

Historical Linguistics and Linguistic Theory: Reducing the Arbitrary and Constraining Explanation

Author(s): Marianne Mithun

Proceedings of the Fifteenth Annual Meeting of the Berkeley Linguistics Society (1989), pp. 391-408

Please see “How to cite” in the online sidebar for full citation information.

Please contact BLS regarding any further use of this work. BLS retains copyright for both print and screen forms of the publication. BLS may be contacted via <http://linguistics.berkeley.edu/bls/>.

The Annual Proceedings of the Berkeley Linguistics Society is published online via [eLanguage](#), the Linguistic Society of America's digital publishing platform.

HISTORICAL LINGUISTICS AND LINGUISTIC THEORY:
 REDUCING THE ARBITRARY AND CONSTRAINING EXPLANATION
 Marianne Mithun

University of California, Santa Barbara

It is sometimes assumed that since speakers lack direct access to the histories of their languages, theoreticians seeking to understand human linguistic capacities should ignore these histories as well. Yet we know that speakers acquire arbitrary systems they would not create in a single stroke. Simply because learners accept some synchronic arbitrariness, we need not reject the opportunity to understand the cognitive forces that mold their languages in the first place.

Languages are the way they are not only because of static design principles: they are much more than simple one-to-one reflections of innate cognitive structures. No natural human language that we know of was created instantaneously by a single mind. Learners begin their task with a full inherited system as a point of departure, a system that was shaped by previous generations of speakers. Only by untangling the successive adjustments and innovations contributed by each do we have an opportunity to both appreciate and delimit the actual creative abilities that make languages the way they are.

Several kinds of abilities stand out as we trace the histories of languages. First, we know that learners willingly absorb a substantial amount of seemingly arbitrary structure and substance. They happily learn relics and archaisms, lexical items whose internal structures no longer correspond to general grammatical patterns or whose meanings no longer equal the semantic sums of their parts. They quickly assimilate apparently arbitrary formal and grammatical categories.

Second, we know that learners perceive some of this arbitrariness and set about repairing it, reinterpreting and remodeling parts of the systems they are confronted with. Of course no learner rebuilds a system in its entirety. Languages are at the mercy of a multitude of speakers with a variety of experiences, and they are sufficiently rich systems that they will always invite change from multiple points of entry. Change will always be universal.

Third, a key ability speakers display is the capacity to routinize operations in order to distribute attention effectively. This is especially evident in two processes: lexicalization and grammaticization. By lexicalization, the storing of morphologically or syntactically complex expressions as single lexical items, both speakers and hearers can bypass repetitious morphological and syntactic calculations of constructions that recur frequently. By grammaticization, the solidification of grammatical categories, speakers can automate the decisions they make most often. Both lexicalization and grammaticization may appear superficially to create arbitrariness, since they can

obscure structural and semantic transparency. In fact, their power to organize the deployment of consciousness sets them among the most functional of all diachronic processes.

Change creates differences among languages, and differences are sometimes dismissed as peripheral to the understanding of innate human language abilities, since they are not universal. If we restrict our attention to synchronic similarities among languages, however, we may never observe more than a static reflection of a subset of human language abilities. The changes speakers make may seem to involve accidental features of language, but they are seldom arbitrary. In reconstructing the events that produce differences, we gain an opportunity to observe the results of human minds working creatively to mold language systems: linguistic abilities in action. In what follows, examples will be discussed of the relevance of the diachronic dimension to synchronic explanation in several areas: the concrete shapes of morphemes, their meanings, the nature of grammatical categories, and principles determining their arrangement.

1. The shapes of morphemes

Among the aspects of languages often considered the most arbitrary are those that are the most concrete. The particular shapes of morphemes, for example, are often dismissed as so variable as to be without general interest. They are obviously not innate. Relationships among the shapes of morphemes within a language, however, can often point the way to the identification of quite non-arbitrary dynamic language capacities.

In Mohawk, a Northern Iroquoian language of Quebec, Ontario, and New York State, all verbs contain pronominal prefixes referring to their core arguments. The prefixes distinguish two cases, three persons, inclusive and exclusive first person, three genders in third person, and three numbers. The total number of agent, patient, and transitive pronominal prefixes is thus large: over sixty. Most of the prefixes have several forms. The neuter singular agent 'it', for example, is usually *ka-*, but before vowels *a*, *e*, and *ɔ* it appears as *w-*.

(1) Mohawk*

<i>ka-hnekihrha?</i>	'it drinks'
<i>i:-w-e's</i>	'it is walking around'

A partially similar morpheme *-wa-* can be isolated in first and second person prefixes. It indicates plurality.

(2) Mohawk

<i>te-wa-hnekihrha?</i>	'we all (inclusive) drink'
<i>yak-wa-hnekihrha?</i>	'we all (exclusive) drink'
<i>se-wa-hnekihrha?</i>	'you all drink'

Since Mohawk contains so many prefixes, but only nine surface consonants, the resemblance between the neuter allomorph *w-* and

the plural marker *-wa-* seems likely to be due to chance. Their lack of an obvious semantic relationship supports this conclusion.

A diachronic investigation of the forms, however, shows their resemblance to be more than accidental. First consider their shapes. In third person pronouns, the plural morpheme is *-ti-* before consonants.

- (3) Mohawk
ra-ti-hnekíhrha? 'they (masculine) drink'
ra-hnekíhrha? 'he drinks'

The neuter plural pronoun is a fused form in Mohawk, but compare the neuter pronominal prefixes in a related language. Seneca shows the same *ka-/w-* allomorphy for the neuter singular pronoun.

- (4) Seneca (Myrtle Peterson p.c.)
ka-:nékeha? 'it drinks'
i:-w-e?sa 'it is walking around'

The neuter plural pronoun in Seneca is *wati-*.

- (5) Seneca (Myrtle Peterson p.c.)
wa-tí-:neke:ha? 'they drink'

Since the plural marker is *-ti-*, the neuter plural *wati-* suggests that the original shape of the neuter pronoun was *wa-* before consonants. In both languages, the *a* disappeared by regular rule before vowels *a*, *e*, and *ə*, the only contexts in which the form now appears in Mohawk. The *a* of the plural marker disappears in the same contexts: note Mohawk *ítewe* 'Let's go!'. The neuter and plural morphemes thus originally had exactly the same shape: *w(a)*.

To retrieve the semantic connection between the modern neuter and plural markers it is necessary to delve back further in time. The Iroquoian languages are remotely related to two other groups: Siouan and Caddoan. Most of the Siouan languages contain a verbal prefix *wa-* (or a cognate) that indicates the involvement of an indefinite patient in an otherwise transitive event.

- (6) Mandan (Kennard 1936: 33)
wa-éka?e he '(he) heard **something**, it is said'
éka?e he 'hear-quotative'

- (7) Santee (Martha St. John, p.c.)
wa-špáwaye 'I'm cooking (**something**)'
bdó špawáye 'I'm cooking potatoes'

- (8) Winnebago (Lipkind 1945: 17)
wa-rúc' 'to eat **something**'
rúc' 'to eat it'

- (9) Osage (La Flesche 1932)
wa-báha 'to signal (display **something**)'
bahá 'to show, display'

- (10) Biloxi (Einaudi 1976: 78)
a-duti 'eat **something**'
duti 'eat'

The Siouan prefix is not a pronoun. It reduces the valence of a verb. The second verb in each pair above is transitive and can appear with a separate nominal object, but the first cannot.

The Siouan indefinite patient detransitivizer has evolved semantically in two different directions. In some languages, it now marks an indefinite participant in any role. Note its use in the Mandan example below to mark an indefinite intransitive agent.

- (11) Mandan (Kennard 1936: 40)
óti warópæktek '**something** might enter the lodge'
wá:ksa '**something** must have happened'

The subsequent development of this prefix to a referential definite pronoun would be a short step. It is not uncommon across languages for indefinite markers to develop into referential pronouns. (See Mithun 1988a.) The Caddoan languages, for example, contain first, second, and indefinite third person pronominal prefixes ('someone'), but no definite third person prefixes. The indefinite pronoun can be reconstructed for the family as a whole (Chafe 1976). In modern Caddo, the indefinite pronouns are used not only for unidentified individuals, but to refer to one's in-laws, already a step toward definite referentiality.

The Proto-Caddoan indefinite agent pronoun **yi-* has cognates among all of the Northern Iroquoian languages including Mohawk. Northern Iroquoian **ye-* has retained the indefinite meaning 'someone' but it has also developed an additional meaning: 'she'. The Proto-Caddoan indefinite patient pronoun **yu-* is cognate with the Northern Iroquoian neuter patient prefix **yo-* 'it'. An Iroquoian cognate of the Proto-Siouan indefinite **wa-* probably developed into the Mohawk neuter agent *w-* by the same process.

The Proto-Siouan prefix **wa-* evolved in another direction in a number of Siouan languages. The indefiniteness of the prefix has resulted in a blurring of number. The prefix has developed a distributive sense, spreading events over indistinct participants.

- (12) Dakota (Martha St. John, p.c.)
wa-špáwaye 'I'm cooking **things**'

- (13) Biloxi (Einaudi 1976: 78)
nk-a-da 'I gather **things**'

In a few of the languages, the prefix has developed into a full-fledged number marker, a not uncommon step from a distributive

(Mithun 1988b). Note the use of *wa-* to indicate plurality of third person direct and indirect objects in the verbs below.

- (14) Ponca (Boas and Swanton 1911: 915-6)
wa-čána'aⁿ 'thou hearest (about) **them**'
čána'aⁿ 'thou hearest (it)'
- (15) Winnebago (Lipkind 1945: 22)
wa-rahé 'thou buriest **them**'
rahé 'thou buriest (him)'
- (16) Ioway-Oto (Whitman 1947: 244)
wa-giwaxúñe 'they sacrificed (it) to **them**'

The Caddoan languages retain traces of a similar development. A morpheme *wa-* appears in Pawnee and Wichita as a distributive (Parks 1976, Rood 1976). It has further developed into a number marker in two of the languages, although in different ways. In a few Wichita verbs, it marks duality of subjects. In Caddo, it marks plurality of third person animates.

Comparative evidence thus indicates that the homonymy between the Mohawk neuter and plural markers is not accidental after all. Both probably descended from an original indefinite detransitivizer **wa-* cognate with that reconstructed for Proto-Siouan. On one side, the prefix was reanalyzed as a general indefinite neuter pronoun, then a definite one. On the other, it was interpreted as a distributive marker, then a plural. Each of the steps in this development reflects a semantic extension that is not uncommon cross-linguistically (Mithun 1989). The link is undoubtedly no longer present in the minds of modern Mohawk speakers, but the diachronic account does explain why a piece of the modern language is as it is in terms of individual, motivated reinterpretations.

The unraveling of this development also provides evidence of the actual kinds of reanalyses speakers make. Some of these are semantic, like the generalization of indefinites to definites, or of distributives to plurals. Others are formal. Recall that in Mohawk the allomorph *w-* alternates with *ka-* according to phonological context. *ka-* has an interesting history of its own, similar to that of *wa-*. Prefixes of this shape also appear in modern Siouan, Caddoan, and Iroquoian languages. In Mandan (Siouan), it is an agentive nominalizer: *ka-ro're* 'one who spoke > speaker' (Kennard 1936). In Biloxi (Siouan) it is part of the indefinite pronoun: *ka-wa* 'someone' (Einaudi 1976). In Pawnee (Caddoan), it is an iterative: *ka-ka?uc* 'to bite repeatedly', *karu* 'to make **them**' (Parks 1976). In Caddo (Caddoan), it combines with another prefix to indicate plurality of objects: *haka-* (Chafe 1976). In Cayuga and Tuscarora (Iroquoian), it marks plurality of third persons: Cayuga *hə-ká-ə?* 'they will go'. At a certain point in Northern Iroquoian, the prefixes *wa-* and *ka-* had become so similar semantically that speakers reinterpreted their alternation as a formal one: *w(a)-* before certain vowels, *ka-* elsewhere.

2. The meanings of morphemes

In Central Pomo, a language of Northern California, many verb stems contain prefixes like those below.

(17) Central Pomo (Frances Jack p.c.)

<i>léy</i>	'for a group to die'
<i>daléy</i>	'clean all up, as gathering up all the nuts with hands'
<i>maléy</i>	'wear out the sole of the shoe'
<i>p^haléy</i>	'for water to wash everything down, as dirt from bank'
<i>baléy</i>	'buy out'
<i>č^haléy</i>	'win everything in gambling'
<i>čaléy</i>	'wear out a cushion or hole in pants'
<i>qaléy</i>	'eat something all up'
<i>sléy</i>	'drink something all up'
<i>hléy</i>	'mash something all up, as when pounding acorns'
<i>šléy</i>	'pick everything off, as fruit from branches or seafood from rocks, or dip all liquid out'
<i>p^hléy</i>	'for wind to carry everything away'
<i>mléy</i>	'burn'

The exact meanings of the prefixes are clearer in some verbs than in others, but certain regularities emerge. The prefix *da-* often means 'by pushing', especially with the hands, *ma-* 'by stepping', *ča-* 'by sitting', *qa-* 'by biting', *s-* 'by sipping or sucking', *h-* 'by poking or jabbing', etc. The prefixes sometimes contribute a causative meaning as well, as can be seen above.

The prefixes are pervasive in the lexicon, but their meanings are not always translatable by a single English gloss. Consider the prefix *š-* in the verbs below.

(18) Central Pomo (Frances Jack, p.c.)

<i>šq^háan</i>	'dragging something along'
<i>šʔól</i>	'pull a card out from a pile in a card game'
<i>šlíw</i>	'for tide to go down, water to recede'
<i>šk'ún</i>	'close, as a door, gate, trunk, book, etc.'
<i>šq^hát'</i>	'rip, tear, pull something apart'
<i>šlósčiw</i>	'pull something off with a yank'
<i>šdíw</i>	'pull a bucket out of a well, string beads'
<i>št^háw</i>	'open a door or gate, untie something'
<i>šdíw</i>	'hold something by the handle, as a purse or basket'
<i>ščéw</i>	'catch something, hook it, tie it up'
<i>št^háw</i>	'dangle something to estimate its weight'
<i>šyól</i>	'stir something with a handled instrument'
<i>šyúʔčiw</i>	'start picking fruit from branch, collecting seaweed'
<i>šyéw</i>	'stop weaving, picking fruit, collecting seaweed, etc'
<i>šdíč'</i>	'pick up a burden off the ground to carry on back as in a burden basket with a tumpline'

All of the verbs seem to involve pulling, dragging, dangling, hooking, etc., certainly related notions.

Compare the verbs in (19) containing the prefix *p^h-*.

(19) Central Pomo (Frances Jack, p.c.)

<i>p^h báw</i>	'split wood'
<i>p^h yú?čiw</i>	'start chopping wood, or start to hit something'
<i>p^h yéw</i>	'stop chopping wood, etc.'
<i>p^h t'ún</i>	'drive in a peg to stop a leak'
<i>p^h t'éeč'</i>	'hammer a nail into the wall'
<i>p^h tós</i>	'knock something down by swinging with a stick'
<i>p^h láš</i>	'miss a ball when swinging'
<i>p^h k'ún</i>	'blow shut, nail shut'
<i>p^h t'ólčiw</i>	'blow over something spillable'
<i>p^h t^h áw</i>	'blow open, as wind on door'
<i>p^h líw</i>	'wave in the wind'
<i>p^h t^h áw</i>	'flap in the wind'
<i>p^h diw</i>	'fly'
<i>p^h dúuŋ'</i>	'blow, as on soup or fire'
<i>p^h déen</i>	'flying along, watching, caring for'
<i>p^h ?ól</i>	'glance over'
<i>p^h nép^h new</i>	'look over critically'
<i>p^h yéq'</i>	'impress visually'
<i>p^h wíw</i>	'see'
<i>p^h yáaq'</i>	'recognize'
<i>p^h t' áw</i>	'appear, seem'

The range of meanings attributable to the prefix *p^h*- are a bit more diverse, but a common thread can be discerned, some kind of movement along a path by arms, air, or sight.

Now compare the verbs in (20) containing the prefix *m-*.

(20) Central Pomo (Frances Jack, p.c.)

<i>m^t óš</i>	'kick'
<i>m^t 'ólčiw</i>	'knock over with the elbow or foot'
<i>m^s éč'</i>	'sniff at something'
<i>m^l áš</i>	'miss when trying to kick, or miss in marbles'
<i>m^d éen</i>	'dancing along, or fire burning along'
<i>m^t 'éeč'</i>	'catch fire'
<i>m^b áč'</i>	'burst open, as from swelling from heat or frost'
<i>m^t 'ún</i>	'clogged, as a hole clogged with dirt'
<i>m^k 'ún</i>	'be constipated'
<i>m^y ú?čiw</i>	'begin to ache'
<i>m^l óŋčiw</i>	'melt'
<i>m^t 'áw</i>	'cooked'
<i>m^y ól</i>	'cook various things together in same pot'
<i>m^č ów</i>	'chap'
<i>m^t 'óy</i>	'blister'
<i>m^t 'áw</i>	'unravel'

The common semantic thread is in some cases less obvious here. Metaphoric extension linking kicking, sniffing, elbowing, marble shooting, catching fire, bursting, clogging, constipation, aching, heat, frost, and unravelling moves from the predictable to the far-fetched, but the boundary is not altogether clear.

Comparative evidence from related languages in the Pomoan family sheds light on how some of this system came to take its current form. Central Pomo underwent a phonological change whereby all pretonic vowels except *a* disappeared from initial syllables. (See Oswald 1964.) The vowel loss caused considerable syncretism among the instrumental prefixes. In his description of Kashaya Pomo, Robert Oswald lists prefixes similar in form and meaning to the Central Pomo prefixes described above. The Central Pomo prefix *š-* is cognate with both the Kashaya prefixes *č^hi-* and *š^u-* according to regular phonological correspondences.

(21) Kashaya (Oswald 1960)

č^hi- 'by holding a small or constricted part of a larger object', often 'by an instrument with a handle'

č^hi^de·du 'to carry or drag something by a handle, to lead someone by the hand' and commonly 'to carry in a sack held by the neck and slung over the shoulder'

š^u- 'by pulling, by alternately pushing and pulling, with a long flexible object'

š^uh^taw 'to pull open (a door) (-ht^ha- 'to open')

Sally McLendon lists a pair of cognate prefixes with the same meanings in her grammar of Eastern Pomo.

(22) Eastern Pomo (McLendon 1975)

k^hi·k^hó· 'tie up something'

k^hi·dí·l 'pack on back'

š^udí·l 'lead child along by hand, animal along by rope'

The modern Central Pomo prefix *š-* thus descended from two separate prefixes, one meaning 'by hooking/catching/dangling', the other 'by pulling'. Their separateness is often still evident in speakers' descriptions of meaning. In translating the verb *š^th^áw*, for example, Mrs. Jack said, "That can be used in two ways. One way, it means opening something, like pulling open a door or a gate. The other way, it means untie something."

The Central Pomo prefix *p^hi-* also has at least two sources. Its Kashaya cognates are *p^hi-* and *p^hu-*.

(23) Kashaya (Oswald 1960)

p^hi- 'with the side of a long object, with the eyes, with an axe, hammer, etc.'

p^hi^hc^haw 'to knock over with the side of a long object'

p^hi[?]t[?]aw 'to look, to seem, to appear, ...'

p^hu- 'by blowing'

p^uh^caw 'to blow over'

A similar pair of prefixes exists in Eastern Pomo.

(24) Eastern Pomo (McLendon 1975)

p^hi·dák^h 'break up/open something with an instrument such

as an axe'

p^hi·qó· 'recognize through sight'

p^hu·šú·l 'blow'

p^hu·dí·l 'fly'

The Central Pomo prefix *p^h-* is thus the modern reflex of two different prefixes, one meaning 'by swinging, with the side of a long object, or by seeing', the other 'by blowing'.

The Central Pomo prefix *m-* has Kashaya cognates *mi-* and *mu-*.

(25) Kashaya (Oswalt 1960)

mi- 'with a small projection near the end of a long object, with the toes, with the nose, by kicking, by smelling, by counting, by reading'

mihc^haw 'to kick over, to knock over with the toes'

mišew 'to smell'

mu- 'with energy—kinetic, thermal, photo, or psychic; by a quick movement, with something moving quickly, with heat, with light, or with the mind or emotions'

muʔt^haw 'to be cooked'

moʔbow 'to swell from being inflamed (as an infection), to swell or rise from being cooked (as bread in the oven)'

These correspond to a similar pair in Eastern Pomo.

(26) Eastern Pomo (McLendon 1975)

mi·bá·k^h 'kick open'

mi·qó· 'identify by smelling'

mu·dá·k^h 'overripe melon to split open by itself'

The modern Central Pomo prefix *m-* thus has two ancestors, one meaning something like 'by means of a protruding end', the other 'by internal force, etc.'

Historical information can thus play an important role in constraining our theories about the human language capacities that mold language. It can, as in the Central Pomo example, save us from overhasty hypotheses concerning the scope of synchronic metaphorical extension, as from swinging to blowing. Of course without further historical information, it is difficult to determine whether the Proto-Pomo **p^hi-* was itself the reflex of two separate forms, one meaning something like 'by swinging' and the other 'by seeing', or the product of metaphorical extension.

It is possible that modern Central Pomo speakers have begun to remotivate some of the prefix homophony on new grounds, reinterpreting some pairs of homophones as single morphemes. Identification of such reinterpretation adds valuable information to our investigation of the actual processes that mold linguistic structure. Without the diachronic dimension, however, it would be impossible to distinguish the genuine metaphorical extensions that speakers make creatively from reinterpretation of existing forms.

An awareness of the diachronic events underlying modern

structures can tell us still more about the special language abilities of speakers. The loss of most vowels from initial unstressed syllables in Central Pomo seems like a perverse development, particularly since it causes the collapse of eight highly productive categories into four. If language change is motivated, why would speakers permit this loss? The omission of unstressed vowels might result in some economy of energy, but the semantic cost seems prohibitive. In fact, the loss is not so devastating when another factor is considered.

The Central Pomo prefixes are derivational: they provide a means of creating new lexical items. They are highly productive, but speakers know not only what a particular combination of prefix and root would mean, but whether it currently exists in the lexicon or not. They know its particular usages. Many combinations occur frequently in so many contexts that their meanings are relatively general, but when speakers translate most complex verbs, they provide very specific contexts in which the words are used. The verb *š-ʔól*, for example, means literally 'evoke by pulling', but the verb is used specifically when drawing cards from a deck. The combinations in which the prefixes appear are lexicalized, stored as units in speakers' minds. The loss of pretonic vowels is more a loss from full words than a loss from prefixes. It affects hearers' ease of word recognition more often than their semantic calculations.

3. Grammatical categories

An important area of language that is often considered particularly arbitrary is the central portion of grammar where speakers have the fewest options. The category of subject is highly grammaticized in English, for example, so that English speakers must specify a subject even when there is nothing for it to refer to, as in weather expressions like *It is raining*. The subject must be the first major constituent in the sentence, even if it is nearly meaningless. Yet assuming that the most rigidly grammaticized area of a language is the most arbitrary is often a superficial view.

A number of languages encode the roles of primary participants not into categories corresponding to English subjects and objects, nor into ergatives and absolutes, but into categories sometimes labeled agent and patient. The semantic motivation for these labels can be seen by comparing the forms of the first person pronouns in the Central Pomo sentences below.

(27) Central Pomo (Eileen Oropeza, p.c.)

a *ʔaa* *qaanémaač'in* *mútu*
 1.AGENT as was talking to 3.PATIENT
 'As I was talking to him ...'

b *čááč'* *ʔel* *ʔoo* *ʔihla* *kay* *baaqówba*
 man the 1.PATIENT again too see and
 'The man saw me again, too, and ...'

c *?aa nánaan.*
 1.AGENT was struggling
 'I was struggling.'

d *ʔoo dáawadan.*
 1.PATIENT was wanting
 'I was craving (it).'

The subject of (27a) is agentive, so it has the same form as the agent subject of (27a), while the subject of (27d) is not actively in control, so it has the same form as the patient object of (27b). The categories seem all the more semantically motivated when it is noted that certain predicates can appear with either an agent or patient argument, depending upon the degree of control attributed to this participant. (See McLendon 1975 and O'Connor 1987 for similar examples from other Pomoan languages.)

(28) Central Pomo (Frances Jack, p.c.)

a *(?aa) k'luuk'lúučla.*
 1.AGENT cough-SEMELFACTIVE-SPEAKER.ACTION
 'I coughed.' ('I tried to and did.')

b *(ʔoo) k'luuk'lúučya.*
 1.PATIENT cough-SEMELFACTIVE-IMMEDIATE
 'I coughed.' ('Before I knew it, I had to cough.')

In many languages with agent and patient categories, however, case is so rigidly grammaticized that speakers have no choice in any given context.

In fact for many languages of this type, the terms agent and patient have been avoided as grammatical labels on the grounds that the categories are not always well motivated semantically. All arguments classed in the first category do not function uniformly as agents, and all those in the second do not function uniformly as patients. It is felt that the categories should be labeled with more arbitrary, less functional names, corresponding to their arbitrary grammatical status. Apart from terminological questions, dismissing them as arbitrary can be premature. The seeming arbitrariness can be due to several factors.

3.1. Imprecise understanding of functions

In some instances, the precise function of the category grammaticized has simply not been fully understood. In Central Pomo, the verbs *lóow* 'fall' and *?t^hál* 'be sick, hurt' typically appear with patients. Yet in recounting an accident to a friend, a speaker systematically used agent pronouns with these verbs.

(29) Central Pomo (Eileen Oropeza p.c.)

a *?aa k^hárwi h^ʔow lóow. ...*
 1.AGENT car-IN from fall-PRF
 'I fell out of a car.'

- b *ʔaa ʔtʰál tʰín min ʔčʰáaw híhdumma.*
 1.AGENT hurt not like sit say-PRF=FACTUAL
 'I sat there like I wasn't even hurt, they said.'

Catherine O'Connor has pointed out that with Northern Pomo verbs of this type 'the P-case is associated with an expressive function and the A-case is associated with what intuitively seems to be an affectless, reportive mode' (1987: 202). This description fits Central Pomo well. The agent case is the unmarked case. Only nominals referring to human beings with whom the speaker indicates a certain empathy appear in the patient case. The distinction between agent and patient case is highly functional, but part of the function is easy to overlook. It is not uncommon for grammatical categories to have complex functions.

3.2. Lexicalization

Sometimes a finer description of function still does not remove the seeming arbitrariness of grammatical categories. An example of this can be seen in Mohawk. Arguments are distinguished in the Iroquoian languages, as in the Pomoan languages, essentially according to their roles as agents or patients. The category is marked on the pronominal prefixes within each verb.

(30) Mohawk

katsherón:nis
 k-atsheróni-s
 1.AGT-dress-HABITUAL
 'I get dressed up'

wakeʔnikónhrhens
 wak-ʔnikóhr-ʔ-s
 1.PAT-mind-fall-HABITUAL
 'I forget'

Case is highly grammaticized: speakers have no choice of case in any particular construction. In general, the categorization appears straightforward. Verbs meaning 'run', 'jump', and 'make' appear with agents, while those meaning 'sleep', 'smile', and 'be sick' appear with patients. Transitive verbs appear with a combination of each. In a few instances, however, the case assignment appears countersemantic. Such an example is the Mohawk verb 'throw'. One would certainly expect a thrower to be categorized as an agent, but this verb invariably appears with a patient. (Neuter patients are not marked in transitive prefixes.)

(31) Mohawk

wakátie's
 wak-ati-eʔs
 1.PAT-throw-HABITUAL
 'I throw (it/them)'

wakátion
 wak-aty-ʔ
 1.PAT-throw-STATIVE
 'I have thrown (it/them)'

Historical considerations indicate that this case marking is not accidental. The most common verb for 'lose' in modern Mohawk is built on the root *-ahtu-* 'disappear': *wak-ahtu-ni*: 1.PATIENT-disappear-DATIVE = '(it) has disappeared from me' > 'I have lost it'. A second term for losing is the verb in (31) above: *-ati-*.

Both terms are documented in missionary records. Note the entry below for 'j'ai perdu ma bourse' in a dictionary from 1826.

(32) Mohawk (Marcoux ms, 1826)

<i>Sakátion</i>	<i>ou Sakahtónni</i>	<i>nak8ísta</i>
wakátyu	(or) wakahty:ni	nakhwísta?
wak-ati-yu	wak-ahty-ni	ne ak-hwíst-a?
1.PAT-lose-STAT	1.PAT-disappear-DAT.STAT	DEF 1.PAT-metal-NOM
'I have lost (or) it has disappeared from me		my money.'

The verb *-ati-* with the meaning 'lose' actually goes back much further than 1826. In some of the Iroquoian languages, like Seneca, it now means only 'throw', but in others, it persists with both meanings, 'lose' and 'throw'. Both meanings persist in Tuscarora, the most distantly related Northern Iroquoian language. (Tuscarora probably separated from the other Northern Iroquoian languages several thousand years ago. The sequence ?*n* is the Tuscarora reflex of Proto-Iroquoian **t* in this context.)

(33) Tuscarora (Elton Greene p.c.)

əwaká:ʔni?

ə-wak-aʔni-ʔ

FUTURE-1.PATIENT-lose/throw-PUNCTUAL

'I will lose (it)'/ 'I will throw (it)'

Synchronically, the use of patient pronouns with a verb meaning 'throw' seems arbitrary, but there is a clear historical explanation. The verb *-ati-* initially meant 'lose'. It appeared with semantically motivated patient pronouns referring to the loser. Over time, the meaning of the verb was generalized to include getting rid of things with or without intention. The use of patient prefixes with this root had already become established and continued after the meaning of the verb was generalized. This persistence confirms the fact that speakers did not recreate these morphological structures every time they spoke. Once words are lexicalized, speakers usually simply select them. This automation may on occasion give the appearance of arbitrariness, suggesting that the grammatical categories are not functional. In fact, the automation of frequently recurring constructions is highly functional, allowing speakers to focus their attention on new aspects of their message rather than on recalculations of familiar forms.

3.3. Grammaticization

Case assignment sometimes seems arbitrary for other reasons. In Mohawk, as in most such languages, some participants are clearly more agentive than others, but all are classified equivalently by the grammar. A man who slays an enemy may seem more agentive than a baby who watches birds, but both may be expressed by the same masculine agent pronoun. In fact, strict categorization is highly functional in itself. The grammaticization of case into two distinct categories, agent and patient, permits speakers

to avoid spending time weighing the precise degree of agency involved in every proposition they express and distracting hearers with nonessential details. When details are desired, of course, there are alternative means within the language to express them.

Grammaticization also often involves markedness. The line of demarcation between two categories is not necessarily halfway between their prototypical functions. Often one category serves as a default option, so that unless there is clear motivation for assigning something to the marked category, it is automatically relegated to the unmarked one. Markedness is also functional: it reduces the effort speakers exert in pondering borderline cases.

Grammatical case in Mohawk could be interpreted as arbitrary for still another reason. Indicative verbs are obligatorily inflected for aspect: habitual, punctual, or stative. Some verbs are inherently stative and appear only in the stative aspect, but most other verbs can appear in all three.

(34) Mohawk

ká:rats

k-arat-s

1.AGENT-lie-HABITUAL

'I lie down'

enká:rate'

ǂ-k-arat-?

FUTURE-1.AGENT-lie-PUNCTUAL

'I will lie down.'

waká:raton

wak-arat-ʉ

1.PATIENT-lie-STATIVE

'I have lain down'

rários

ra-ryo-s

M.AGENT-kill-HABITUAL

'he kills, he is a killer'

wahá:rio'

wa-hra-ryo-?

FAC-M.AGENT-kill-PUNCTUAL

'he killed (it)'

ró:rio

ró-ryo

M.PATIENT-kill-STATIVE

'he has killed (it)'

These stative verbs exhibit an interesting case arrangement. Note that the pronouns appear in the agent case with the habitual and punctual forms, but in the patient case with the stative forms. (Recall that neuter participants are not represented in transitive prefixes.) This case shift within paradigms seems arbitrary, but a semantic rationale can easily be found for it. For most verbs that appear in three aspects, the stative aspect focuses on a resultant state over which the major participant no longer exerts active control. Once I have lain down, I am no longer acting, I am simply lying, undergoing the continuing effect of an earlier event. Once he has killed, he is exerting no further effort. This interpretation may well have been the motivation for the initial grammaticization in the first place.

The use of patient case with all stative verbs of this type is highly grammaticized. Speakers have no choice. This grammaticization is as functional as the original solidification of the two categories. The choice of case is routinized, freeing the consciousness of both speaker and hearer from dwelling on those

decisions that are made the most often, to focus on more novel aspects of the message.

A synchronic description of the Central Pomo and Mohawk case systems in immediately functional terms would thus be superficial. When the diachronic dimension is added, however, and the highly functional processes of lexicalization and grammaticalization recognized, the motivation behind the step-by-step creation of the synchronic system becomes clear.

4. The shapes of grammatical systems

An area of grammar in which speakers have almost no choice is in the relative order of morphemes within words. As Bybee (1985) has shown, the orders of morphemes are not completely random. Cross-linguistically, the order of affixes within words tends to reflect their degree of 'relevance' to the root: those whose meaning most directly affects or modifies the root tend to appear closest to it.

A purely synchronic approach to the ordering of morphemes can leave unexplained much that is motivated, however. Morphological patterns are rarely assembled all at once; categories tend to be grammaticized in stages. Students working with Lakshota in field methods classes, for example, sometimes raise the question whether the determining factor in the ordering of pronominal affixes is grammatical relations or animacy. In Lakshota, a Siouan language of South Dakota, first and second person agents and/or patients are specified by means of verbal prefixes as below.

(35) Lakshota (Stanley Redbird p.c.)

Agents		Patients	
<i>wáhi?</i>	'I came'	<i>máhiɣpaye</i>	'I fell'
<i>yáhi?</i>	'you came'	<i>níhiɣpaye</i>	'you fell'

Lakshota contains no pronominal prefixes referring to third person singular participants. To identify third persons, speakers use separate nominals, demonstratives, or preceding context.

(36) Lakshota (Stanley Redbird p.c.)

hé hí? 'that one (he/she/it) came'

Transitive verbs involving third persons contain the same prefixes as intransitives without them.

(37) Lakshota (Stanley Redbird p.c.)

<i>awáhi</i>	'I brought (it)'	<i>špamáye</i>	'(he) burned me'
<i>ayáhi</i>	'you brought (it)'	<i>španíye</i>	'(he) burned you'

The discussions of the principles governing affix ordering usually involve transitive verbs with combinations of prefixes. Combinations of first person singular agent with second person patient are expressed by a single fused prefix *č^hi-* 'I/you', so they provide few clues to this question.

- (38) Lakhota (Stanley Redbird p.c.)
špač^hiye 'I burned you'

Other combinations of agent and patient are expressed by means of series of prefixes, however.

- (39) Lakhota (Stanley Redbird p.c.)
špa-má-ya-ye 'you burned me' (1.PAT-2.AGT)
 ME-YOU
- hená špa-wič^ha-wa-ye* 'I burned them' (3.PL.PAT-1.AGT)
 THEM-I
- hená špa-wič^ha-ya-ye* 'you burned them' (3.PL.PAT-2.AGT)
 THEM-YOU

On the basis of paradigms like these, Lakhota third person plural object markers are posited to occur first and second person subjects last. Because of the fused form *č^hi-*, either the order THIRD-FIRST-SECOND person or PATIENT-AGENT could be hypothesized.

- (40) Ordering by Person Ordering by Grammatical Relations

Ordering by Person			Ordering by Grammatical Relations	
3	1	2	PATIENT	AGENT
	<i>ma</i>	<i>ya</i>	<i>ma</i>	<i>ya</i>
	1.PAT	2.AGT	1.PAT	2.AGT
<i>wič^ha</i>	<i>wa</i>		<i>wič^ha</i>	<i>wa</i>
3.PL.PAT	1.AGT		3.PL.PAT	1.AGT
<i>wič^ha</i>		<i>ya</i>	<i>wič^há</i>	<i>ya</i>
3.PL.PAT		2.AGT	3.PL.PAT	2.AGT

An investigation of the diachronic development of the system sheds light on the dilemma. First and second person pronominal prefixes can all be reconstructed for Proto-Siouan with the orders still found in Lakhota. A portmanteau morpheme for first person agent acting on second person patient can also be reconstructed. A third person plural marker cannot. This is not surprising. It is common cross-linguistically for only first and second persons to be represented by verbal affixes. First and second persons, whose identities are inherently established by the discourse context, are seldom specified by separate noun phrases. They are most often represented by unstressed pronouns, likely candidates for morphological fusion. Third persons, by contrast, are usually introduced by full noun phrases. In many languages, they are subsequently referred to by nothing at all, unless emphatically contrasted with other entities, when they may be represented by demonstratives. In such languages, there are few immediate candidates for third person pronominal affixes (Mithun 1988a).

Number was grammaticized in the Siouan languages sometime

after person. Plurality is shown in a different area of the verb in Lakhota than person, by a suffix *-pi*. Cognates of the Lakhota plural suffix can be found only among the more closely related Mississippi Valley Siouan languages, such as Assiniboine, Winnebago, and Ponca. The Lakhota prefix *wičʰa-* 'them' is not precisely coordinate in function with either the first and second person agent and patient prefixes, nor the plural suffix. It is used only for third person human direct objects. It was grammaticized more recently than both the person prefixes and the plural suffix. It does not appear at all in Winnebago or Ponca, and its source is still transparent within Lakhota: the noun *wičʰá* means 'man'.

The position of the prefix *wičʰa-* before the first and second person markers thus does not reflect a general cognitive schema at all; it is a result of the fact that number was grammaticized more recently than person and case. The order of grammaticization is itself not arbitrary. It is explicable in terms of general principles of diachronic development.

5. Conclusion

When we are aware of the diachronic dimension in the shaping of languages, much that might otherwise be discarded as arbitrary becomes explicable in terms of individually motivated developments. An understanding of the histories of languages constrains our hypotheses about human language abilities by allowing us to distinguish structures that speakers can absorb from those they create. It permits us to separate sequences of cognitive steps involving formal and semantic inference, reinterpretation, reanalysis, lexicalization, and grammaticization, from single cognitive leaps. Diachrony is certainly not the only explanation for why languages are the way they are, but without an appreciation of the diachronic dimension, we will miss much in our attempts to understand the human abilities that creatively shape language.

Note

*I am grateful to the following speakers who so generously shared their expertise on their languages: the late Elton Greene of Lewiston, New York, on Tuscarora, Reginald Henry of Six Nations, Ontario, on Cayuga, Frances Jack of Hopland, California, on Central Pomo, the wonderful Mohawk teachers of Caughnawaga, Quebec, Ahkwesasne, Ontario, and Six Nations, Ontario, on Mohawk, Eileen Oropeza, of Point Arena, California, on Central Pomo, Myrtle Peterson, of Steamburg, New York, on Seneca, Stanley Redbird of Rosebud, South Dakota, on Lakhota, and Martha St. John, of Sisseton, South Dakota, on Santee (Dakota).

References

- Boas, Franz, and John R. Swanton. 1911. Siouan (Dakota). Handbook of American Indian Languages. Part 1. Franz Boas, ed. Smithsonian Institution Bureau of American Ethnology Bulletin 40. Washington: Government Printing Office. 875-965.
- Bybee, Joan L. 1985. Morphology: A study of the Relation between Meaning and Form. Typological Studies in Language 9. Amsterdam: John Benjamins.
- Chafe, Wallace L. 1976. The Caddoan, Iroquoian, and Siouan Languages. The Hague: Mouton.
- Einaudi, Paula Ferris. 1976. A Grammar of Biloxi. New York: Garland.
- Kennard, Edward. 1936. Mandan Grammar. International Journal of American Linguistics. 9.1-43.
- La Flesche, Francis. 1932. A Dictionary of the Osage Language. Smithsonian Institution Bureau of American Ethnology Bulletin 109. Washington: Government Printing Office.
- Lipkind, William. 1945. Winnebago Grammar. New York: King's Crown Press.
- Marcoux, Rév. François Xavier. 1826 ms. Dictionnaire Français-Iroquois pour L'usage des Missionnaires Sauvages des Canadas, par un Missionnaire Canadien. Sault Saint Louis.
- McLendon, Sally. 1975. A Grammar of Eastern Pomo. University of California Publications in Linguistics 74. Berkeley: University of California Press.
- Mithun, Marianne. 1988a. 'The Development of Bound Pronominal Paradigms.' Presented to the Soviet Academy of Sciences, Leningrad.
- 1988b. 'Lexical Categories and the Evolution of Number Marking.' Theoretical Morphology, ed by Michael Hammond and Michael Noonan. San Diego: Academic Press. 211-243.
- 1989. 'Reconstructing the Unidentified.' Paper presented to the Ninth International Society for Historical Linguistics. State University of New Jersey, Rutgers.
- O'Connor, Mary Catherine. 1987. Topics in Northern Pomo Grammar. Ph.D. dissertation, University of California, Berkeley.
- Oswalt, Robert L. 1960. A Kashaya Grammar (Southwestern Pomo). Ph.D dissertation, University of California, Berkeley.
- 1964. A Comparative Study of Two Pomo Languages. Studies in California Linguistics, William Bright, editor. Los Angeles: University of California Press. Pp 149-162.
- Parks, Douglas. 1976. A Grammar of Pawnee. New York: Garland.
- Rood, David. 1976. Wichita Grammar. New York: Garland Press.
- Whitman, William. 1947. 'Descriptive Grammar of Ioway-Oto.' International Journal of American Linguistics 13.233-48.