Morphological and prosodic forces shaping word order

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0. Introduction

We know that languages differ in their word order. They vary both in their basic orders and in the relative importance of syntactic and pragmatic factors underlying their occurring patterns. Yet we still know relatively little about why different orders occur.

One obvious motivation behind the development of certain orders is a cognitive tendency to proceed from the known to the unknown. As formulated by members of the Prague School, the normal order of elements in the sentence is theme–rHEME.

The theme is that part of the utterance which refers to a fact or facts already known from the preceding context, or to facts that may be taken for granted, and thus does not, or does only minimally, contribute to the information provided by the given sentence-utterance. The other part, now usually called the rHEME, contains the actual new information to be conveyed by the sentence-utterance and thus substantially enriches the knowledge of the listener or reader . . . The theme invariably precedes the rHEME. This, of course, is in full agreement with the general laws of the psychology of learning: new elements of information can be successfully acquired only if they are organically incorporated into the network of elements known from before. (Vachek 1966: 89-90).

The grammatical category most closely corresponding to the theme or mental starting point of a sentence is the subject. As would be predicted, subjects precede objects in the majority of the world’s languages: SOV, SVO, and VSO orders are much more common than OVS, OSV, and VOS.
Yet theme–rhemé order is by no means universal. A number of languages show exactly the opposite pattern: constituents appear in decreasing order of newsworthiness. Clearly other factors must shape word order as well. One way to identify these factors is to examine the circumstances surrounding shifts in word order patterns over time.

A good opportunity for such investigation is provided by the Siouan, Caddoan, and Iroquoian languages of North America. These three groups are remotely related genetically (Allen 1931; Chafe 1964, 1976a), so their word order patterns have all developed from the same ancestral system. The modern languages still share a number of structural features that might be expected to affect word ordering strategies: all of them contain pronominal prefixes within their verbs; the pronominal prefixes show agent/patient case organization; all lack equivalents of the independent unstressed pronouns of English; all exhibit noun incorporation. Yet they differ substantially in their word orders. In what follows, it will be shown how patterns already present in their common ancestor evolved into the divergent systems of the modern languages, stimulated by individual morphological innovations and shaped by natural prosodic tendencies.

1. The Siouan languages

The Siouan languages share a number of typological characteristics that might be expected to affect constituent order. Among these are pronominal prefixes based on an agent/patient case distinction, the lack of unstressed independent pronouns, noun incorporation, and constructions involving left- and right-detached nominals.

1.1 Basic typological features

In the modern Siouan languages, first person, second person, and inclusive core arguments are expressed by pronominal prefixes on verbs. The pronouns show an agent/patient case distinction. In the Lakota paradigm in (1), the pronouns in the verbs on the left represent grammatical agents, participants who actively instigate events. Those on the right represent grammatical patients.

(1) Pronominal prefixes: Lakhota (Stanley Redbird p.c.)

\[
\begin{align*}
\text{wa-lówá} & \quad \text{I sang} & \quad \text{ma-hípxaye} & \quad \text{I fell} \\
\text{ya-lówá} & \quad \text{you sang} & \quad \text{ni-hípxaye} & \quad \text{you fell} \\
\text{u-lówá} & \quad \text{you and I sang} & \quad \text{u-hípxaye} & \quad \text{you and I fell} \\
\text{lowá} & \quad (\text{he/she/it}) \text{ sang} & \quad \text{hiyá} & \quad (\text{he/she/it}) \text{ fell} \\
\text{wa-ktéktá} & \quad \text{I'll kill (him/her/it)} & \quad \text{ma-ktéktá} & \quad (\text{he/she/it}) \text{ will kill me} \\
\text{ma-yá-ktéktá} & \quad \text{you'll kill me}
\end{align*}
\]

Number is marked elsewhere in the verbal morphology. There are essentially no third person prefixes; third persons are represented by full noun phrases, separate demonstratives, or by nothing at all. Third persons tend to be identified overtly only when there is change in point of view or possible confusion. There are no third person markers in (2), for example, because the identity of each participant is clear from context. A man had abducted a young woman, then ordered her to delouse him.

(2) Zero anaphora in Lakhota (Deloria 1932:47.14)

\[
\begin{align*}
\text{čháka} & \quad \text{wastélání} & \quad \text{ú alóslos higlé} & \quad \text{čheyas kñøyé} \\
\text{so despise with repulsed sudden but in front} \\
\text{'[She] hated [him] so much that [her] whole body cringed but [he]} \\
\text{lay down before [her]}
\end{align*}
\]

\[
\begin{align*}
\text{hi-yúka} & \quad \text{čhá} \\
\text{come-lie so}
\end{align*}
\]

\[
\begin{align*}
\text{wanná heyókxíle} & \quad \text{ná yúšítma ke'í} \\
\text{now louse for hunt and make eye close HEARSAY} \\
\text{so [she] began to hunt lice for [him] and induced [him] to sleep.'}
\end{align*}
\]

The Siouan languages also contain a kind of noun incorporation, whereby noun roots are compounded with verb roots to yield verb stems, usually with more specific meanings. Examples of such compounds can be seen in (3).

(3) Noun incorporation: Lakhota compounds (Stanley Redbird p.c.)

\[
\begin{align*}
\text{wa-ká-žípa} & \quad \text{arrow-by.striking-smooth} = \quad (\text{he) whittles}
\end{align*}
\]

\[
\begin{align*}
\text{čhál-wáka} & \quad \text{heart-be.brittle} = \quad (\text{he) is a coward}
\end{align*}
\]

Basic word order is clearly SOV.
Basic SOV word order: Lakhota (Deloria 1932:65.10)

S
yuká

O
hehál

V
wśyąg’k’ų

wógnaka wa
gluśki.

and.then
next
woman
the
PAST
sack
a
own
tunted

‘And then the woman untied her bag.’

As would be expected of an SOV language, complements systematically precede main predicates.

Complement-V Lakhota (Deloria 1932:77.2)

COMPLEMENT
yuk’á
őp
yįktia
déjá
ke’r.

and.then
with.them
go.will
say
HEARSAY

‘He decided to join them.’

On occasion, different word orders occur. Nominals sometimes appear to the left of the nuclear clause. They are typically spoken in a louder, often higher tone of voice, sometimes slightly detached intonationally from the nuclear clause. Additional material may intervene between the nominal and the nuclear clause. A coreferent element, such as a demonstrative, may appear within the nuclear clause. These left-detached nominals usually highlight a focus of contrast or shift from one topic to another. The sentence in (6) comes from a tale in which Iktomi had pretended to sicken and die. When his family looked into the tent where he had been lying, they found only bones, which they took to be his. In fact the bones were not his at all, and this contrast with expectation is highlighted by the left-detachment of the object nominal.

Lakhota left-detachment for focus of contrast (Deloria 1932:14.20)

O
Leya

S
héna

V
șúxpála-huhú
č’a
Iktomi
tayéla
yasmí.

actually
those
puppy-bone
such
well
meat.ate.off

‘Actually it was the puppy bones that Iktomi had eaten all the meat off of.’

Nominals can also appear to the right of the nuclear clause. Right-detached nominals, termed ‘antitopics’ by Chafe (1976b), typically confirm expected or accessible information, as in the epithet in (7). The separation of the detached nominal ‘the idiot’ from the nuclear clause can be seen in the confirmatory enclitic =lo, added by male speakers to the end of statements.

Lakhota right-detachment to reidentify accessible referents (Deloria 1932:22.19)

V
Wičák’e
śée=lo,

S
wítko
kj.

be
right
perhaps
= m
fool
the

‘The idiot might just happen to be talking sense.’

Right-detached nominals sometimes occur as well when action shifts rapidly back and forth between participants, as in dialogue. Both participants remain active discourse topics throughout the interchange, so they do not need to be reintroduced or recalled to consciousness with each new action or utterance. The right-detached nominals simply confirm matches between the participants and their actions. Although both subjects and objects may appear to the right of the verb, subjects tend to appear more frequently than objects in this position because highly topical arguments are more often cast as subjects than objects.

In Lakhota, as in most spontaneous spoken language, the incidence of full sentences containing both a subject nominal and an object nominal is actually relatively low. A sample count of 500 clauses of Lakhota spoken narrative showed only 21 clauses (4.2%) containing both subject and object constituents. This low proportion is the result of several factors. The two features described above, the absence of independent pronouns and noun incorporation, have some effect. Various strategies for controlling the flow of information are even more important. Usually only one significant new idea is introduced at a time, as in most spoken language (Givón 1975; Du Bois 1985; Chafe 1987; Lambrecht 1987; and others). If a speaker wishes to discuss both a new entity and a newsworthy action, these two pieces of information are usually introduced in separate prosodic phrases or intonation units, that is, phrases uttered under a single intonational and contour, sometimes bounded by pauses. The passage in (8) below, for example, could have been rendered by a single sentence grammatically: ‘We Lakhotas held a powwow in memory of Martha St. John’s late husband’. The Lakhota speaker, however, presented each major new piece of information in a separate intonation unit, shown here by separate lines of transcription.
(8) Information flow in Lakhota: one new idea at a time (Stanley Redbird p.c.)

O  V
a. wačhi-piwa  y-káŋya-pi.
dance-NOM a 1-make-PL
‘We had a powwow.

S  O  V
b. lakȟóta ikčéya=ča hé wačhi-piwa  y-káŋya-pi.
Indian common=REL that dance-NOM a 1-make-PL
We were just ordinary Indians that made the powwow.

c. Martha St. John  eččy-a-pi wa
say.to-PL a
A woman they call Martha St. John

S  V
d. higná-ku kjí  t’a=čhi
husband-her the die=so
her husband died so

O  V
e. hé  yuʔóniŋa  kel,
that to.honor in.a.way
in honor of that

f. wačhi-pi  he  y-káŋya-pi.
dance-NOM that 1-make-PL
we held that powwow.
‘We Lakhotas held a powwow in memory of Martha St. John’s late husband.’

Several kinds of strategies are used systematically to regulate the flow of information, many of which can be seen here. When an important new entity is introduced, it is presented with a verb of low semantic content, such as ‘appear’, ‘be’, ‘take’, or the ‘do’ in (8)a. Often complexity is built up piece by piece: a simple statement, like that in (8)a here, is followed by successive elaborations, each introducing additional information, as in line (8)b here. Often demonstratives stand in as place holders in one intonation unit, like hé in (8)e here, for referents more fully described in preceding or following intonation units, as in (8)c and d here.

<table>
<thead>
<tr>
<th>Table 1. Lakhota word order</th>
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<tr>
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<tr>
<td>Subjects</td>
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<td>VS</td>
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<td>TOTAL</td>
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<td>Objects</td>
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<td>Non-SOV</td>
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Because of the low proportion of full S-O-V clauses, an examination of word order should not be restricted to clauses with both subject and object nominals. More typical clauses, those that contain only a subject nominal or only an object, should be considered as well. In Lakhota, word order deviates surprising little in either type of clause from a basic SOV, as can be seen in Table 1. In the Lakhota sample, only 0.9% of those clauses with overt arguments (subject, object, or complement) deviated from SOV order.

Strikingly similar patterns appear in comparable material from other branches of the Siouan family. Text counts show a departure from SOV order in only 1.8% of clauses with arguments in a Crow narrative sample from Lowie 1960, and 0.8% in a Mandan sample from Kennard 1936. Narrative material available from Winnebago shows no deviation from SOV order, but Lipkind notes in his grammatical sketch: ‘The normal order of words in the sentence is subject, indirect object, object, verb. The verb is generally the final element in the sentence. Occasionally the subject is put last for emphasis but the object almost invariably precedes the verb.’ (1945: 56) The similarity of these patterns in most branches of the family indicates that basic word order in Proto-Siouan was SOV.

1.2 Increased flexibility: Omaha

Yet not all modern Siouan languages exhibit the same rigidity in word order. Languages of the Dhegiha branch of the family, Omaha, Ponca, Kansa Osage,
and Quapaw, show a somewhat different pattern. The Dhegiha languages do share the typological features of Siouan that might be expected to affect word order. There are pronominal prefixes for first, second, and inclusive persons, with an agent/patient case distinction. Third persons need not be overtly specified. There is noun incorporation. Similar strategies are used for controlling the flow of information in these languages as in the other Siouan languages, so that significant new pieces of information are typically introduced in separate intonation units. As in Lakota, basic constituent order is SOV.

(9) Omaha (Dorsey 1890:154.16-17)
S O V
Nú amá hiqé géza-bi.
man the (MV.SUB.) fine feather took his-they say
'The man took his fine feather.'

Nominals may appear outside of the nuclear clause with the same functions as in Lakota. Those highlighting a shift in topic or focus of contrast may appear to the left of the nuclear clause, like 'the strong cord' in (10) below. Those reiterating known or accessible information may appear to the right, as in (10) and (11).

(10) Omaha left detached object, right-detached subject (Dorsey 1890:155.8)
O V
Ga' hájiinga áwanji ke é ñizá-biamá
And cord strong the (OBJ) that took-they say
S
nú aká.
man the (SUBJ)
'And the man took that strong cord, they say.'

(11) Omaha right-detached object (Dorsey 1890:155.10-11)
S V O
itan' de bisá-biamá hájiinga.
her daughter's husband broke-they say cord
'Her daughter's husband broke the cord, they say.'

There is morphological evidence here, as in the Lakota examples, that the detached nominals are outside of the nuclear clause. The clause-final hearsay evidential enclitic biamá closes off the nuclear clauses.

Although the Omaha structures that deviate from basic SOV order are similar in function to those in Lakota and other Siouan languages, they are more frequent. Of the 10 clauses in the sample with both subject and object nominals, 6 (60%) show SOV order, but 4 (40%) show OVS. As in Lakota, the proportion of full S-O-V clauses is low: in a 300 clause sample of Omaha narrative, 10 clauses (3.3%) contain both subject and object nominals, so any examination of word order should include clauses with only one nominal. Relative ordering within all subject-verb, object-verb, and complement-verb constituent pairs can be seen in Table 2.

In the Omaha sample, order departs from basic SOV in 20.4% of those clauses containing a verb plus at least one other major constituent (subject, object, or complement), considerably more often than the 0.9% of Lakota.

The greater exploitation of word order for pragmatic purposes can be seen in the Omaha passage in (12). The nominal introducing the Omahas at the beginning of the account appears clause-initially, but each time the Omahas are subsequently mentioned, it is postverbally, since they are accessible information (lines b, f). After we are told about the Omaha preparations for war, our attention is shifted to the Pawnees, who are first introduced with a left-detached nominal (line c). Once introduced, they are subsequently reidentified postverbally (h, i). (Spaced periods ... indicate ellipsis of material.)

<table>
<thead>
<tr>
<th>Table 2. Omaha word order</th>
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<tbody>
<tr>
<td>Clauses</td>
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<td>Subjects</td>
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<td>SV</td>
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<tr>
<td>VS</td>
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<td>Objects</td>
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<td>TOTAL</td>
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<td>Comps</td>
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<tr>
<td>TOTAL</td>
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<tr>
<td>Non-SOV</td>
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</table>
Morphological and prosodic forces shaping word order

(12) Omaha (Dorsey 1890:402-3)

a. *Uma'n ha'n amá nuda'í' aég-biamá wañ'giee.*

Omahas the (SUBJ) to war went, they say all
'All of the Omahas went on the warpath . . .

V S S

b. *Atí-biamá dhígii amá (Uma'n ha'n amá).*

Came, they say many the (SUBJ) Omahas the
The main body (of Omahas) came . . .

O

c. *wapé getze-ma Páèi'-má* weapon those who took theirs the Pawnee
ja'í te-má cti,
those sound asleep too,
'They killed some of the Pawnees as they were seizing their

V

d. *ca'í ca'í wágéi-biamá.*

without stopping they killed them they say
weapons, and the others who were still sound asleep . . .

O V S

e. *Edíhi ki, wapé getzai te Páèi'-amá.*

they arrived there when weapon took their Pawnees the
At that time, the Pawnees seized their weapons; (SUBJ)

V

f. *Edíhi ki, t'éwac/e-hna'íi* At that time when, they killed them regularly
O

*Uma'n ha'n-ma.*
the Omahas (OBJ),
and then they killed the Omahas.

V

g. *Djúba umúcte ahií te,* A few remained from shooting they arrived when,
When a few of the Pawnees who remained after the shooting arrived,

O

h. *wañ'í'-pibaji Páèi'-ma.*

in a bad humor the Pawnees
they were in a desperate mood. [Those on each side killed

O V S

many.]

i. *Cáewá'ce égiee t'ééa-biamá, Páèi'-amá.*

Cáewá'ce at length killed (him) they say, Pawnees the (SUBJ)
At length the Pawnees killed Cáewá'ce .'

Why does Omaha differ from Lakhota, Crow, Mandan, and Winnebago in this way? An innovation elsewhere in the grammar accompanied the increased use of word order for pragmatic purposes. Languages of the Dhegiha branch have developed a set of definite articles, many from demonstratives that originated as positional verbs. The articles distinguish arguments according to their animacy, number, shape, and position or movement. Several of the articles that appear with animate arguments distinguish case as well. The articles are optional, but their value in disambiguating reference to animate arguments can be seen in (12). The particle *amá* is used with the animate plural agents, while the suffix -*ma* appears with the animate plural patients.

The independent development of case in another branch of the family has affected word order in a similar way. Biloxi, a now extinct language of the Southeastern branch of Siouan, has also developed articles that serve in some contexts to disambiguate case roles. Basic word order is clearly SOV, the order that appears systematically in sentences elicited by Dorsey (Einaudi 1976: 168). Narrative texts in Dorsey and Swanton (1912), however, show a fluidity in ordering not unlike that in Omaha.

2. Caddoan

The Caddoan languages share a number of typological features with the Siouan languages. First person, second person, and inclusive core arguments are specified by verbal prefixes. Agent and patient case are distinguished. There are no pronominal prefixes for basic third persons. Number is marked elsewhere in the morphology. There is noun incorporation. Significant information is typically introduced one idea at a time.
Such structure can be seen in the Caddo passage in (13) from a narrative told by Mrs. Sadie Bedoka Weller and recorded by Chafe (1977). Instead of opening a tale with a sentence like ‘A woman and her husband took a trip’, she introduced each important new idea, the woman, her husband, and the trip, in a separate intonation unit.

(13) Caddo information flow (Chafe 1977:37.1-3)

\[\text{S} \quad \text{V} \]
\[\text{wise'î? nāttih hāh?i:?'a?}. \]
\[\text{one woman was there.} \]

\[\text{'A woman lived there.} \]

\[\text{hāyā:nuh hāhǐnt'a?}. \]
\[\text{person had} \]
\[\text{She had a husband.} \]

\[\text{sittudayakînhāh bahnah hāhwśwa:yah}. \]
\[\text{Sometime later it is said two journeyed.} \]
\[\text{Sometime later, it is said, they two took a trip.} \]

\[\text{'A woman and her husband took a trip.} \]

As in the Siouan languages, basic word order in Caddoan could be described as verb final: the majority of subject and object nominals appear before their predicates, as in the Caddo passage in (14).

(14) Caddo (Chafe 1977:29.11-3)

\[\text{S} \quad \text{V} \]
\[\text{bah?nah nā sāh wadu?}, \text{ ukkip bahnah hāh?awsa?}. \]
\[\text{It is said that one Ms. Wildcat really it is said was sitting.} \]

\[\text{O} \quad \text{V} \]
\[\text{hacihdi? hāhna:wida:wi:?'ihis?}. \]
\[\text{baby (she) is pushing in a cradle-hammock.} \]

This order is not rigid. When a deer was first introduced in one Caddo tale, he was identified by a preverbal subject nominal (SV). Two lines later, the same deer, now an established participant, was reidentified with a postverbal nominal (VS).

Table 3. Caddo word order

<table>
<thead>
<tr>
<th></th>
<th>Clauses</th>
<th>% of clauses with S/O/C</th>
<th>% of all clauses</th>
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<tr>
<td>TOTAL</td>
<td>13</td>
<td>100.0%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Non-SOV</td>
<td>42</td>
<td><strong>36.8%</strong></td>
<td>14.0%</td>
</tr>
</tbody>
</table>

(15) Caddo subjects: SV and VS (Chafe 1977:30.20-2)

\[\text{S} \quad \text{V} \]
\[\text{bahnah nāttì? dà:tì? hākahyā:nì?a?}. \]
\[\text{It is said there little deer (he) was lying in the brush} \]
\[\text{(Mr. Turkey was watching.)} \]

\[\text{bah?nah kāsîlì, awasā:k'uhah nā dà:tì?}. \]
\[\text{It is said after a while (he) yawned that little deer.'} \]

Objects show similar ordering alternations. A wren was taking mud to her grandmother when she met a wolf. As she explains her mission, the object ‘pipe’, new information, precedes the verb ‘make’.

(16) Caddo preverbal object (Chafe 1977:33.11)

\[\text{ibât cičandu?nadihah} \]
\[\text{Grandfather I'm taking mud to him} \]
\[\text{'I'm taking mud to my grandfather} \]

\[\text{O} \quad \text{V} \]
\[\text{t'ānk'uh nah?a?na?}. \]
\[\text{pipe so he can make} \]
\[\text{so that he can make a pipe.'} \]

The wolf asks to see her basket, saying that he likes to make pipes himself. This time the now accessible object ‘pipe’ follows the verb.
(17) Caddo postverbal object (Chafe 1977:33.13)

\[ \text{V} \quad \text{O} \]

\[ \text{wín?t’á? ká:ʔnutah nast’ánjaʔna? t’ánk’u\h}. \]

Also I like to make them pipe
\[ \text{‘I like to make pipes too.’} \]

The function of such ordering is similar to that in Siouan languages. Nominals may appear to the left of the clause for added salience, as to highlight a shift in topic or other contrast. They may appear to the right of the clause for reduced salience, as when reconfirming accessible information. Departure from basic SOV order is more frequent than in Siouan, however. Among the three clauses with both subject and object nominals in a 300-clause narrative sample, none shows SOV order (1 SVO, 2 OVS). Relative orders within subject-predicate, object-predicate, and complement-predicate pairs can be seen in Table 3.

In the Caddo sample, order departs from basic SOV in 36.8% of the clauses with a nominal subject, object, and/or complement in the sample, considerably more often than the 0.9% of Lakȟota and even the 20.4% of Omaha.

The difference is associated with several factors. One is the development of a special presentative construction in Caddoan. Five of the VS clauses counted in Table 3 are presentatives. An example is in (18).

(18) Caddo presentative construction (Chafe 1977:34.15-6)

\[ \text{V} \]

\[ \text{Kuʔá:naʔ bah?náh hákkakidówaʔ,} \]

Over there it is said sitting on a branch
\[ \text{‘Over there was a crow} \]

\[ \text{S} \]

\[ \text{ká:k’ayʔ.} \]

crow
\[ \text{‘sitting on a tree branch.’} \]

This construction is used in Caddo to introduce otherwise completely unknown but important participants, usually stating their existence with a verb like ‘live’ or ‘sit’. (Its use has expanded in other Caddoan languages to introduce generally known characters for the first time as well.) The presentative VS structure is not confused with right-detached nominals like that in

(15), which reiterate accessible information, because of a difference in prosody. The nominals in presentatives are uttered with the same intensity and pitch as the verb, while right-detached nominals are typically uttered in a fainter and sometimes lower tone of voice. The motivation behind the development of the presentative construction may actually be the same as that observed by Mathesius: a cognitive tendency to move from a fact that ‘does not, or does only minimally, contribute to the information provided by the given sentence-utterance’, to the new information that ‘substantially enriches the knowledge of the listener’ (Vachek 1966:89-90).

Even when the five presentatives are discounted, Caddo exhibits more frequent departure from basic SOV order than the Siouan languages. Yet neither Caddo nor the other Caddoan languages has developed nominal case. Two other morphological developments have occurred in the family that reduce the necessity of relying on constituent order for signalling grammatical relations.

One is a dramatic rise in the productivity of noun incorporation. As in the Siouan languages, noun roots may be incorporated into verbs to yield new lexical items for nameable concepts. The verb stem ‘make a fire’, for example, consists of the noun root -nak- ‘fire’ and the verb root -aʔni- ‘make’.

(19) Caddo noun incorporation (Chafe 1977:36.14)

\[ \text{nasáNK’aʔniah} \]

\[ \text{‘when (she) made a fire’} \]

The construction has been extended in the Caddoan languages to discourse functions as well. One of these is a variant of the basic statement plus elaboration strategy for controlling the rate of information flow, described earlier. The first line or intonation unit of (20) below consists of a verb with a general incorporated noun, the whole describing a unitary cultural concept, ‘to granular substance make’. The nature of the granular substance is elaborated in the following intonation unit with the noun kišwah ‘parched corn’. The second is used even more pervasively in the Caddoan languages. Incorporation provides speakers with a way of backgrounding familiar information. After the parched corn has been introduced with the independent noun kišwah, it is subsequently referred to by incorporated nouns. Since it is already within the consciousness of the listener, there is no reason to draw special attention to it with an independent noun. (Closely spaced periods indicate pauses: .. a very brief pause, ... a slightly longer pause.)
Caddo incorporation (Chafe 1977:30.16)

a. kassahkündänna?na?
   ‘you should (granular substance) make
b. ... kįsawah.
   parched corn.
c. nassahkündänna?nihäh
   when you (granular substance) have made for me

d. sínätti? ci:yáhdì?a?.
   then I will go on.
e. bah?nahwa?, kähakáht? húc‘isahkiśwánt’a?.
   In fact, quickly she had (parched corn).’

The extensive use of incorporation reduces the number of independent nominals per clause to a certain extent, and with that, the potential for ambiguity of reference. The average number of major constituents per clause is even lower than in Siouan. In the 300 clause sample of Caddo narrative, only 3 clauses (1%) contain both subject and object independent nominals. The other Caddoan languages show similar proportions: 1% in a comparable Wichita sample from Rood (1977), 2.2% in a Kiotsit sample from Lesser (1977), 0.8% in a Pawnee sample from Parks (1977a), and 1.2% in an Arkanaka sample from (Parks 1977b).

A second innovation in Caddoan reduces the potential for ambiguity even further. As in Siouan, first person, second person, and inclusive core arguments are expressed by pronominal prefixes on verbs. There are no basic third person pronouns. Another pronominal category has been added, however: an indefinite third person ‘someone’. The indefinite, also termed a nonspecific or defocused pronoun, allows speakers to avoid direct, focused reference to a participant that they have no interest in specifying or want to avoid mentioning (Chafe 1992 on Caddo). The participant may be unknown or simply ‘outside the present field of interest of the hearer’ (Rood 1976:117 on Wichita). It may be used where a passive would be used in English (Parks 1976:165 on Pawnee). An example of this usage in Caddo can be seen in (21).

No one would help an old woman. One morning when she got up, she found her housework done. The indefinite agent prefix appears here as i-.

Caddo defocused pronouns (Chafe 1977:36.12)

hákíʔabiʔsa? hákíʔtaʔáwyatáh?nisa?, hákíʔcahíʔsa?.
one swept for her one cleaned the place one washed her dishes.
‘Her place was clean and swept and her dishes were washed.’

The function of this pronominal category has been extended in Caddoan in a way that reduces the potential for ambiguity of reference in discourse. Major third person protagonists are not represented by pronominal prefixes within verbs, as would be expected. When additional human participants are involved, the indefinite or defocused prefixes are used for these secondary characters in contexts where they would be cast as subjects in other languages. This use of the defocused pronouns can be seen in (20), which relates a fight between a monster and an elf. An alternation between the defocused pronouns and their absence here clarifies grammatical relations. Verbs without the pronouns describe actions of the major protagonist, the monster. Verbs with defocusing pronouns, here in boldface, describe actions of the secondary participant, the elf.

Caddo defocused pronoun (Chafe 1977:40.47-50)

a. bah?nah kʷi?l iáwšíʔaːh
   It is said as was about to jump
As (he) was about to jump
   (the monster)
b. hákíʔcahášiyə ná yahyašatciʔ?
   defoc shot there that elf
   That elf shot (him) there.

c. bah?nah kúli awwí:šiyə.
   It is said on the other side got down,
   (He) got down on the other side,
   (the monster)
d. kánaká:čaːwáyəh.
   started to jump over the tire.
   (He) started to jump over the fire.
   (the monster)
e. bah?nah áwšíʔaháh,
   It is said got down,
   (He) got down
   (the monster)
f. káʔáʔu:ču:huwáh hákíʔcaháša?
   started back DEFOC shot just then
   (he) started back, and (he) shot (him) just then
   (monster) elf
g. bah?nah kutí áwwá:šiyuh.
   it is said on the other side fell there. (the monster)
and (he) fell on the other side.

The subject, the argument of an intransitive verb or the agent of a transitive, is assumed to be the central protagonist unless the defocused prefix indicates otherwise.

The increased fluidity of word order in Caddoan is thus associated with two morphological innovations: an increase in the productivity of noun incorporation and the grammaticization of a defocused pronominal category. This freer order is felt even in the ordering of sentential complements. While all complements precede the matrix verb in Lakȟota and Omaha, only short ones appear in this position in Caddo, usually single word quotations. Full sentential complements generally appear postverbally.

3. Iroquoian

The modern Iroquoian languages share many features with the Siouan and Caddoan languages. Verbs contain pronominal prefixes referring to their agents and/or patients. There is noun incorporation. Similar strategies are used to regulate the flow of information: new entities are introduced in separate intonation units, often with low content verbs; complexity is often built up from a simple basic clause followed by successive elaborations; demonstratives often stand in one phrase for entities that are more fully identified in another. The pattern of a simple statement followed by successive elaborations can be seen in the Tuscarora passage in (23).

(23) Tuscarora successive elaboration (Elton Greene p.c.)
\[\text{àtsì tyahwáhae:t,} \]
\[\text{one so it carries} \]
\[\text{àkwa kayaewkwa:yae?} \]
\[\text{person they walk} \]
\[\text{yahkakawghr:yu:,} \]
\[\text{they were a large group} \]
\[\text{kyaen:ka:nækahsnphwáh'p,} \]
\[\text{this it is along the creek} \]
\[\text{hów?thu titkayókwari:yae? uhshka:tkyæh,} \]
\[\text{there so they walk south to} \]

(24) Tuscarora left-detached nominals for contrast (Elton Greene p.c.)
\[\text{Ha? kaišíšhuh,} \]
\[\text{the it is crafty} \]
\[\text{‘As for the fox,} \]
\[\text{θahra:næk?ku?,} \]
\[\text{back he ran} \]
\[\text{he ran away.} \]
\[\text{Uhtšihprowad,} \]
\[\text{bear} \]
\[\text{The bear,} \]
\[\text{kyaen:ka:nækahsnphwáh'p,} \]
\[\text{this he tried} \]
\[\text{he tried,} \]
\[\text{wahra:núryáhng?:} \]
\[\text{he struggled} \]
\[\text{he struggled.’} \]

Nominals also appear to the right of the nuclear clause to reiterate given or accessible information, as in the last line in (25). Here the noun ‘corn’ confirms the identity of the material that had been introduced a few lines earlier.

(25) Tuscarora right-detached nominal for reidentification (Elton Greene p.c.)
\[\text{unŋha? unŋheh,} \]
\[\text{then corn} \]
\[\text{Then corn,} \]
ha? ρkwaεh'we yukwan'phawph,
the real person we corn have
Indian corn,
yahwaʔkkʔnaʔ :tiʔhaʔʔthuh.
I poured it in there there
I would pour in...
U:ŋa waʔkuturá:œʔ,
then I washed (it)
Then I would wash it,
haεntikə un'haeh.
that corn
that corn.'

In addition to these features shared with the Siouan and Caddoan languages, and thus presumably reconstructible for their common parent, the Iroquoian languages also share some of the innovations seen in Caddoan. In particular, the use of noun incorporation has been extended to serve discourse functions. As in Caddo, an incorporated noun in one intonation unit can imply an entity that is more fully described in the next. An example can be seen in the Tuscarora passage in (26). Land-discovering is presented as a single concept in the first line, then this particular land is more fully described in the next.

(26) Tuscarora presentative incorporation (Elton Greene p.c.)
Waktiáehnakaʔ?,
we two land discovered
'We discovered land,
ha? thawær ru tkáehnanaʔ:reʔ.
the most so it land precious is
the best land.'

Incorporation is also used pervasively in Tuscarora, as in Caddo, to background accessible information. When a Tuscarora head man first asked his people to gather stones for a sacrifice, an independent noun was used to direct attention to the stones, a new entity. When the people carried out his request, the now familiar stones were represented by an incorporated noun root.

(27) Tuscarora incorporation for backgroundering (Elton Greene p.c.)
θtráhtšεrε utšíhраeh.
you gather stone
'Gather stones!'
Wά:kayeqθshrahráhtšεrε ťhaulng.
they stone gathered that
'So they gathered stones.'

Despite these shared features, word orders in the Iroquoian languages differ strikingly from those in both the Siouan and Caddoan languages. There is little basis for positing a basic SOV order at all. As in the other languages, clauses with both subject and object nominals are rare; in a 300-clause narrative sample, only 3 clauses (1%) contain both. Of these three, one shows SOV order, 1 SVO, and 1 OVS. More importantly, of all clauses containing at least one nominal constituent, over two thirds, 67.7%, departed from SOV order. Relative orders within subject-verb, object-verb, and complement-verb pairs in the sample can be seen in Table 4.

Similar text counts in other Iroquoian languages indicate that SOV is not a basic order in Iroquoian at all. In counts of a comparable Mohawk sample, 50.3% of clauses with nominal constituents deviated from SOV order, in Onondaga 70%, in Cayuga 62.4%, and in Seneca 53.6%.

Word order in Iroquoian languages is in fact not syntactically based at all. Elements are ordered according to their relative importance within the dis-

<table>
<thead>
<tr>
<th>Table 4. Tuscarora Word Order</th>
<th>Clauses</th>
<th>% of clauses with S/O/C</th>
<th>% of all clauses</th>
</tr>
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<tbody>
<tr>
<td>Subjects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV</td>
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<td>58.8%</td>
<td>10.9%</td>
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<tr>
<td>Non-SOV</td>
<td>90</td>
<td>67.7%</td>
<td>30.0%</td>
</tr>
</tbody>
</table>
course, rather than according to grammatical relations like subject and object or lexical categories like noun and verb. Constituents appear in decreasing order of newsworthiness (Mithun 1987).

Various features can render a constituent newsworthy. New participants are typically more newsworthy than old. If not introduced in a separate intonation unit, new entities are usually identified early in the clause, and familiar or accessible ones reidentified late. The difference can be seen in the Tuscarora passage in (28). A group of starving people had been walking for a long time on the ice. When they finally discovered land, the head man told them to prepare a sacrifice. The head man, who had not been mentioned before, is introduced with a nominal at the beginning of the phrase, before the verb.

(28) Tuscarora new subject (Elton Greene p.c.)

S V
the head man he said
the headman said, " . . . ."

Once the sacrifice was made, the speaker asked how the headman had known to do this. Here the headman, now an established participant, is represented by a nominal at the end of the phrase, after the verb.

(29) Tuscarora accessible subject (Elton Greene p.c.)

V S
where he has learned from that head man
‘Where had he learned it, that headman?’

Object nominals show similar patterns. The speaker began his recipe for cornbread with the passage in (30). The noun for ashes, a new object, precedes the verb.

(30) Tuscarora new object (Elton Greene p.c.)

Tyahrætsjgh kph:th,
first customarily
‘First, I usually

Morphological and prosodic forces shaping word order

O V
uhqæhæraeh .. wa?kkqæhæ?.
ash I went after
would go after ashes.’

He would then put the kettle on. When it started to boil, he would add the ashes. This time the noun for ashes, now an established referent, appears late, after the verb.

(31) Tuscarora accessible object (Elton Greene p.c.)

V O
then customarily there I poured there the ash
‘Then I would pour the ashes in there.’

Newsworthiness is not confined to contrast and newness. A historical account opened with the sentence in (32). Neither the Americans nor the British had been mentioned previously, but the purpose of this introductory sentence was to situate the tale during wartime. The predicate ‘they fight’ thus precedes the subject although both the predicate and subject represent new information.

(32) Tuscarora newsworthiness: VS (Elton Greene p.c.)

V
long ago this so it carries this they fight
‘One time long ago

s
kyen:k qahsph:ka?:
this Bostonians
the Americans

tisq?: kurahku:.
and British
and the British were at war.’

Similar patterns can be seen with object nominals. A fish peddler had been driving along when he saw a fox. He stopped his wagon to pick it up. He then hopped back in and drove on. The horse had not been mentioned before,
although driving had. Still, the object nominal ‘horse’ follows the verb ‘drive’. What was newsworthy here was not the horse, but the resumption of driving.

(33) Tuscarora newsworthiness: VO (Elton Greene p.c.)
V O
now then again he drove the horse
‘Now then he drove his horse again.’

The pattern of newsworthiness-first is not limited to relations between verbs and core arguments, but applies to all constituents. The crucial point of (34) was that the Flying Head was behind the woman, so the locative appears early.

(34) Tuscarora LV (Elton Greene p.c.)
LOC V
œ?tænhnak wahrabnañihr.
behind her he stood
‘He stood behind her.’

The main point of (35) was the fire, which was to provide the woman with a weapon against the Flying Head, so the verb appears early, and the locative later.

(35) Tuscarora VL (Elton Greene p.c.)
V LOC
Yú:nqæs uhç:nq?
it burns in front
‘A fire was burning before her.’

The newsworthiness peak is systematically the first major constituent of the clause, whatever its grammatical role, apart from various discourse particles that serve to qualify, link clauses or provide other orienting material.

What could have prompted the shift from the basic SOV order of Proto-Siouan-Caddoan-Iroquoian to the completely pragmatically based ordering of Iroquoian? Two morphological developments are pertinent. One is the high productivity of noun incorporation, shared with Caddoan. (This productivity has since faded somewhat in Cherokee, but ample traces remain in the lexicon of its former presence.) The result is a reduction in the number of separate major constituents per clause. The number of occasions on which word order might be necessary to disambiguate grammatical relations is very low. Only 1% of the clauses in the Caddo and Tuscarora samples contain both subject and object nominals. Ambiguity might occur with only a fraction of the 1%, those transitive clauses in which the animacy of the arguments would not be a clue to their roles.

A second grammatical innovation in Iroquoian, not shared with Caddoan, probably served as a final stimulus to purely pragmatic ordering. Neither Siouan nor Caddoan contains third person nominal prefixes. The Iroquoian languages have developed full sets of third person prefixes. A cognate of the defocused Caddo pronoun *yi- retains the indefinite meaning ‘someone’ in Iroquoian, but is now used for women as well. The pronominal paradigm has been fully filled out with the development of additional pronouns for the other third persons. The result is that all Iroquoian verbs contain obligatory pronominal prefixes referring to their agents and/or patients, whatever their person. Some of the Tuscarora prefixes can be seen in (36).

(36) Tuscarora pronominal prefixes: all core arguments specified
k-ara:níru? ‘I’m running’ wak-níhwa:ks ‘I’m sick’
s-ara:níru? ‘you’re running’ òu-níhwa:ks ‘you’re sick’
ra-ara:níru? ‘he’s running’ ru-níhwa:ks ‘he’s sick’
ya-ara:níru? ‘she’s running’ yaku-níhwa:ks ‘she’s sick’
w-ara:níru? ‘it’s running’ yu-níhwa:ks ‘it’s sick’
khæ:t-ká:næ? ‘I’m chasing him/her’ rakæ:tká:næ ‘he’s chasing me’

Singular, dual, and plural number are also distinguished in all persons.

The pronominal prefixes appear in every verb whether additional nominals are present in the clause or not. Grammatical roles are thus always specified within the verbal morphology, as relations between the pronominal prefixes and verb stem, rather than between independent nominals and the verb. In a sense the relative order of predicates and arguments is an even more rigid SOV in Iroquoian than in Siouan, but in Iroquoian the order is among morphemes rather than words.

The foundation of modern Iroquoian word order was already present in the Proto-Siouan-Caddoan-Iroquoian system. In the parent language, nominals could be positioned to the left of the clause for added salience or to the right of the clause for reduced salience, but these structures were highly
marked. In Iroquoian, an increase in the productivity of noun incorporation and the completion of the pronominal paradigm freed word order from its role in distinguishing grammatical relations. The pragmatic force of left-detachment for added salience and right-detachment for reduced salience of nominals was generalized to a general ordering principle. Now elements are ordered entirely according to their relative importance to the discourse, regardless of their syntactic roles, in descending order of newsworthiness.

4. The intonation factor

The origin of the pragmatic word orders of the Dhegiha Siouan, Caddoan, and Iroquoian languages can thus be traced to left- and right-detachment constructions in the common parent language that became more frequent, and correspondingly less marked, with various morphological developments in the languages. The newsworthily-first principle is still not entirely explained, however. Why should left-detachment be utilized for focus, highly important information, and right-detachment for reiteration of already known information? If it is cognitively more natural to move from the known to the unknown, then all of this pragmatic ordering, from the left-and right-detachment of Siouan to the purely newsworthily-first ordering of Iroquoian, seems not merely unmotivated, but counterintuitive.

Of course speakers of Iroquoian languages speak as coherently as speakers of other languages. Scenes are typically set before sequences of events are detailed. This order need not be reflected among the core arguments of every clause. Appropriate orientation can be accomplished with the ordering of larger units: adverbial phrases, clauses, and sentences. The relative order of core arguments and verbs within clauses in Iroquoian does differ in an important way from that in many others, including Proto-Siouan-Caddoan-Iroquoian. With the grammaticization of pronominal affixes, predicates and core arguments are processed simultaneously within a single word, not sequentially.

The ordering of constituents from high to low newsworthiness may stem from a quite different kind of motivation, one rooted in prosody. We know that speakers of all languages identify intonation units, the aural counterparts of phrases and sentences set off by commas and periods. In most languages, the unmarked contour of the intonation unit involves descending amplitude and pitch among other things (Pierrehumbert 1980, Cruttenden 1986). Cruttenden notes that this phenomenon is physiologically motivated:

The explanation for declination has often been related to the decline in transglottal pressure as the speaker uses up the breath in his lungs. A more recent explanation suggests that an upward change of pitch involves a physical adjustment which is more difficult than a downward change of pitch, the evidence being that a rise takes longer to achieve than a fall of a similar interval in fundamental frequency. (1986:168)

Speakers learn to disregard the decrease in pitch when identifying contrastive tones in tone languages, but remain attuned to falling pitch and amplitude contours when delineating aural phrases, sentences, and paragraphs.

In the polysynthetic languages discussed here, particularly those of the Caddoan and Iroquoian families, such intonation contours are particularly easy to identify. Intonation units typically consist of only one or two major words, plus particles. The location of tone and stress is determined for the most part by regular phonological rules whose domain is the word. Individual morphemes within words are rarely if ever given contrastive stress for pragmatic purposes. Prosodic contours of Lakhota, Caddo, and Tuscarora examples discussed here can be seen in Figures 1-12. All were taken from recordings of spontaneous connected speech. The figures were produced with Cecil, a device for the Computerized Extraction of Components of Intonation in Language produced by the Summer Institute of Linguistics. The upper graph indicates amplitude (essentially volume), the lower fundamental frequency (essentially pitch). The most prominent syllables, stressed in the case of Lakhota and Tuscarora, high toned in the case of Caddo, are indicated by numbers above those syllables. Arrows have been inserted to locate these syllables.

Figures 1 and 2 show typical prosodic contours in Lakhota. There is a general fall in both volume and pitch. Within the single intonation unit in Figure 1 ‘They’re staying in a church’, the pitch of successive stressed syllables is 127 703 87-84Hz. Successive phrases in a sentence show a general fall both within each phrases and over the series. Each intonation unit begins slightly lower than the beginning of the last, and ends lower than the last, as in Figure 2, ‘Her husband died, so in honor of that, we put on a powwow’: 135 107, 120 110, 97 87Hz. Similar contours can be seen in the Caddo example in Figure 3, ‘He was unable to get over the log’ (254 248 243, 238Hz) and the Tuscarora example in Figure 4, ‘Now then one time, three of them went out hunting’ (127 111 108 93 89, 95 88 86Hz).
Figure 1. Prosodic fall in Lakota

Onde'ekiya
"They're staying in a church."

Figure 2. Prosodic fall over multiple intonation units in Lakota

Higanalkëki
"We put on a powwow in honor of her late husband."

Figure 3. Prosodic fall in Caddo

kayayidiyannâdhu?
He was unable

tadah/ni-way
to get over the log.

Figure 4. Prosodic fall in Tuscarora

U:ng had/sng 3/i/ly sychvikâet kyaami:k;p, škay tikuyd:kâ waxhay/hurâ:tha?
Now then one, it happen'd this three of them they went hunting
'Now then one time, three of them went out hunting.'
Mak'sitomniya oyate eya di? Piyiah k'olâwê'inyapi eya hipi naká all over the world people some come from home our friends some cometo 'People came from all over. Some friends from home came too.'

Figure 5. Left-detached subject in Lakota

coh wadu' ukkih bah?nah kah?ëw?isidakáns do sa? Mr. Wildcat really it.is.said is stooping over 'Mr. Wildcat, it said, was stooping over.'

Figure 6. S-V in Caddo

Bah?nah dhwissiyah. he arrived kâhbinak'a? where house was nd cahuwâ'. that Mr. Wildcat

Figure 7. V-S in Caddo

Hâkâkkâdâwâ'. was sitting kâk'ây crow 'There was a crow sitting on a branch.'

Figure 8. Presentative V-S in Caddo
122 93
Ha? uhäng? ruʔn̩ʔph.
the head man
'The head man said...'  

Figure 9. S-V in Tuscarora

109-120 121 162 128 125 113
wuhr̊ʔhq̊tj kwa:t ihkw̃t̃g̃w̃?j. hantc?q: uhg̊ʔn̩ʔ ruʔn̩ʔph?
he said where he got it from that head man
'Where did he get it from, that head man?'  

Figure 10. V-S in Tuscarora

118
w̃ʔs̃[..]h̃ʔar̃ ahe
ash
'I go after ashes.'  

Figure 11. O-V in Tuscarora

101-104
woʔkk̃ʔah̃eʔ.
goafer
'They will wake up the soldiers.'

Figure 12. V-O in Tuscarora
The widespread development of left-detached and right-detached constructions, with similar functions across a variety of languages may be motivated by such prosodic contours. Left-detached nominals, those conveying important information such as a significant focus of contrast or shift in topic, appear at the most prominent portions of prosodic units, at the points of highest volume and pitch. Right-detached nominals, those reconfirming already familiar information, appear at the least prominent portions of prosodic units. Presumably this pattern characterized the left-detached focus constructions and right-detached antitopic constructions of Proto-Siouan, as it does in the modern languages. (See for example Lambrecht 1987 on French.) The prosodic contour of left-detachment in Lakhota can be seen in Figure 5. This sentence followed a statement that a lot of people had come to the powwow. The new information supplied by the left-detached element ‘from all over’ is at the prosodic peak.

The increased frequency of left- and right-detached nominal constructions in Caddoan resulted in a more frequent correspondence between pragmatic importance and prosodic salience. A contrast in the prosodic salience of preverbal and postverbal subjects in Caddo can be seen by comparing Figures 6 and 7. The clause in Figure 6, ‘Mr. Wildcat was stooping over . . .’, introduced a new protagonist. The stressed syllable of the subject ‘Mr. Wildcat’ is the most prominent of the clause (227 192 187 205-191 198-196Hz). The sentence in Figure 7, ‘He arrived at the house, that Mr. Wildcat’, appeared later in the same tale, when Mr. Wildcat was a well-established figure. Here the same nominal, now a right-detached subject, simply reconfirms his identity and has the least prosodic prominence in the clause (262 236 222 142Hz).

Volume and pitch need not fade at the end of an intonation unit. The special VS presentative construction in Caddo is characterized by a distinctive amplitude contour in which the introduced argument is nearly as loud as the preceding verb. The VS clause in Figure 8, ‘There was a crow sitting on a branch’ introduced an important new character. Unlike the VS clause in Figure 7, this shows little fall. The noun ‘crow’ was pronounced in a separate intonation unit, as loudly as the verb ‘sit’, and its high-toned syllable was as high as that of the preceding verb (250 232, 232Hz).

Figures 9 and 10 contrast similar pairs in Tuscarora. In Figure 9, the initial subject of ‘The head man said’, introduces a new topic and appears at the prosodic peak (122 93, 109-120Hz). In Figure 10, the same subject provides a simple reiteration of a continuing topic and appears finally, with minimal prosodic salience (121 162 182 125 113Hz). Figures 11 and 12 show a similar contrast between Tuscarora OV and VO structures. The OV clause in Figure 11, ‘I go after ashes’, opened the description of how corn soup is made. The noun ‘ashes’ is the most important element of the clause, so it appears initially, at the prosodic peak (118 101-104Hz). In the VO clause in Figure 12, ‘They will wake up the soldiers’, the most newsworthy element is the verb ‘wake up’. The soldiers were already familiar at this point. Accordingly, the verb appears at the prosodic peak, followed by the less prosodically salient, already familiar, object (89 75Hz).

The generalization of pragmatic ordering to all constituents in Iroquoian has resulted in the best fit of all between the flow of information over clauses and their prosodic contours. The most newsworthy elements are generally uttered with the highest volume and pitch, followed by successively less important elements uttered with decreasing prosodic salience.

5. Conclusion

A variety of factors can shape word ordering strategies. One is of course a general human cognitive propensity to proceed from the known or given to the unknown or new, which may account for the theme–rhemе pragmatic structure observed in so many languages, and ultimately the high frequency of basic subject–object syntactic order.

Yet neither theme–rhemе nor basic subject–object order is universal. In a number of languages, constituents systematically appear in decreasing order of newsworthiness. These languages also fail to show basic subject–object order. In fact, they show no basic syntactic word order at all; order is entirely pragmatically based. The existence of these languages indicates that a cognitive preference for given–new order is not the only factor shaping word order. Here, the effects of two other kinds of factors have been illustrated: morphological and prosodic structure.

A number of morphological innovations were described in Siouan, Caddoan, and Iroquoian languages. They are diverse, including the grammaticization of nominal case (Omaha), increased productivity of noun incorporation (Caddo, Tuscarora), the grammaticization of a defocused pronominal category (Caddo), and the grammaticization of complete sets of third person pronominal prefixes (Tuscarora). Yet they have affected word order in
similar ways, reducing its syntactic role in distinguishing grammatical relations. Order has become more fluid, exploited more often for pragmatic purposes.

It is possible that the pragmatic ordering patterns themselves were shaped by a second kind of factor: natural prosodic tendencies. In the parent language, nominals could be placed to the left of the nuclear clause for increased salience, or to the right for reduced salience. Such constructions were relatively rare, as they are in many of the daughter languages, but they were iconic. The leftmost position in the sentence is intonationally the most prominent, normally the location of highest volume and pitch. The rightmost position is intonationally the least prominent, the location of lowest volume and pitch. As the morphological innovations in various branches of the family freed word order from its syntactic function, it was these constructions that were increasingly exploited for pragmatic purposes. Ordering strategies in these languages now reflect an ever better fit between form (the intonation contour) and function (pragmatic importance).

References


WORD ORDER IN DISCOURSE

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Word Order in Discourse
Preface

The present volume constitutes a selection from the more than fifty papers presented at a symposium entitled Word Order in Discourse held at the University of Wisconsin-Milwaukee, April 12-14, 1991. The symposium was the twentieth in a series of linguistics symposia held at UWM and was chaired by Edith Moravcsik and me.

The topic of this symposium grew out of an idea I had for a conference on verb-initial languages and the ways in which these languages exploit word order variation in discourse. Somewhere along the way, the scope of the symposium broadened to include word order variation in discourse in all languages. The topic proved to be a popular one, since the fifty or so papers presented at the symposium were selected from among the more than one hundred twenty abstracts we received after the symposium was announced.

The UWM Linguistics Symposia are community endeavors and would not be possible without the untiring assistance of dozens of people. I would like to take this opportunity to thank the following who, together with Edith and me, served on the organizing committee: Michael Darnell, Fred Eckman, Gregory Iverson, and Patricia Kilroe. The following campus units offered financial support: the Center for Twentieth Century Studies, the College of Letters and Science, the Department of English and Comparative Literature, the Department of German, the Department of Linguistics, the Department of Philosophy, the Department of Slavic Languages, the Department of Spanish and Portuguese, the Department of Speech Pathology and Audiology, the Division of Outreach and Continuing Education, the Graduate School, the Intensive English as a Second Language Program, the Language Resource Center, the Master of Arts in Foreign Language and Literature Program, the School of Allied Health Professions, and the School of Education. To all these units, I would like to express my sincere appreciation for their support, which, for many of these units, has continued over many years.

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