Language Typology 1988

Typological Models in Reconstruction

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A majority of the several hundred languages indigenous to North America exhibit bound pronouns within their verbs, a feature with major grammatical ramifications. Although pronominal affixes or clitics have been in place for a long time in most of these languages, synchronic and diachronic evidence indicates that full-fledged pronominal paradigms, with complete specification of three or more persons and two or more numbers, do not necessarily become bound all at once. Persons and numbers can be grammaticized in predictable sequences. Each stage of development results in a grammatical system that is sufficiently stable to remain unchanged over a long period of time.

Unlike the “agreement” affixes of Indo-European languages—affixes that simply mark syntactic relations among constituents—these bound person and number markers are referential pronouns in their own right. Verbs containing them constitute grammatically complete predication in themselves, as may be illustrated by the meanings of the verbs in 1) from Barbareño Chumash, a Southern California language.¹

1) Barbareño Chumash (Mary Yee ms.)

kṣaʔqʰǽlalaʔăn  I hollered
pšaʔqʰǽlalaʔăn  you hollered
sʰaʔqʰǽlalaʔăn  he/she hollered
kiʔʃaʔqʰǽlalaʔăn  we two hollered
piʔʃaʔqʰǽlalaʔăn  you two hollered
siʔʃaʔqʰǽlalaʔăn  they two hollered
kiʔʃiʔʃaʔqʰǽlalaʔăn  we all hollered
pɨʔʃaʔqʰǽlalaʔăn  you all hollered
siʔʃiʔʃaʔqʰǽlalaʔ’an  they all hollered
samsaʔqʰǽlalaʔ’an  people (indefinite) hollered
Pronominal affixes normally are used whether or not separate noun phrases are found in the clause. A separate noun meaning ‘my father’, for example, could appear with any of the last three verbs above. The pronominal affixes refer to the primary or core arguments of the clauses. Languages vary in the nature and number of arguments they classify as primary, but these typically include at least agents, patients, and/or beneficiaries; subjects, direct objects, and/or indirect objects; or ergatives, absolutes, and/or datives.

1. PERSON

Synchronic and diachronic evidence indicates that all pronouns referring to persons do not necessarily become bound simultaneously. Synchronically, many languages exhibit bound pronouns for only some persons.

Perhaps the majority of the languages indigenous to North America contain only first and second person bound pronouns, like those of the Yuman and Siouan families. (Third person references are sometimes treated as “zero” in these languages.) It is easy to see how such a system could arise and why it is stable. Among languages with only free pronouns, such as the Pomoan languages, the repertoire of free pronouns often contains first and second person forms but no third. First and second persons, inherently identifiable from context, are normally referred to by pronouns throughout a discourse. Since these pronouns are usually unstressed, and since they occupy relatively fixed positions with respect to the verb, they are likely candidates for affixation. Third persons, by contrast, are usually first identified by full noun phrases. In many languages, once third persons have been identified, they are not specified overtly in subsequent clauses so long as their identity remains clear. When they are contrasted with other entities, they are referred to by demonstratives. Third persons are thus identified in these languages by full noun phrases, by contrastive demonstratives, or by nothing at all. There is no constant, unstressed candidate for a third person affix equivalent to those for first and second persons.

In many North American languages with full three-person bound pronominal paradigms, there is internal and/or comparative evidence that the third person markers were grammaticized at a different time than those for first and second persons. One indication is their different positions within the verbal morphology. The Algonquian languages provide a good example. They are spoken over an immense area, from Labrador to the Rocky Mountains, from Hudson’s Bay to North Carolina, and include Blackfoot, Cheyenne, Arapaho-Atsina, Cree-Montagnais, Menomini, Ojibwa-Ottawa-Algonquin, Potawatomí, Fox-Sauk-Kickapoo, Shawnee, Miami, Delaware, Powhatan,
as well as Natick-Narragansett, Mohegan-Pequot, Penobscot-Abenaki, Passamaquoddy-Malecite, and Micmac (I. Goddard 1979a). In these languages, first and second persons are specified by pronominal prefixes on verbs. Third persons of various types, along with number, are indicated by verbal suffixes. Compare the positions of the pronominal affixes in the verbs of 2) from Cree.

2) Cree (Monica Browa, p.c.)

<table>
<thead>
<tr>
<th>Affixes</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ninēhiyawān</td>
<td>I speak Cree</td>
</tr>
<tr>
<td>kinēhiyawān</td>
<td>you speak Cree</td>
</tr>
<tr>
<td>nēhiyawēw</td>
<td>he/she speaks Cree</td>
</tr>
<tr>
<td>ninēhiyawānānaw</td>
<td>he/she and I speak Cree</td>
</tr>
<tr>
<td>kinēhiyawānān</td>
<td>you and I speak Cree</td>
</tr>
<tr>
<td>kinēhiyawānāwaw</td>
<td>you all speak Cree</td>
</tr>
<tr>
<td>nēhiyawēcik</td>
<td>they two speak Cree</td>
</tr>
<tr>
<td>nēhiyawēywak</td>
<td>they all speak Cree</td>
</tr>
<tr>
<td>nikiskeymik</td>
<td>he/she knows me</td>
</tr>
<tr>
<td>kikiskeymik</td>
<td>he/she knows you</td>
</tr>
<tr>
<td>kiskeymēw</td>
<td>he/she knows him/her</td>
</tr>
</tbody>
</table>

Additional evidence of the special antiquity of first and second person forms comes from the shapes of certain transitive pronominal affixes in various languages. When two or more arguments are indicated in the same area of the verbal morphology, fused transitive affixes may result. Affixes relating first and second persons (‘I/you’) are often considerably more fused than those including third persons. In Caddo, for example, the first person agent is ci- and the second person patient si-, but a first person agent acting on a second person patient is ta-(Chafe p.c.). In Lakhota, the first person agent is wa- and the second person patient is ya-, but first acting on the second is chī-. In Maricopa, first person is ʔ- and second m-, but first acting on second is ny-(L. Gordon 1986). In Hanis Coos, first person is p- and second e⁴, but first acting on second is -amā (Frachtenberg 1922).

1.1. Person and specificity. Third person pronominal affixes are not necessarily added to paradigms all at once. Some languages, such as those of the Caddoan family, contain pronominal prefixes referring to first persons, to second persons, and to indefinite or nonspecific third persons (‘someone’), but not to other third persons. Non-specific referents are of course exactly the third persons that are not identified by full noun phrases. In many languages with only free pronouns, such nonspecifics are
referred to by unstressed pronouns, such as the English *one, you, they, someone*, French *on*, and German *man*. Like the first and second person pronouns, they are good candidates for affixation.

Comparative evidence indicates that nonspecific third person pronouns can become morphologically bound some time after first and second person markers. The Athabaskan languages, spoken in Alaska, Western Canada, Oregon, California, and the Southwest, are characterized by elaborate verbal morphology, including some ten or more sets of prefixes. First and second person subject prefixes appear close to the verb stem, separated from it by a single set of “classifier” prefixes. The subject prefixes are transparently cognate across the entire Athabaskan family. Indefinite third person subjects are also indicated by pronominal prefixes, cognate across the family, but these appear considerably further from the verb stem, separated from the position for first and second person subjects by several sets of mode and aspect prefixes. They refer to unspecified subjects (*one/they/someone*) or to impersonal subjects (*it is raining*). Their greater distance from the verb stem suggests that the indefinite third person pronouns were morphologized more recently than the first and second person pronouns. Specific third person subject pronouns have not yet fused at all.

The Athabaskan family is remotely related to two other languages, Eyak and the more distant Tlingit, to comprise what is termed “Na-Dene” (Krauss 1979). As in Athabaskan, first and second person subjects in Eyak and Tlingit are separated from the verb stem by a single set of prefixes. They are cognate with those in Athabaskan (Krauss 1965). Tlingit also contains nonspecific third person pronouns. The Tlingit pronoun *qu* ‘someone/some people/they/them/it’ is apparently cognate with Athabaskan unspecified or impersonal prefixes such as Navajo *ho-* (Young and Morgan 1980), Apache *go-* (Hoijer 1946), Hupa *xo-* (P. Goddard 1911), Galice *wa-* (Hoijer 1966), Chipewyan *ho-* (Li 1946), Dogrib *go-* (Hoijer 1971), Carrier *wa-* (Hoijer 1971), and Sarcee *gu-* (Cook 1984). Unlike the Athabaskan prefixes, however, the Tlingit pronoun is still a separate word, not yet fused to the verb (Story and Naish 1973).

Even in languages where three or more persons are specified in a single location within the verbal morphology, comparative evidence sometimes indicates that the categories were not grammaticized all at once. The Iroquoian languages, now spoken in Quebec, Ontario, New York, North Carolina, and Oklahoma, provide a good example. The family consists of a Northern branch (Mohawk, Oneida, Onondaga, Susquehannock, Cayuga, Seneca, Huron-Wyandot, Tuscarora, and Nottoway) and a Southern branch (Cherokee). The Proto-Iroquoian pronominal system already distinguished three persons. Cognates of first, second, and third person markers can be traced throughout the family, although different gender distinctions have developed in the different branches.

The Iroquoian family is remotely related to another family, Caddoan. The Caddoan languages, Pawnee, Arikara, Wichita, Kitsai, and Caddo, were once spoken “in the heart of the Great Plains, from South Dakota southward into northeastern Texas and
extending eastward into the woodlands area of Arkansas and Louisiana” (Chafe 1979: 213). As Chafe (1977) has shown, these languages contain first and second person pronominal prefixes cognate with their Iroquoian counterparts. He reconstructed the Proto-Caddoan-Iroquoian prefixes as *k- for first person and *s- for second.

There is no definite third person prefix in Caddoan, but there are bound pronouns translatable as ‘one’. The agent form is reconstructed as Proto-Caddoan *yi- and the patient form as *yu-. These prefixes have clear cognates in the Iroquoian languages, but their meanings have expanded there. Cognates of the agent prefix *yi- are used in the modern Northern Iroquoian languages not only for indefinite third person agents, but also for collectives and for definite feminine singular agents. Cognates of the patient prefix *yu- are used in Cherokee for all third person singular patients, and in Northern Iroquoian for all neuter patients (and in some languages for less respected feminine patients).

1.2. Person and case. Some languages contain overt third person pronominal affixes for only one case: there is a third person subject or ergative affix, but no overt object or absolutive affix. In Takelma, for example, third person subjects are specified by verbal suffixes in most aspects, but third person objects never are. In many Salish languages, third person transitive subjects are indicated by verbal elitics, but no other third persons are marked. In the Mayan languages, third person ergatives are specified by verbal prefixes, but absolutives are not. This is a result of the way that information is typically distributed over case roles in connected speech. Subjects, especially transitive subjects, usually function as topics. Speakers establish a topic or point of view and retain this orientation over a stretch of discourse. Topics are thus referred to more often by unstressed pronouns than by full noun phrases. New participants are usually introduced as objects or absolutives, so these are more often identified by full noun phrases (Du Bois 1985, 1987). Pronominal specification of them is rarer. This fact is reflected in the bound pronominal paradigms of many languages.

There is comparative evidence from several families indicating that their subject pronouns had been affixed before object pronouns were. In Na-Dene, first and second person subject pronouns appear close to the verb stem in all languages of the family. The Athabaskan languages also contain object prefixes, but these appear considerably further from the verb stem, even before the markers for the third person unspecified subjects. In the more remote Tlingit, object pronouns have not yet become part of the verbal morphology. They still precede the verb as independent words.

Each of these stages in the development of bound pronominal paradigms constitutes a functionally efficient system. The numbers of languages exhibiting each attest to their stability. Most of the paradigms have been in place for centuries. In each, redundant marking is minimized, and the relative pragmatic salience of arguments is matched by the perceptual salience of the forms that identify them. First and second persons are almost never identified by separate noun phrases, so indication by overt pronominal
affixes is their only specification within a clause. First and second persons are also usually topics, and represent given information, so the lack of perceptual salience characteristic of affixes is appropriate. Similarly, indefinite persons are not usually identified by a separate noun phrase, so an obligatory pronominal affix is not redundant. Since their identity is by definition unimportant to the discourse, the low salience of bound affixes is appropriate for them as well. Specific third persons, by contrast, are usually identified by full noun phrases, at least when first introduced. At this point, simultaneous pronominal specification within the verb would be redundant. The redundancy would arise most often with those arguments used to introduce new information: objects or absolutes. The absence of obligatory affixes for definite third persons, especially objects or absolutes, is appropriate.

2. NUMBER

Full number specification is not always an integral part of pronominal paradigms at the time of their affixation. Some languages lack it altogether. Washo, for example, a language of western California and eastern Nevada, contains pronominal prefixes for first, second, and third persons, but the bound pronouns show no number distinction (Jacobsen 1977).

Comparative evidence in many families indicates that number has been grammaticalized more recently than first and second person. Recall that in the Algonquian languages, first and second persons are specified by prefixes, and third by suffixes. Number, also indicated by suffixes, appears to have been morphologized after first and second person. In his Algonquian sketch, Bloomfield reconstructed forms for all of the Proto-Algonquian person markers, but “the languages disagree as to the plural forms of first and second persons” (Bloomfield 1946:97). Furthermore, Wiyot and Yurok, Northern California languages remotely related to the Algonquian family as a whole, contain pronominal prefixes transparently cognate with those in Algonquian (I. Goddard 1966, Robins 1958). The plural number suffixes are different, however.

2.1. Number and person. When number distinctions are added to pronominal paradigms, they are not necessarily acquired in all persons simultaneously. In the majority of North American languages, number is marked differently for first and second person than for third. This is not altogether surprising, given the disjoint morphologization of first and second versus third person markers discussed in the previous section. Very often number, especially for third person, is not even part of the pronominal complex, formally or functionally. In many instances, it has barely been morphologized. Even when it has, comparative evidence frequently shows that it is relatively recent. Its source is often still recoverable.

In the Athabaskan languages, completely different forms are used for the singular and plural of first and second person subject prefixes. Compare the singular and plural forms in 3).
The plurality of third persons is indicated in different ways in different Athabaskan languages, but it is never specified in the same part of the morphology as that for first and second persons. In many of the languages, a third person plural prefix appears before the object markers. In Chiracahua Apache the prefix is *g6-, in Galice *lu1 in Chipewyan *la-, in Hare *ru-, in Dogrib *gi-, in Sarcee *gi-/gu-. It optionally pluralizes third person subjects or objects, but not both.

In the more remote Tlingit, the only true third person plural marker is a separate word *hAs. Swanton listed this form (spelled *hAs) with the independent pronouns, but noted, “*hAs is freer in its position than the pronouns described before. It seems probable that it was not originally a pronoun” (1911:171). This marker also serves other functions: “with terms of relationship the plural is more often indicated by placing *hAs after the noun” (1911:169).

Third person number is reflected in several other ways in Athabaskan languages. A common source of number marking is a distributive morpheme. Its primary function is to distribute actions or events over multiple locations, times, or participants. Li reported that the Chipewyan distributive, for example, “indicates the plurality of the subject, or of the object and is used sometimes adverbially” (1946:417). His examples of the prefix *dá- include *x̂adârogai ‘it is white-spotted’ (from ‘there is a white spot’), *ʔoh’sidánoisus ‘you split several objects’ (from ‘you split it’), and *bóx̂idánaʔasdzis ‘I sip out of several vessels’ (from ‘I sip out of it’).

True plurals and distributives are not precisely equivalent in function. Plurals simply enumerate entities; distributives usually characterize certain features of events. Languages can contain both. Describing Hupa, Pliny Goddard wrote, “in the third
person, -ya- is placed before the root for a plural subject and also for a plural object. One must judge from the context which is intended to be plural. In many cases Hupa employs the singular, as is shown by the verb, where the plural would be required in English. When a number of individuals do anything as a unit, as in a dance, the singular is used. The distributives in Hupa are carefully distinguished from the plurals. For the expression of distribution the prefix te- is employed: for example, txeyanindaL 'they went out', tcetedeL 'one by one they went out'. The same element expresses distribution as to the object. For example, yavillai 'he picked up stones', yate'P' 'he picked up a stone here and there' (1911:104). The distributive "means either that the act took place here and there in space or continuously over space; or that one person after another did the act" (P. Goddard 1911:118).

Because plurals and distributives are so often appropriate in the same situation, distributives do sometimes assume a plural function. The Navajo distributive da-, for example, is the only number prefix in that language. Young and Morgan report that "as a verb prefix of position III, da- serves to pluralize either the subject, the direct object, or both, indicating that the number is 3 or more. Plurality is distributive in some contexts, a simple plural in others" (1980:158).

The distributive prefix has been in place for a long time in these languages. It dates from at least the time of Proto-Na-Dene. A cognate prefix in Tlingit, daga-/dax- appears immediately before the first and second person prefixes, and retains a prototypical distributive function: adagakési 'she's sewing each of them', hospital-x'yéi dagaatëe 'each of them is in hospital' (Story and Naish 1973:355).

Distributives are probably the most common device used for marking number in North America. This can be seen not only in Na-Dene, but also in Tsimshian, Nez Perce, Kwakiutl, Klamath, Pomoan, Yuman, various Uto-Aztecan languages, Tonkawa, Caddoan, Muskogean, and Iroquoian, among others. Usually, the markers retain their distributive function, but on occasion, especially when human beings are involved, they can come to serve as plurals. Since human beings may be considered inherently individualistic, distributive markers often appear every time multiple persons are discussed. The marker thus takes on an essentially plural function in this domain. (For further discussion of plurals and distributives in North America see Mithun 1988.)

The Salish languages provide another example of the partial integration of number into the pronominal paradigm and also illustrate a second common source of number marking. These languages, spoken in Washington state, British Columbia, Idaho, Montana, and Oregon, include Bella Coola; the Central Salish languages Comox, Pentlatch, Seshelt, Squamish, Nooksack, Halkomelem, Clallam, Northern Straits, Lushootseed, and Twana; Tillamook; the Tsamosan languages Upper Chehalish, Cowlitz, Quinault, and Lower Chehalis; and the Interior languages Lil'ooet, Thompson, Shuswap, Columbia, Okanagan, Kalispel, and Coeur d'Alene (Thompson 1979). In all of the languages, verbal enclitics distinguish the person, number, and case of objects, subjects, and possessors. The first and second person pronouns are highly fused
forms, in which the number markers are inseparable from the person markers. Number marking in third person is a different matter. It is often not specified at all. When it is, the devices used are not an integral part of the pronominal system, and, furthermore, vary from one language to the next.

In Shuswap, for example, Gibson reports that “there is no obligatory number distinction in third person ... Plurality can be expressed by reduplicative derivation and referent inflection, but it is an optional category” (1973:52).

In his description of Southern Puget Sound Salish, Snyder provides distinct forms for first and second person singular and plural verbal enclitics. Third person singular is listed as zero, and third person plural as halgwa. He notes that “the distribution of halgwa is less restricted than that of the other pronominal clitics and in some other respects differs from them. halgwa may follow demonstrative pronouns to indicate a plural subject, or in passive constructions a plural agent, where otherwise the subject or agent would be singular. Other clitics have not been found in this environment ... halgwa may follow [the other clitics] and, in this position, functions as an object ... None of the other pronominal enclitics have been found to follow halgwa or each other as objects ... The interrogative suffix -o follows the first four pronominal enclitics but either follows or precedes halgwa (1968:26).

The other Salish languages present a similar picture. It appears that although number distinctions in first and second person are of considerable antiquity, number in third person has barely been grammaticized. This is confirmed by Newman’s 1980 reconstruction of the Proto-Salish pronominal forms. He reconstructed five sets of pronouns: possessives, transitive subjects, intransitive subjects, transitive objects, and causative objects. Third person forms were reconstructed for only the possessive and transitive subject sets. He commented that “the ancestral contrast between singular and plural in the first and second person was preserved in nearly all Salish languages.” He noted that “the column for third-person plural pronouns is omitted. The forms for the paradigmatic slot could not be reconstructed because the daughter languages display a variety of morphological devices, combinations of devices, or merely the third singular to express plurality in the third person. The comparative evidence suggests that the parent language had no distinctive form for the third plural pronoun” (1980:156).

A common source of number marking can be seen in Upper Chehalis forms collected by Kinkade. He notes that “third person plural is frequently not distinguished from a third person singular subject. Instead, the independent personal pronoun /cneáwm3/ may be used with a singular third person subject suffix on the verb” (1964:33). “The third person plural object suffix as a discontinuous morpheme. It consists of a third person singular object suffix followed by the subject suffix, and finally a plural suffix” (1964:48). Furthermore, some object “forms were not obtained because of substitutions used for the expected forms; this is particularly true of third person plural forms. More often than not, the informant would use the third person singular object suffix, and the third person plural pronoun /cneáwm3/ as direct
object after the verb to indicate a third person plural object ... Apparently the third person plural is not always or necessarily formally distinguished, so there may be some confusion and variation by different speakers” (1964:46). The use of independent resumptive or appositive pronouns to specify number when necessary can be seen in other unrelated languages as well, such as Washo (Jacobsen 1977) and Maidu (R.B. Dixon 1911) among others.

A third common source of number marking is an independent noun meaning something like ‘people’. Like the distributives and free resumptive pronouns, it is rarely fully integrated into the bound pronominal paradigm. It is usually optional, appearing only when number specification is important, and is used only for human beings. In Kwakiutl, for example, a Wakashan language of British Columbia, pronominal suffixes specify subjects, objects, and instruments, in that order. First person, inclusive and exclusive, second person, and third person are distinguished. Boas wrote, “In the pronoun the idea of plurality is not developed. The combination of speaker and others must not be considered as a plurality; but the two possible combinations — of the speaker and others, including the person addressed, and of the speaker and others, excluding the person addressed are distinguished as two separate forms, both of which seem to be derived from the form denoting the speaker (first person singular). The plurality of persons addressed and of persons spoken of is indicated by the addition of a suffix which probably originally meant ‘people’. This, however, is not applied unless the sense requires an emphasis of the idea of plurality. It does not occur with inanimate nouns” (1911:444). “This suffix must not be considered a pronominal ending. It is attached to interjections as well as to verbs” (1911:550). Its recency is attested by the fact that it is not used in Bella Bella, a related dialect (Boas 1947:246).3

Evidence of these stages in the development of number distinctions in pronominal paradigms is pervasive in North America. The languages of the Muskogean family, originally spoken in the Southeastern United States, exhibit all of them. In this family are Choctaw-Chickasaw, Hitchiti-Mikasuki, Alabama-Koasati, Apalachee, and Creek-Seminole. Because of various reanalyses of auxiliaries, some languages contain pronominal prefixes, some infixes, and some suffixes, but the forms of the original affixes are clear. The languages all contain first and second person bound pronouns. Some, like Mikasuki, have developed an indefinite third person affix. Whether a definite third person element i can be reconstructed is currently debated (Robert Rankin p.c.). First persons singular and plural pronominal affixes are completely different forms. The first person plural affixes contain no segmentable number marker. Comparative evidence indicates that the singular and plural forms developed from separate sources (Mary Haas p.c.).
4) Muskogean Agents Patients

<table>
<thead>
<tr>
<th>Muskogean</th>
<th>Agents</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>singular</td>
<td>plural</td>
</tr>
<tr>
<td>Choctaw</td>
<td>-li</td>
<td>il/-ii-</td>
</tr>
<tr>
<td>Mikasuki</td>
<td>-li</td>
<td>i:ka/-o:</td>
</tr>
<tr>
<td>Alabama</td>
<td>-aa/-li</td>
<td>(h)il/(hi)li</td>
</tr>
<tr>
<td>Koasati</td>
<td>-l</td>
<td>il-</td>
</tr>
<tr>
<td>Creek</td>
<td>ay-</td>
<td>-iy/-i:-</td>
</tr>
</tbody>
</table>

In Alabama, number marking for first person has been elaborated one step further. A special collective affix -aski- 'all together, as a group' appears only with first person plural verbs: *istillaskiti* 'we (all) brought it here (together)' (Lupardus 1982:153).

In most of the second person affixes, the number marker is more transparent. The second person plural consists of the second person singular with a prefix *ha*-

5) Muskogean Agents Patients

<table>
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</tr>
<tr>
<td>Mikasuki</td>
<td><em>icka</em></td>
<td><em>acka</em></td>
</tr>
<tr>
<td>Alabama</td>
<td><em>is</em></td>
<td><em>ha-s-</em></td>
</tr>
<tr>
<td>Koasati</td>
<td><em>is-</em></td>
<td><em>ha-s-</em></td>
</tr>
<tr>
<td>Creek</td>
<td><em>ick-</em></td>
<td><em>ack-</em></td>
</tr>
</tbody>
</table>

The transparency of the second person plural forms suggests that number marking in the second person is more recent than in the first person. The morpheme *ha* still appears elsewhere in the languages. Kimball notes that in Koasati, nouns referring to human beings may optionally bear the plural suffix *-ha*. A Creek infix *-ha-* in some verbs might be related as well (Haas p.c.). In Choctaw, it is optionally extended to first person patients. Additional evidence of the more recent incorporation of number marking in second person is that it is not uniform in all of the modern languages. In Creek, the most divergent language grammatically, the second person plural is formed by means of a different plural morpheme, a verbal suffix *-ta:ki*. This suffix also appears elsewhere in Creek, especially with independent pronouns.

As in many North American languages, plurality of third persons may be indicated in several ways. It is sometimes part of the inherent meaning of the verb stem itself. Verbs implying different numbers of participants may be derivationally related,
like Koasati okpaká:li-n ‘(one) to float’, okpaka-ği-f-ni ‘(several) to float’, or ataká:-li-
- n ‘to hang one’, aták-li-n ‘to hang several’. They may simply be different, unrelated
lexical items, such as haccá:lin ‘(one) to stand’, hiikká:lin ‘(two) to stand’, lokkó:lin
‘(several) to stand’ (Kimball 1986:269-73).

Alabama, Mikasuki, and Koasati, show another number marking device. A
prefix ho- can appear when multiple entities are involved.

6) Alabama (Lupardus 1982:67-8)
ho:haaloti they heard it (cf. haalolji I heard it)

7) Mikasuki (Boynton 1982:125)
imbopomalí a lot of people eat

8) Koasati (Kimball 1986:126)
ho-coba-Vi (willows) all grow

The prefix ho- is actually a distributive. Kimball reports that in Koasati, for example,
“the prefix indicates that a subject or object is multiple or scattered over a space. This
prefix is not equivalent to a pluralizer for the third person, as it is not required, even
when the context indicates that the third person is not singular, and it does not occur
when the verb appears in the dual or plural third person, in those verbs which have a
special plural or dual form” (1986:125).

In some of the languages, ho- may be assuming some of the functions of a
plural, but it has not been fully integrated into the pronominal paradigm. Lupardus
notes that in Alabama, “the affix for third person is zero... The distributive prefix is
not included in Table 2 [agentive pronominal affixes] though it normally occurs in the
third person to distinguish the plural from the singular. Phonologically and positionally
the distributive prefix does not pattern with the other nonfirst agentive pronominal
affixes” (1982:67).

In Mikasuki, ho- has been extended to second persons where number would
otherwise be ambiguous. “Plurality of the second and third persons may optionally be
indicated by this infix. Its occurrence marks number for the agent, patient, or dative
cases. Inflected active verbs— that is, those with agent suffixes— are ambiguous for
number in the third person only. And this infix occurs only in the third person to mark
plurality for an agent suffix. Inflected verbs that have patient or dative prefixes are
ambiguous for number in both the second and third persons. This infix occurs with
both second and third person patient and dative prefixes to mark plurality" (Boynton 1982:124). Although the purely distributive use of the infix “is highly unusual for Mikasuki”, relics of this function can be seen in certain frozen verbal constructions, as in 9).

9) Mikasuki (Boynton 1982:126)

hotapлом hit into pieces (yatapлом hit (once))

Even in Mikasuki, the morpheme has not become a systematic inflectional number marker. “It is interesting that in all free texts gathered for this research, -ho- occurred in verb forms where explicitness about number was required by the context. It did not routinely occur when there was a plural referent. However, -ho- was produced for all formally elicited verb paradigms, for the third person plural agent suffix and for the second and third person plural patient and dative prefixes. The production of these forms was clearly a response to translation pressures from English (Boynton 1982:124-25).

The morpheme is not used uniformly throughout the family. It does not appear at all in Creek. In Choctaw, it appears only with plural imperatives, where it is optional. There, “it is used to make polite commands in the plural, as in hominiti ‘you-all come on’ and ohishi/hohishi ‘you-all help yourselves (to the food)’ (ishi ‘to pick up’). It was used formerly as a respect form in speaking to or about in-laws” (Nicklas 1974:32).

A different device is often used in Choctaw to indicate dual and plural number of third persons in declaratives. The word toklah, related to the verb ‘to be two’, can indicate dual number.

10) Choctaw (Ulrich 1986:280)

Talowa-h toklah
sing-VERBAL-SUFFIX be.two
Two of them sang

The word oklah ‘people’ can indicate plural number.

11) Choctaw (Ulrich 1986:279)

Ohooyoo-t oklah hilha-h
woman-SUBJECT people dance-VERBAL-SUFFIX
The women (pl) danced

The words may appear with or without separate noun phrases.
The Muskogean family thus illustrates all of the stages in the development of pronominal paradigms described so far. The original paradigm probably contained only first and second person affixes, although an indefinite third person affix has developed recently in one of the daughters. Number was added in stages. It was distinguished initially in first person. First person plurals are cognate in all of the languages, but the number marking is opaque. One of the languages has further elaborated number marking in the first person to distinguish collective plurals. Number was added next to the second person pronouns. Second person plurals are cognate across most of the family but the number marking here is a transparent prefix. Number has not yet been fully grammaticized for third person. It is still not obligatory, and is not an integral part of any of the pronominal paradigms. The modern languages do not even all use the same devices to indicate number in third person. Their sources are still transparent, those typically exploited for this purpose in languages without inflectional plural are distributives, and separate nominals meaning 'people'.

2.2. **Number and case.** Just as number is not necessarily grammaticized simultaneously in all persons, it is not always grammaticized simultaneously in all cases.

Number markers for different cases sometimes appear in different locations within the morphology. In Acoma, for example, a Keres Pueblo language of New Mexico, pronominal prefixes specify the agent and patient of each verb. Number affixes appear in two different locations: prefixes mark the number of patients, while suffixes mark the number of agents (Miller 1965:124).

In Nez Perce, a Sahaptian language of Idaho, verbal suffixes mark the number of subjects in certain aspects, but prefixes mark plurality of objects (Rude 1985).

In Tsimshian, a language of British Columbia and Alaska, bound pronouns function ergatively. Ergative proclitics precede the verb stem, and absolutive enclitics follow it.

<table>
<thead>
<tr>
<th>Ergative proclitics</th>
<th>Absolutive enclitics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Er</td>
<td>sg</td>
</tr>
<tr>
<td>1</td>
<td>-n-</td>
</tr>
<tr>
<td>2</td>
<td>-m-</td>
</tr>
<tr>
<td>3</td>
<td>-t-</td>
</tr>
</tbody>
</table>

12) Coast Tsimshian (Dunn 1979:62)
Discussing the ergative set, Boas (1911b:388) remarked that “the prefixed person pronouns n-, m-, and t- may be considered true pronominal forms. The first person plural dEp is, however, by origin, a plural of much wider application. It is used frequently to express the plural of demonstrative pronouns; for instance, dEp gw’a’i ‘those’. It seems, therefore, that its use as a first person plural may be secondary. The second person plural contains the objective element -sEm, which remains separable from the transitive second person m-. Particularly the temporal elements wil, dEm, ta are placed between m- and -sEm.”

13) Nass Tsimshian (Boas 1911b:388)

`ada mE dEm sEm wul‘ai ta gwa‘ntgut`

Then 2.ERG PUT 2.PL know PAST touch-I-it

The case organization of number marking does not always match that of the bound pronouns. In the Siouan languages, person markers distinguish agents and patients, as described above, but number markers quantify subjects and objects. The positions of the number markers within the morphology, their variation within the family, and the transparency of some forms, all indicate that the number distinctions were morphologized more recently than person.

In all of the Siouan languages, prefixes indicate first, second, and inclusive agents and patients, but suffixes indicate plurality of animate subjects. The number suffixes are not all cognate across the family. In many languages, the plural marker is -pi or a close cognate: Dakota, Lakhota, Assiniboine -pi, Ponca -bi, Winnebago -wi (in first and second person). For third persons, the Winnebago suffix is -ire (Boas and Swanton 1911). The southeastern languages show other suffixes. The Tutelo plural of second person is -pa or -pua, but for third person, the plural varies with tense, taking such forms as -hehla, -nhna, -ese (H. Hale 1883). In Biloxi and Ofo, the plural is -tu (Dorsey and Swanton 1912).

Plurals of objects are shown by different morphemes in the various languages. Only plurals of animates are marked. In Dakota, plurality of third person objects is shown by a prefix wičha-. As Boas and Swanton noted, “this term, however, is not a pronoun, but signifies ‘person’ as is evidenced by the concurrence of the terms wiča ‘male, human being’ and wičaša ‘man’” (1911:908). In Ponca, “the object of the third person plural after the inclusive dual and first person plural is waŋ. The plurality of the object is expressed by the suffix -i’” (ibid.:915). In Winnebago, the third person plural object is wa-. The southeastern languages do not even match each other.
In Tutelo, the suffixes -hehla, -nhna, and -ese that pluralize third person subjects also pluralize objects. In Ofo, the suffix -tu that pluralizes subjects also pluralizes objects. In the closely related Biloxi, the plural of objects is shown by an enclitic -daha following the subject plural marker -tu.

The source of number markers is the primary determinant of their case organization. Distributives, for example, often distribute the effect of actions, so they tend to quantify those participants most affected by events: subjects of intransitives and objects of transitives (absolutives). When languages specify the number of human beings with independent pronouns or a noun meaning 'people', they usually apply them to humans, often subjects. If number affixes developed from markers of joint or distributed agency or causation, such as those in Central Pomo or Nez Perce, they would presumably apply first to agents.

3. THE GRAMMATICAL RAMIFICATIONS OF PRONOMINAL AFFIXATION

The different types of bound pronominal paradigms that result from the stages of development outlined above do not constitute an isolated linguistic feature.

3.1. Person and syntax. The presence of obligatory bound third person pronouns in a language has major syntactic ramifications. As noted earlier, pronominal affixes represent the core arguments of clauses. The verbs that contain them are complete predications in themselves. Noun phrases that co-occur with these verbs bear a different syntactic relation to the verbs than they do in a language like English. The noun phrases are primarily appositives, further identifying the entities obligatorily specified by the pronouns. They are often separated from the verbs intonationally.

This fact has a profound effect on constituent ordering. In languages with obligatory overt third person pronominal affixes, word order does not signal the case roles of arguments. These are already specified morphologically within the verbs. Constituent order is actually not syntactically based at all; it is pragmatically determined. In such languages, the most newsworthy constituents, the elements most significant to the discourse at hand, usually appear early in the clause, followed by successively more predictable and incidental information. Speakers tend to present the principal idea early, then fill in details. There is no “basic” or “pragmatically unmarked” order, although some orders may occur more often than others. Every order is pragmatically meaningful. (For further discussion and exemplification see Mithun 1986a, 1986b, 1987.)

In languages without third person pronominal affixes, separate noun phrases function as syntactic arguments even if first and second persons are represented by bound pronouns. These languages have a “basic”, or “unmarked” word order,
although this may be flexible, depending upon what other types of cues are available within the language for clarifying case roles. The Siouan languages, for example, contain first and second person prefixes, but no third person affixes, and they have a basic SOV order, even though it is altered for particular pragmatic purposes. The Iroquoian languages, by contrast, contain fully specified third person pronominal prefixes and exhibit purely pragmatic ordering. All constituents are ordered solely according to their relative importance to the discourse.

3.2. Number and syntax. The tendency in North America for unstressed pronouns to become bound to verbs is part of a general typological phenomenon. The languages indigenous to the continent are not all demonstrably related genetically. Well over fifty different language families and isolates have been distinguished according to traditional comparative methods, and the status of deeper relations among these families varies from probable to highly speculative. Still, a large number share structural characteristics. They are often highly polysynthetic, with their morphological elaboration concentrated in their verbs. This verb-centeredness has an effect on the nature of the morphological categories grammaticalized. The function of affixes is normally related to the functions of the heads to which they are affixed. Nominal affixes typically characterize entities, while verbal affixes characterize events and states. In North American languages, most morphological categories pertain to events and states.

The organization of the morphology is reflected in the way number is marked in these languages. Regular inflectional number marking on nouns is rare in North America, confined primarily to Zuni, Kiowa-Tanoan, and Algonquian (Mithun 1988). Number markers appear more often on verbs, where they characterize some facet of events. They can reflect numbers of participants secondarily, however. A common type of verbal number marker, for example, is a "multiple event" affix. Its primary function is to quantify events, but the predication of multiple events often secondarily implies the participation of multiple agents ("several people) sat down") or multiple objects ("I made (several) cake(s)"). Another common type of verbal number marker specifies joint agency or causation, but this secondarily implies the participation of multiple agents. Probably the most common verbal quantifier is the distributive, which distributes actions over multiple locations, times, or participants. With so many number distinctions already marked within the verb, there is limited motivation for grammaticizing additional specification of number on nouns and pronouns. Systematic inflectional number marking is accordingly rare in North America.
4. CONCLUSION

Although bound pronouns are pervasive in North America, both synchronic and diachronic evidence indicate that pronominal paradigms do not necessarily become morphologically bound all at once. They may be grammaticized in predictable stages. Person markers may appear before number markers. Among persons, first and second person pronouns often become bound before third. Indefinite third person pronouns may become bound before definite pronouns, and subjects or ergatives before objects or absolutes. Number may be distinguished initially for first person, then for second, and only later for third, if at all.

Each stage in the development of bound pronominal paradigms results in a stable system, as attested by the large numbers of languages that have exhibited them for centuries. The development of these paradigms is not an isolated feature. It has significant ramifications in the overall grammatical structure of the language.

It has a major effect on the grammatical relations between verbs and nouns. Languages without definite third person pronominal affixes have syntactically based constituent order, whether they contain other pronominal affixes or not. Those with fully specified third person affixes have purely pragmatically based constituent order.

The late grammaticization of number within pronominal paradigms reflects a profound typological characteristic of most North American languages. Because most of their morphological complexity is contained within verbs, most of their grammatical categories, including number, pertain to events and states, rather than to participants. Additional systematic specification of number on pronouns is both unnecessary and out of typological character.

Notes

1 The Barbareño data come from the notebooks of Mary Yee, the last speaker of the language. I am grateful to other speakers who have generously contributed their expertise on their languages: Martha St. John on Dakota, Stanley Redbird on Lakota, and Monica Brown on Cree. Mary R. Haas has kindly supplied data on Creek, and Wallace Chafe on Caddo. I am also grateful to Robert Rankin, Dick Carter, and John Koontz for helpful comments on Proto-Siouan.

2 The Caddoan and Iroquoian families are also remotely related to a third family, Siouan. Some of the first and second person prefixes in various Siouan languages resemble those in Caddoan and Iroquoian. For first person, Biloxi shows *nk- (Einaudi 1976). The nasalization and velar stop appear in several other Siouan first person prefixes, mostly forms of inclusives, such as the Winnebago inclusive patient *wängá- (Boas and Swanton 1911), the Lakota and Assiniboine inclusives *ák- (Levin 1964), and the Tutelo inclusive agent *máhk- (H. Hale 1883). The k would appear to match the Caddoan-Iroquoian first person prefix reconstructed by Chafe, and the nasal to match nasalization in several first person
patient prefixes in Iroquoian, such as the Mohawk first person dual patient (y)ak-ezni- 'us two' and the first person plural patient (y)ak-wa- 'us all'. Robert Rankin points out, however, on the basis of his own work and that of Dick Carter, Wes Jones, John Koontz, and David Rood, that the Siouan first person agent prefix is best reconstructed *wa-, a form that has other reflexes in Caddoan and Iroquoian. The inclusive forms may have originated from another source, a noun for 'person'.

Some Siouan second person agent prefixes appear to match the Caddoan and Iroquoian *s- forms. Robert Rankin notes that the Proto-Siouan second person agent pronoun is best reconstructed as *ya-. The forms in *s- are the result of a regular phonological rule that is reconstructible, along with its environment, for Proto-Siouan. The similarities are tantalizing, but provide insufficient basis for reconstructing Proto-Caddoan-Iroquoian-Siouan forms.

3 There is some evidence that number may sometimes be grammaticized in first person before second. In many languages, the person and number components are fully fused in first person affixes, but transparent in second. In Takelma, a language isolate of Oregon, separate sets of first and second person pronominal suffixes are used for the various tense-modes. Compare the transparency of the intransitive aorist forms below.

Takelma (Sapir 1922:160)

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>First person</td>
<td>-p?e, de</td>
<td>-i 'kh</td>
</tr>
<tr>
<td>Second person</td>
<td>-(a) 'ph</td>
<td>-(a') 'ph</td>
</tr>
</tbody>
</table>

The first person singular and plural forms are completely different. As noted by Sapir, however, "it is clear that the second person plural aorist is derived from the corresponding singular form by the addition of a characteristic -'ph" (1922:161).

Similarly in the Uto-Aztecan languages of Mexico and the western and southwestern United States, first person singular and plural bound pronouns are completely different forms, but the components of the second person pronouns are still transparent. Langacker reconstructed the Proto-Uto-Aztecan pronominal clitics as below. -m? is a plural marker that appears elsewhere in the languages. pt is a demonstrative.

Proto-Uto-Aztecan (Langacker 1977:126)

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>First person</td>
<td>-m?</td>
<td>-ta</td>
</tr>
<tr>
<td>Second person</td>
<td>-?l</td>
<td>-?l-m?</td>
</tr>
<tr>
<td>Third person</td>
<td>-(pt)</td>
<td>-(pt)m?</td>
</tr>
</tbody>
</table>

This primacy of first person number marking is in many cases related to an inclusive/exclusive distinction. In a number of languages, first person plural pronouns are descendants of special inclusive forms that were distinguished before number was incorporated into the pronominal paradigm.
Among the three persons, the first clearly has special importance to speakers. Recall that Newman reconstructed distinct forms for the Proto-Salish first and second person, singular and plural suffixes. In Samish and Saanich North Straits Salish, however, only first person suffixes now have distinct singular and plural forms. Number need not be distinguished for second person (Montler 1986, Galloway 1986). A separate post-predicate particle may be used to indicate number if the speaker wishes: "/helə/ 'second person pluralizer' indicates that any second person reference in the clause is to be construed as a plural reference" (Montler 1986:218). The transparency of this form indicates that it is recent, although it does not demonstrate that marking number with second persons is an innovation. It appears that number in first person was sufficiently important to persist, but number in second person less so.