut, Algonkin-Wakashan, Nadene, Penutian, Hoko-
kan-Siouan, and Aztec-Tanoan. He did specify that the results were
meant to be only suggestive:

It is impossible to say at present what is the irreducible number
of linguistic stocks that should be recognized for America north
of Mexico, as scientific comparative work on these difficult lan-
guages is still in its infancy. (Sapir 1929)

Some of Sapir’s new combinations have since been confirmed by
further documentation of the languages and comparative work.
Others remain hypotheses, due to the great time depths involved,
sufficient to obscure almost all cognates, and the antiquity of
language contact, particularly in such areas as the Northwest and
California. In some cases, resemblances across superstock bound-
aries now appear as strong as those within them. Yet Sapir himself
was sufficiently careful in specifying the degree of confidence he
was willing to accord his various proposals that this work has
proven useful in pointing the way to areas inviting special investi-
gation.

Nevertheless, the reliability of structural resemblances as indica-
tors of deeper genetic relationship has not yet been clearly estab-
lished. Among the grammatical features most often cited as typical
of North American languages are the following:

i) polysynthesis
ii) pronominal affixes
iii) incorporation
iv) the preference for concepts of action (verbs) rather than concepts
    of existence (nouns) and the consequent subordination of the
    latter to the former in the proposition.

1. Polysynthesis

The morphological elaboration exhibited by many North American
Indian languages is familiar to most of those who have been exposed
to them. Words like those below are not at all uncommon in North
America. In fact, they can be found in languages in each of Sapir’s
superstocks. (Hyphens indicate morpheme boundaries; periods within interlinear translations do not: the English gloss ‘think.that’ in the first example thus corresponds to a single Greenlandic morpheme.)

(1) Greenlandic Eskimo (Eskimo-Aleut) (Fortescue 1984: 315):
  an-niru-lir-sin-niqar-sinnaa-suri-nngik-kaluar-pakka
  be.big-more-begin-cause-PASSIVE-can-think.that-not-
  but-1.SG/3.PL.INDICATIVE
  ‘I don’t think that they can be made any bigger, but ...’

(2) Ojibway (Algonkin-Wakashan) (Richard Rhodes, personal communication):
  daa-gii-biid-wewe-ganzhy-e-bah-d-oo-w-ag
  MODAL-PAST-coming-making.repeated.noise-hoof-
  VERBALIZER-cause.to.run-INANIMATE-LOCATIVE-3-PL
  ‘they should have come running up making the sound of hoofbeats’

(3) Chipewyan (Nadene) (Li 1946: 419):
  be-γá-yé-n-i-l-tī
  3.OBJ-to-3.OBJ-MOMENTANEOUS-1.SUB-
  CLASSIFIER-handle.a.living.being
  ‘I have given her to him’

(4) Takelma (Penutian) (Sapir 1922: 65):
  gwān-ha-yaxa-tūlū"lg-ā'n
  road-in-continuously-follow-1.AORIST
  ‘I keep following the trail’

(5) Cayuga (Hokan-Siouan) (Reginald Henry, personal communication):
  h-ê-yōk-w-ak-yaʔ-anú-hst-ōhō:-k
  TRANSLOCATIVE-FUT-1.PAT-PL-
  SEMI.REFLEXIVE-body-cool-CAUS-
  STATIVE-CONT
  ‘we will be cooling off there’
(6) Cora (Aztec-Tanoan) (Casad 1984: 214):
\[ n^i-e-t^i\tilde{i}-n-k\acute{i}ye-t^i-e \]
I-DISTRIBUTIVE-REFLEXIVE-stick-make-
APPLICATIVE
'I am making my wooden sword'

Yet polysynthesis is far from universal in North America. While there are no extreme isolating languages comparable to those found in Asia, there are numerous languages roughly equivalent in synthesis to many Indo-European languages. Note the low number of morphemes per word in (7), for example, the beginning of a tale from a California language.

(7) Wikchamni Yokuts (Gamble 1978: 132):
\[ hiya\text{-}nu \ xo\text{-}?ox?o\tilde{s} \]
long.ago live-DUR.AORIST
'Long ago, when the world was made,
\[ ?\alpha\tilde{\alpha}s\text{-}a\tilde{n}\tilde{a} \ huht\text{-}h\text{-}tu \ x\tilde{i} \]
packbasket-ATTRIB owl this
there lived an owl
\[ ?\omega\text{-}ma \ ?\alpha\tilde{\alpha}n \ t\tilde{i}\text{-}is\text{-}n-a\tilde{s} \]
when world make-MEDIOPASS-DUR.AORIST
'with a burden basket on its back.
\[ ?\omega\text{-}ma \ ?\alpha\tilde{\alpha}n \ ?\alpha\tilde{\alpha}s \ me\text{-}h. \]
and her packbasket big
Her basket was big.'

Furthermore, polysynthesis is not restricted to North America. Long words can be found in many areas of the world. Note the morphological structure of the verbs below from Africa, Australia, Siberia, South America, and Austronesia.

(8) Turkana (Nilo-Saharan, Nigeria) (Dimmendaal 1983: 462):
\[ pe\text{-}n\text{-}e\text{-}it\text{-}a-kin\text{-}i\text{-}\acute{a}\text{-}t\tilde{a} \]
TOPICALIZED-NEGATION-not-3-plant-EP-
DATIVE-ASPECT-VERB-PLURAL
'they are not planting'
The polysynthesis found in North America is neither universal nor unique.

There is good evidence that the degree of synthesis characteristic of a language can change radically over a very short period of reconstructible time. Selayarese, the Austronesian language cited in (12) above, is polysynthetic, but few Austronesianists would reconstruct a polysynthetic parent language. Many Austronesian languages are still relatively analytic, and in the more synthetic languages, the recent origins of affixes are often transparent. Those languages with more complex morphologies often do not show parallel morphological structures, suggesting that their affixes are the result of independent developments.

Compare the Selayarese sentence below to a similar expression in Yapese, another Austronesian language, spoken in Micronesia. The Yapese version requires several separate words:
(13) Selayarese (Austronesian, Indonesia) (Hasan Basri, personal communication):

-la-ku-pa-p-jamá-ʔaŋ-ko
FUTURE-1.SG.ERGATIVE-BENEFACTIVE-INTRANSITIVE-work-BENEFACTIVE-2.SG.ABSOLUTIVE
‘I will work for you.’

(14) Yapese (Austronesian, Micronesia) (Jensen 1977: 277):

raa gu marweel ni faan ngoom
will I work for purpose to-you
‘I will work for you.’

The two languages exhibit quite different grammatical structures, but the tense, case, and pronominal morphemes are transparently cognate. Further examination of other grammatical markers reveals more cognates, although many are no longer precisely equivalent in function in the two languages.

Similar examples of the recent development of polysynthesis can be found all over the world. In many of the cases, as in Selayarese and Yapese, grammatical structures in related languages differ radically, while phonological correspondences are so transparent that cognates are often easy to spot by naive inspection. Since polysynthesis is neither universal nor unique in North America, and since it can develop in such a short period of time, it cannot be considered a reliable indicator of deep genetic relationship.

2. Pronominal affixes

Many polysynthetic languages, like most of those cited above, contain bound pronominal affixes within verbs. The affixes refer to primary arguments of the verb.

1) Greenlandic

annirulirinsniqarsinnaasurinniŋikkaluarppakka
‘I don’t think that they can be made any bigger, but’

2) Ojibway

daagiiibiidweweganzhiiptooowag
‘they should have come running …’
3) Chipewyan 
\[ \text{beyáyéníti} \]
'I have given her to him'

4) Takelma 
\[ \text{gwānhayaxat'ülü'lgā̯n} \]
'I keep following the trail'

5) Cayuga 
\[ \text{heęyókwakyaťtanúhstōhó:k} \]
'we will be cooling off there'

6) Cora 
\[ \text{neťiťinkanye-tę} \]
'I am making my wooden sword'

The pronominal affixes are obligatory in most languages, whether or not additional nominal phrases are present. The Cayuga verb in (15), for example, still contains the pronominal prefix kon- 'they' even though a separate nominal 'someone' appears in the same clause.

(15) Cayuga (Reginald Henry, personal communication): 
\[ \text{A:yę́ sōkwän'āhť} \]
seems someone
'It looks like some
\[ \text{kon-ę-nat-inyő-tōh.} \]
3.PL.PAT-S.RFL-site-enter-CAUS-STAT people have moved in'

The pronominal affixes are more than simple agreement markers: they are the actual arguments of their verbs. Verbs containing such affixes constitute complete clauses in themselves. Associated nominals, like the word for 'someone' in (15), are appositives to the affixes, further identifying them, but they are not necessary for grammaticality.

Pronominal affixes appear in languages throughout North America, but they are by no means universal. Many languages have only first and second person pronominal affixes. Many others have no pronominal affixes at all. All pronouns in Central Pomo, for example, are free.
Typology in American Indian historical linguistics

(16) Central Pomo (Pomoan, California) (Eileen Oropeza, personal communication):
\[
\begin{align*}
&\text{\textasciitilde aa m\u{u}tu p\textasciitilde de\textasciitilde n\textasciitilde k\textasciitilde e \textasciitilde e \textasciitilde b\textasciitilde e\textasciitilde f}. \\
&I \text{ her care.for-will it.is today}
\end{align*}
\]
'I am going to take care of her today.'

Pronominal affixes are also not limited to North America. Note the pronominal prefixes in the Turkana, Tiwi, Kamchadal, Campa, and Selayarese examples cited earlier.

8) Turkana
\[
\begin{align*}
&\text{pe\textasciitilde en\textasciitilde t\textasciitilde a\textasciitilde ki\textasciitilde m\textasciitilde i\textasciitilde a\textasciitilde t\textasciitilde a} \\
&\text{they are not planting}
\end{align*}
\]

9) Tiwi
\[
\begin{align*}
&\text{jim\textasciitilde n\textasciitilde inji\textasciitilde l\textasciitilde im\textasciitilde pan\textasciitilde a\textasciitilde li\textasciitilde p\textasciitilde a\textasciitilde n\textasciitilde k\textasciitilde i\textasciitilde n\textasciitilde a} \\
&\text{he stole my meat while I was asleep}
\end{align*}
\]

10) Kamchadal
\[
\begin{align*}
&\text{tu\textasciitilde ma\textasciitilde i\textasciitilde na\textasciitilde l\textasciitilde au\textasciitilde ti\textasciitilde pr\textasciitilde ti\textasciitilde kin} \\
&\text{I have a bad headache}
\end{align*}
\]

11) Nomatsiguenga Campa
\[
\begin{align*}
&\text{nakantakagantabitakari} \\
&\text{I explained it to him, but}
\end{align*}
\]

12) Selayarese
\[
\begin{align*}
&\text{lamupakatassu\textasciitilde nj\textasciitilde k\textasciitilde e\textasciitilde a\textasciitilde p\textasciitilde i} \\
&\text{you will open it for him}
\end{align*}
\]

There is ample evidence that pronominal affixes can develop in a language that previously had none. Selayarese, cited above, now has a full set of ergative prefixes and absolutive enclitics. Yapese has developed object affixes, but no subject affixes.

The rapidity with which pronominal affixes can develop is illustrated by a number of Pama-Nyungan languages of Australia. Among even closely related languages, some have only free pronouns, while others have full sets of transitive and intransitive pronominal clitics or affixes. The free form sources of the modern bound forms are still transparent in most cases. Dixon (1980: 246) notes that the development of bound pronouns is concentrated in specific areas of Australia, and "this isogloss often does not coincide
with strong genetic boundaries”. He provides numerous examples like that below.

Most of the languages in the Yolŋu subgroup, from north-east Arnhem Land, lack bound pronominals; but these are found in two languages on the edges of the Yolŋu area. Ritharŋu, the southernmost Yolŋu language, has developed pronominal ENclitics under areal pressure from its southerly neighbours Nunggubuyu and Ngandi (which have pronominal PREfixes); these are transparently reduced forms of the Yolŋu independent pronouns. Djinaŋ, in the northwesterly corner of the Yolŋu region, has moved in a different direction, and developed a system of pronominal PROclitics, that can be shown to be historically related — at slightly further remove than the Ritharŋu forms — from free-form pronouns in other Yolŋu languages; this was again due to areal pressure, from the prefixing languages to the west.

In some cases, the process of fusion can be seen in the earliest stages of its development. Yallop (1977: 46) notes that “the personal pronouns of Alyawarr are independent words”, but “certain sequences of words may, through vowel elision and loss of primary stress, become phonetically indistinguishable from a single word”. The pronouns may still appear in any order, either proclitic or enclitic to verbs.

(17) Alyawarra (Pama-Nyungan, Australia) (Yallop 1977: 46):

<table>
<thead>
<tr>
<th>Pronoun - Verb</th>
<th>Verb - Pronoun</th>
<th>Pronoun - Pronoun - Verb</th>
<th>Verb - Pronoun - Pronoun</th>
</tr>
</thead>
<tbody>
<tr>
<td>athá arika or athárika</td>
<td>arika athá or arikatha</td>
<td>athá ngínha aráyntiya or athánginharáyntiya</td>
<td>inpika athá ōinhha or inpíkathiríinha</td>
</tr>
<tr>
<td>‘I saw’</td>
<td>‘I saw’</td>
<td>‘I’ll be seeing you’</td>
<td>‘I got it’</td>
</tr>
</tbody>
</table>
Breen (1981) reports on a particularly interesting phenomenon. Margany and Gunya are closely related dialects of a (Pama-Nyungan) Mari language, spoken in Queensland, Australia. They are essentially equivalent structurally, except for one feature: “Gunya has a transparent and obviously recent system of pronominal suffixes to the verb, which Margany lacks” (Breen 1981: 275). (Note the pronominal suffixes in the Gunya verb in 18.)

(18) Gunya (Mari, Pama-Nyungan, Australia) (Breen 1981: 331):

\[
\text{yulbiyinyi \text{\textit{ng\text{\textalpha}}}}
\]
\[
\text{chase-CONT-FUT-1.SG-3.PL-ACC}
\]
\[
\text{‘I’ll hunt them away’}
\]

Breen points out that the bound forms are highly transparent in origin and variable in use. The singular suffixes are identical to their free counterparts minus the initial syllable (sometimes with vocalic increment).

<table>
<thead>
<tr>
<th>Free</th>
<th>Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>n\text{\textalpha}ya</td>
<td>-ya</td>
</tr>
<tr>
<td>in\text{\textalpha}a</td>
<td>-nda</td>
</tr>
<tr>
<td>in\text{\textalpha}pa</td>
<td>-na\text{\textalpha}a</td>
</tr>
<tr>
<td>n\text{\textalpha}la</td>
<td>-la</td>
</tr>
<tr>
<td>n\text{\textalpha}nu\text{\textalpha}a</td>
<td>-\text{\textalpha}a</td>
</tr>
</tbody>
</table>

Most non-singular free and bound forms are identical.

The pronouns have not fused at all in Margany. Compare the sentences from Gunya and Margany in (20) and (21).

(20) Gunya (Mari, Pama-Nyungan, Australia) (Breen 1981: 331):

\[
wad\text{\textalpha}y\text{\textalpha}yi1iya \text{\textit{unayi}}yiyiyi
\]
\[
go-\text{CONT-PRES-1.SG} \text{lie-CONT-FUT-1.SG}
\]
\[
\text{‘I’m going to have a sleep’}
\]

(21) Margany (Mari, Pama-Nyungan, Australia) (Breen 1981: 319):

\[
\text{n\text{\textalpha}la} \text{\textit{wabat\text{\textalpha}ma}} \text{\textit{n\text{\textalpha}y\text{\textalpha}a}} \text{\textit{un\text{\textalpha}ng\text{\textalpha}u}}
\]
\[
3.SG \text{go-CJ-LOC 1.SG lie-PURP}
\]
\[
\text{‘As soon as he goes I’m going to have a sleep’}
\]
Pronominal affixes are pervasive in North America, but they are neither universal nor unique. Furthermore, they can develop relatively rapidly. The presence of pronominal affixes cannot be considered a reliable indicator of deeper genetic relationship either.

3. Incorporation

A number of languages throughout North America exhibit noun incorporation, whereby a noun stem, usually referring to a patient but sometimes to an instrument or location, is compounded with a verb stem to form a derived verb stem. Examples of incorporation can be seen in the Ojibway, Takelma, Cayuga, and Cora examples cited earlier.

2) Ojibway
daagiibidbeweweganziptoowag
‘they should have come running making the sound of hooves’

4) Takelma
gwânhayaxat.ülül'lgâ’n
‘I keep following the trail’

5) Cayuga
hêyôkwakya'tanúhstôhô:k
‘we will be cooling off (our bodies) there’

6) Cora
n’et’p’inkiyet’e
‘I’m making my wooden sword’

Incorporation is by no means universal throughout North America, however. Numerous languages show no incorporation at all.

Noun incorporation is also not confined to North America. Note the examples cited earlier from Tiwi and Kamchadal.

9) Tiwi (Australia)
jimôinjîlimpanâlipiapânkina
‘he stole my meat while I was asleep’
There is considerable evidence that noun incorporation can develop relatively quickly. The presence of incorporation is often not consistent within language families. Within the Mayan family, for example, certain languages have no incorporation at all, such as Ixil and Aguacatec. Some others, such as Kanjobal, Mam, and Chuj, have the beginnings of incorporation. A transitive verb and unmodified noun may be juxtaposed to indicate a conceptually unitary activity. Although they remain separate words, the verb and noun form a syntactic unit equivalent to an intransitive verb. The noun, no longer a syntactic argument of the clause, does not refer to a specific, countable entity; it simply narrows the scope of the verb semantically to an activity directed at a certain type of patient. The Kanjobal verb in (22) is grammatically intransitive, as shown by the use of an absolutive case pronoun for 'you'.

(22) Kanjobal (Mayan) (Robertson 1980):
\[\text{\texttt{\textit{is}-\textit{a}-\textit{lo-w-i} \quad \text{\textit{pan}}} \]
\[\text{PAST-2.ABS-eat-AF-AF \quad \text{\textit{bread}}} \]
\[\text{you bread-ate'} \]

Compare: \[\text{\texttt{\textit{s}-\textit{\textbullet-a}-\textit{lo-t-oq}}} \quad \text{\textit{in-\textit{pan}}} \]
\[\text{past-3.ABS-2.ERG-eat-go-OPT \quad 1.ERG-bread} \]
\[\text{you ate my bread'} \]

In Yucatec, incorporation can function in a similar way, but the incorporated noun is further integrated into the host verb, usually appearing before several suffixes.

(23) Yucatec Mayan (Bricker 1978):
\[\text{\texttt{\textit{\textbullet-k-\textbullet-c-e?-n-ah-en}}} \]
\[\text{chop-tree-ANTIPASS-PRF-1.ABS} \]
\[\text{I wood-chopped'} \]

Compare: \[\text{\texttt{\textit{t-in-\textbullet-k-\textbullet-ah}}} \quad \text{\textbullet{\textit{c-e?}}} \]
\[\text{COMP-1.ERG-chop-PRF \quad tree} \]
\[\text{I chopped a tree'} \]
The absence of incorporation in many Mayan languages, the transparency of the incorporated structures in the others, and the lack of relic forms, indicate that incorporation is a new development within this family, rather than an earlier trait that is decaying. (For more on the nature, development, and distribution of noun incorporation see Mithun 1984.)

Since noun incorporation is neither universal nor unique to North America, and since it can develop relatively rapidly, it cannot be considered a reliable indicator of deep genetic relationship either.

4. The predominance of verbs over nouns

The predominance of verbs in natural discourse is a striking feature of many North American languages. A typical example of this can be seen in (24), a passage from a Tuscarora legend. We are told that long ago the Indians were bothered by a flying head that used to kill people and take children away. (All morphological verbs are underlined.)

(24) Tuscarora (Iroquoian, New York State) (Elton Green, personal communication):

\[ U:n\bar{o} \, h\acute{e}sn\bar{\acute{o}}:\, kyeni\bar{k}\acute{o}:\, \acute{\alpha}:tsi\, tyah\wbar{\acute{a}}he:t\, kyeni\bar{k}\acute{o}:\]

\[ '\text{Now then, one time,}' \]

\[ kahstra\bar{\acute{o}}n\bar{ihr}\bar{\acute{o}}:\, \acute{\alpha}:tsi\]

\[ \text{she sits one} \]

\[ y\bar{\acute{a}}ts\bar{\acute{u}}:ri\, un\bar{\acute{a}}he\, kan\bar{\acute{a}}hak\bar{\acute{a}}ri\&n\bar{\acute{a}}hw,\]

\[ \text{she eats corn it corn-roasted is eating roasted corn.} \]

\[ Y\acute{u}:neks\, uh\bar{\acute{s}}?n\bar{\acute{a}}\, tisn\bar{\acute{a}}?\]

\[ \text{it burns ahead and} \]

\[ \text{A fire was burning before her, and} \]

\[ neyu\bar{n}\bar{\acute{a}}t\acute{a}:k\bar{\acute{o}}\, ha?:\, k\bar{\acute{o}}?\, y\bar{\acute{e}}?r\bar{\acute{a}}?\]

\[ \text{it open is the there she dwells} \]

\[ \text{the door to her log cabin.} \]
it log layered is
was open.

she astonished is there there he stood
All of a sudden she was surprised by a flying

kunáhraváhn?h. Wa?akáhré?5hr?
it head flies she afraid became
head standing there. She became afraid.

she said now Q also
She said, “Now will he

h?n? shrako:re:t?” Yotsú:rih
me will he me carry off she eats
carry me off too?” As she ate,

heni:k5: tsyakheyáhra?
that she remembered
she remembered that

they her storytold have the it fears
she had been told that it was afraid

ha? utsóheh.
the fire
of fire.

now then she saw it came in
And then she saw it come in.'

This passage contains twenty morphological verbs but only two
nouns. All other words are particles.

The predominance of verbs is of course not unrelated to the three
other features mentioned earlier. As in other polysynthetic languages,
the productive morphological complexity in Tuscarora is centered
within its verbs. Much of the information conveyed by other words
in less synthetic languages is conveyed in Tuscarora by verbs. The
pronominal prefixes obviate the need for separate noun phrases iden-
tifying the arguments of each clause. Noun incorporation also eliminates the need for many free noun phrases. The above passage contains incorporated nouns for 'corn', 'log', and 'head'. Finally, morphological verbs in this language can function syntactically not only as predicates and clauses, but also as nominals, with no additional marking. The fire, the log cabin, and the flying head, are identified by morphological verbs in the passage above.

Although many North American languages do show a preponderance of verbs, many others do not. The text in (25) comes from a Central Pomo legend. (Tuscarora and Central Pomo were classified together by Sapir in the Hokan-Siouan superstock.) Again, verbs are underlined.

(25) Central Pomo (Pomoan, California) (Frances Jack, personal communication):

\[
\text{Bel mačí ṭdóma, ṭudaaw... čʰé múł.}
\]

this day QUOT lots rain fall

‘On this day, it was told, it was raining a lot.

\[
\text{Muul ṭdóma bal... šaqót’ máaṭa, ṭélya,}
\]

that QUOT this mouse woman the-TOPIC

At that time, it seems, the mouse lady

\[
\text{dálqʰač’ pʰwiw, tíikʰe čá ṭmii hțow.}
\]

outward look her house there from was looking out from her house.

\[
\text{ṭudaaw qʰač’ daaw maa tʰabám.}
\]

really wet outside ground laying

The ground was very wet outside.

\[
\text{Méeen ṭiba ṭdóma, tíikʰet’ qanémač’,}
\]

so and QUOT her relative

And so she had a relative,

\[
\text{qʰálʔis’a ṭmúuṭu,}
\]

weasel him

a weasel,

\[
\text{muul mida qóyow, múuṭu téteenʔkʰe,}
\]

that there here.go her tell to

who came by to tell her,
"Bal qʰáʔel qʰoo nam aaw qʰuu neqʰ’kʰ.e." this water the QUOT really high rise will
"This water is going to rise up high."

The proportion of verbs in Central Pomo differs consistently from that in Tuscarora. The above passage contains only six verbs but nine nouns. It also expresses several things in separate words that would be expressed by verbal morphology in Tuscarora, such as the pronouns, possessives, directional adverbs, and the adjective ‘wet’.

A predominance of verbs is pervasive in North America, but it is neither universal nor unique. In itself, it cannot be considered a reliable indicator of deep genetic relationship.

5. The value of typology in historical linguistics

None of the major typological features most commonly associated with North American languages, polysynthesis, bound pronouns, incorporation, nor a predominance of verbs over nouns, provides a reliable indicator of deep genetic relationship. Nevertheless, typology has much to contribute to accurate reconstruction and to an understanding of language change.

The primary goal of typology is the identification of clusters of structural features that cooccur in languages. The more we know about language typology, the better equipped we are to reconstruct typologically coherent proto-languages. At this point, for example, few linguists would happily reconstruct a proto vowel system consisting solely of two front rounded vowels and four back vowels. Such repertoires of front and back vowels are not known to cooccur. Similarly, few would propose a system of bound pronouns containing only first and third person forms, although most would confidently reconstruct a system containing first and second person forms with no third.

The more we learn about clusters of features in different areas of language structure, the more effective we can be in uncovering comparable material. The discovery of one feature shared by related languages can stimulate the pursuit of others that are usually associated with it. A basic understanding of phonological systems should im-
mediately prompt the search for evidence of front unrounded vowels in the case above. The discovery of a reconstructible dual number suffix should stimulate the quest for a reconstructible plural suffix. The reconstruction of ergative case marking might encourage a search for traces of antipassive constructions. At the same time, when systems of interacting features are well understood and familiar, we can discern their patterns from less evidence than if each piece is unexpected.

Typological sophistication can also permit finer evaluation of the evidence for particular genetic relationships. If four structural features are generally known to cooccur in languages, for example, the fact that they are shared by particular languages may constitute a single piece of evidence in support of their relationship, rather than four.

Typology can, furthermore, serve as a preliminary step toward a richer understanding of language change. Once clusters of cooccurring features are identified, the functional interrelationships responsible for their cooccurrence can be investigated. Often one trait creates a predisposition for the development of others. The discovery of this effect can be important in reconstructing the sequence of events involved in the evolution of language families. If several languages share a set of structural features, they may have inherited all of these from a common ancestor, or they may have inherited only one, which subsequently motivated the development of the others individually in the various daughter languages.

If the motivating trait is borrowable, languages sharing the resulting complex of features may not even be genetically related at all. As discussed earlier, areal studies in Australia indicate that the development of bound pronouns can be stimulated by contact. Bound pronouns tend to cooccur with a number of other structural characteristics in languages. If bound pronouns can arise from contact alone, and if their presence does in fact motivate the subsequent development of the other characteristics, then languages might share a major complex of features for geographical rather than genetic reasons.

Finally, typological investigation is crucial to diachronic linguistics in another way. Much of the traditional comparative work on Indo-European has, appropriately, been based on an understanding of Indo-European systems of grammar. Certain categories are traditionally isolated and compared, and developmental interrelationships are expected among particular parts of grammars. As has been shown, many North American languages differ typologically from Indo-European languages in important ways. In many cases, the
grammatical categories to be investigated differ subtly from those in Indo-European languages, and various areas of grammatical structure function and interact differently.

In fact, the typological features discussed earlier have major effects on the nature of many of the categories that are grammaticized in North American languages and on the general kinds of grammatical systems that result. Perhaps the most salient characteristic is their elaborate verb morphology, often combined with relatively limited noun morphology. Many distinctions expressed in European languages by nominal morphology or by separate words appear to be conveyed in North America by verbal morphology. Most European languages contain obligatory number inflection on nouns, for example. By contrast, many North American languages exhibit no number marking on nouns, or very limited marking, but extensive number marking on verbs. Compare the commands in (26) from Central Pomo. (Number markers are underlined.)

(26) Central Pomo (Frances Jack, personal communication):
\[q^h \text{abê } \text{nêê-la-m}\]
rock throw.one-down-SG.IMPV
'Throw a rock down!'
\[q^h \text{abê } mča-la-\text{ta-m-me}\]
rock throw.sev-down-MULT.EVENT-COLL.AGENCY-PL.IMPV
'Throw some rocks down, everybody!'

Such verbal affixes have often been interpreted as agreement markers, copies of nominal number markers. A closer examination of their use, however, indicates that they are not precisely equivalent to the inflectional number suffixes of European languages. Their primary function is not to quantify persons and objects, but rather to describe aspects of events and states. In Central Pomo, throwing several objects is categorized as a different kind of action from throwing a single object, so a different verb root is used. Multiple eventhood, such as several different throws, are specified by a verbal suffix. If several participants act jointly, this cooperation is signaled by another verbal suffix. If a command is directed at several people, a special imperative suffix is used. Each of these markers describes
the action, although the participation of multiple people and the involvement of multiple rocks may be inferred.

In many European languages, all nouns are obligatorily inflected for case. In most (not all) North American languages, nouns are not inflected for primary case, but verbal morphology can convey similar information.

(27) Takelma (Sapir 1922: 68):

\[ lōbō'xade' \]

pound-I

'I pound'

\[ noxwa' yana-wa-lobobî'n \]

pestle acorn-with-it-pound-I

'I pound acorns with a pestle.'

Morphemes like the Takelma instrumental prefix have sometimes been interpreted as misplaced case markers. In fact, their primary function is not to modify the associated noun ('pestle') but rather to characterize the action, pounding with an instrument. Of course the role of an accompanying noun may be inferred. An accompanying noun is not necessary for grammaticality, however.

Both of these examples illustrate a general characteristic of the verbal morphology of many North American languages. Just as the affixes on nouns in European languages tend to modify persons and objects, indicating such things as their number, their role in events (case), and their gender, the affixes on verbs in North American languages tend to characterize events and states. The results are sometimes similar, like the effects of number and case morphemes described in (26) and (27), but they are not equivalent. What one asserts the other only implies.

The distinction is subtle but it can have an important effect on the development of morphological systems. Inflectional affixes like the number and case affixes of European languages are normally specified obligatorily on all nouns. All nouns can thus be expected to have singular and plural forms. They can be expected to have forms in all cases. Inflectional categories must accordingly be sufficiently general in meaning to be applicable to all entities. Since objects referred to by count nouns can usually be enumerated, and participants usually serve an identifiable role in clauses, this is
feasible. The same is not necessarily true of verbal number and case markers in North American languages. Such distinctions as joint agency may be highly pertinent to some events (carrying), but inapplicable to others (being sick). Some actions can be done with instruments, but many cannot. For this reason, verbal affixes of these kinds rarely become inflectional. Instead, they remain derivational and are used to create new lexical items only when needed. An understanding of such differences is certainly pertinent to a reconstruction of the history of these languages.

Similar typological differences can be found in syntax. As noted earlier, many North American languages contain obligatory bound pronouns in verbs referring to core arguments. Associated noun phrases or complements in many of these languages function more as appositives to the pronominal arguments than as arguments themselves. The syntactic bonds between such constituents are accordingly subtly different from those in Indo-European languages. Often in these languages, syntactic relations such as complementation or relativization are not as tightly grammaticized as in Indo-European languages. A sensitivity to possible differences in degrees of grammaticization is crucial to an understanding of language change.

6. Conclusion

Typological resemblances alone are not reliable indicators of deep genetic relationship. Typological investigations can be crucial to the comparativist, however, as a guide not only to the reconstruction of typologically coherent proto-languages, but also to a sound understanding of the interrelationships among structural factors in languages, and the motivations and sequences of change involving them. The pressing need in diachronic work with non-Indo-European languages is not a new set of comparative techniques, but rather richer models of language structures.

Notes

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